

# An American Renaissance

## How It Is Happening, How to Nudge It Along, Why We Should Care

The context for this essay is my modest assertion that the beginning of an American manufacturing renaissance is hiding in plain sight. This renaissance will dominate the next few decades, starting in about 2014. It will be built on a foundation that no one could predict and no leader or political ideology has created. It will be driven by deep trends, both domestic and global, and we cannot stop it. We can slow it down if we are stupid; but if we are smart, this renaissance could enable us to diminish dramatically many of the crises we now see in American life. It will both require and open the way for a new politics.

This essay does not represent the whole of my argument. I've been pondering this assertion, which embodies a completely uncharacteristic optimism on my part, for the last two years, during which time, as a senior fellow at the Roosevelt Institute, I've been holding a seminar series called *The Next American Economy*. I'll describe the full argument briefly, but will focus here primarily on what I describe as the emergence of a new business system.

I begin with brief thoughts regarding current conventional wisdom about America and the American economy, and then turn to an alternate view that I've called an American renaissance. I then discuss the new business system referred to above, and conclude with a discussion of opportunities and politics. It won't surprise anyone that my views on American politics are closely aligned with Pogo's infamous statement: "We have met the enemy and he is us."

I want to give fair warning that this is an essay and not a scholarly paper. I'm not trying to prove anything but instead offering pure conjecture, and at the moment I have precious little data with which to back it up. I am fully aware that I am violating a fundamental precept: never make predictions, particularly about the future.

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*Bowman Cutter is a Senior Fellow and Director of the Next American Economy Project at the Roosevelt Institute.*

CONVENTIONAL WISDOM

We currently are in the throes of another spasm of American declinism. We as a nation are old, perhaps “mature,” definitely tired. Economic growth will continue to be slow as the rest of the world—read “China”—passes us. Americans don’t know how to make things anymore, as we have lost our manufacturing base. We aren’t creating good jobs anymore, as they are being outsourced to foreigners, who in turn are buying up America. Free trade has destroyed us, and the Great Recession has created a lost generation. The middle class has been hollowed out, we are creating a permanent underclass, and labor market polarization is creating an economy characterized by a few elites and a large number of nearly serf-like workers. Meanwhile, our educational system has failed miserably and mass unemployment in the technology fields is around the corner . . . this tale of decline can be spun out indefinitely.

Both wings of American politics believe in America’s economic decline, and each blames it on the other. The right attributes this decline to a turning away from free markets and points to government as the real menace. The left ascribes the inevitable decline to unbridled capitalism and business, insufficient government, and unprincipled rent-taking by the elite 1 percent.

To be clear, both the horrors listed above and these two versions of conventional wisdom contain some important truths. The right’s perception that America’s renaissance will begin within our relatively free markets is correct. The left’s perceptions that economic inequality and declining opportunities for economic mobility are major problems in America and that government has an essential role to play in the American renaissance are also mostly correct. But in the main, both versions of conventional wisdom are more a reflection of our society’s penchant for ideological polarization than they are interesting or well-thought-out social criticisms and explanations. However, more relevant for this essay is the high probability that the predictions embodied in the core belief of an impending American decline caused largely by the sins of the other guy are wrong.

Economies don’t just march along forever at some preordained rate of growth, they have rhythms. Big economies respond over decades or even generations to big impulses, such as revolutions in the cost of power or transportation or information, or in the applications of these big cost shifts. These impulses spread throughout an economy, driving higher rates of growth, and then as they become pervasive they lose their force. America has experienced such impulses, or waves, at least five times in the last two hundred years.

My hypothesis is that theories of decline emerge as each wave ebbs. So, unless you are prepared to believe that the physical universe has called an end to big change, theories of decline are most likely to emerge at about the time the next growth impulse is about to begin. I believe the next impulse is beginning now, and that we are more likely to see a longish phase of American dynamism than we are to see a decline. And if we’re smart—not something it is safe to assume—we can

use this dynamism to solve or at least improve many of the problems identified by current conventional wisdom.

THE “SEEDS” OF THE NEXT AMERICAN RENAISSANCE:  
NECESSARY CONDITIONS

America’s economic rebirth has already begun, but it will begin to become fully apparent in 2014. It will stem from four developments, or seeds, two of them pro-saic and ordinary, two genuinely new. Three of the four are as follows.

The first and easiest seed is that inertia and trends will turn in our favor. By 2014, the 2008 financial debacle will be six years in the past and the Great Recession will be in its final recovery phase. Uncertainty will decline as American households pay down a great deal of their debt, as many nonfinancial corporations already have, and American banks will be far less leveraged. Equity markets will have regressed to below the mean and will have plenty of room to run. Debt markets will be ready to supply credit and rates will remain low. In terms of costs and productivity, the American economy will be the most competitively advantaged developed economy in the world. Inflation will be low. Households will remain appropriately cautious but will up their spending incrementally. Employment will be in a slow, steady recovery. Obviously all of this is somewhat contingent on investment demand, on Europe, on China, on the avoidance of an American debt crisis. But the probability of a long period—say five to ten years—when simple inertia works in our favor is very high. This puts a floor on our next decade’s growth rate of 1.5 percent to 2 percent.

The second seed is that housing and construction will recover. Between 2002 and 2007, America’s housing stock was vastly overbuilt by about six million units. That story has been told and retold: construction jobs were about one-third of all new job growth between 2002 and 2008 and the construction sector approximately doubled. This means that much of the economic growth of that period was illusory, built on wishful thinking, poor and fraudulent lending, hyped securitization, and unrealistically low interest rates. The consequences were inevitable: a long period of construction collapse, failed companies, government confusion over the mortgage debacle, the inevitable discovery of fraud, rent-taking, stupid bank management, and general financial hanky panky—and high unemployment among construction workers, mostly men.

That period is now ending. Housing is more affordable, with prices down to 2003-2004 levels from preposterous and artificial highs. The overbuilt housing stock is now much closer to our actual requirements; it also has depreciated and requires substantial reinvestment, so we are heading into at least a half decade of solid construction growth. This, in turn, will raise our economic growth floor to 1.75 percent to 2.25 percent.

The third seed is that the new American energy revolution will drive us for a decade. No one thought 10 years ago that the words “energy,” “revolution,” and “American” would ever be combined in one sentence. We were stuck in our

dependence on foreign oil produced in dangerous places with real energy prices apparently rising over the very long term. This scenario was destined to make energy a central national security issue, a driver of current account deficits, a constant inflation threat, and a risk increaser and growth reducer.

Because the U.S. imports half its oil, every oil price increase is a tax on the American economy. Enter the Barnett Shale. In the late 1990s, independent oil operator George Mitchell began to produce significant amounts of natural gas from a well-known but almost completely unexploited source—shale—with an almost completely new combination of technologies. From these beginnings, shale gas production has grown to the point that it will probably comprise 30 percent (and rising) of U.S. gas production in 2012. This growth has already completely altered—more specifically halved—the long-term price picture for natural gas.

And then came “tight” (shale) oil. It was apparent to anyone in the oil and gas business that the same technologies that had just revolutionized American natural gas production could also be applied to similar shale resources to produce oil. By the late 2000s, shale oil began to be produced in meaningful amounts. Shale oil production is currently forecast to grow to 3.5 million barrels per day in the next five years and at that point will become a significant proportion of total U.S. oil production.

This completely unanticipated energy revolution resulted from a combination of two distinctly American economic traits: entrepreneurship and innovation. Domestic shale gas and oil were developed by small entrepreneurial companies as big oil was investing mostly in tough-to-reach traditional resources in dangerous places. These entrepreneurial companies were financed primarily by venture capital and they used new technology, which in itself is a unique combination of information and technological (drilling) innovation—seismic imaging, horizontal drilling, and hydraulic fracturing. We will see this general combination of information and mechanical technologies over and over in the future.

The consequences of this energy revolution will be profound. The most pervasive input into the U.S. economy—energy—has just become less risky, less costly, and abundant. The U.S. may in fact become a substantial exporter of natural gas. Domestic shale oil will replace a large percentage, perhaps as much as 20 percent, of current oil imports, and new oil and gas production could create two million new jobs. The current account deficit will decline, as will America’s use of coal. With stable energy prices and the cheapest electricity of any large country in the world, the U.S. will take the first major steps toward becoming a low-cost global production platform (see following section). The combined impact of these changes should raise our growth floor from 2.25 percent to 2.75 percent.

#### THE FOURTH SEED OF THE EMERGING AMERICAN RENAISSANCE: A NEW BUSINESS SYSTEM TAKES OFF IN AMERICA

We are on the cusp of a manufacturing revolution that will be even more consequential than the energy revolution I’ve just discussed. It will bear little resem-

blance to manufacturing as we have known it and therefore will not be taken seriously by politicians, policymakers, economists, or big business until it is well on its way. It will not by itself solve our employment or labor market problems—the new manufacturing will in fact create little employment—but it will revolutionize employment and the labor markets. It also will change the structure of our economy, drive investment for decades, and revitalize American business.

Because of the breadth of this new manufacturing wave, it is better to view it as the new American business system, a new business and economic paradigm. From the late 19<sup>th</sup> century through the first 60 years of the 20<sup>th</sup> century, the “new” business system was the factory system—the adaptation to lower costs for organization, plant design, product manufacturing, distribution, and logistics—and all that came along with that system: a new education system, a multidecade political response to a new class, the advent of the middle-class worker, the growth of unions, and the welfare state. Much investment in this era went toward building the right platform for the factory system.

The same thing is happening again today. The combination of enormous increases in computing power along with the rise of the Internet and the emergence of fundamentally new technologies—together representing changes in the cost and factors of production every bit as substantial as and even more pervasive than the industrial revolution of the 19<sup>th</sup> century—are leading to the next new American business system—one with a vastly different core structure, a need for a different platform, and, in its wake, entirely new political and social structures.

Five key aspects of this new business system are as follows:

### **New Technologies and Declining Labor Costs**

The central development of this new business system is that labor costs in manufacturing—all manufacturing—are moving down toward zero. Driven by technological change that is evolving much more rapidly than is broadly understood, technologies such as 3-D printing, advanced robotics, and very high-speed computing, direct production labor is rapidly becoming an insignificant cost factor in manufacturing.<sup>1</sup> If a task can be routinized into a list and a set of procedures—which is essentially what has happened since the advent of the production line—then it will be. At the same time, the direct economies of scale in manufacturing are diminishing.

Paradoxically, these developments are almost entirely good things for America. Why? First, because we’ve already lost most of our manufacturing labor, this trend won’t hurt us. Today, after an almost constant decline over 40 years from a peak of about 30 percent, manufacturing employees are only about 9 percent of the total American workforce. Furthermore, most if not all of these workers are in high capital investment, high value added jobs that require advanced, specific skills, and thus are not endangered. I suspect that we are now at the nadir of the downward trend in manufacturing employment.

Second, this means that the global comparative advantage in manufacturing is about to flip completely—from economies such as China or India with their huge surpluses of very low-cost labor, to economies more like America's that have a far better business environment, traditions of innovation and startups, tolerance for risk taking, and an enthusiastic attitude toward small and midsize businesses (even though our politics are dominated by large companies).

Well, so what? The likely consequences of these huge shifts will be the following. The manufacturing in America of almost any product will be profitable again. Competition will not be largely based on the costs of direct labor. The availability of “independent capital” will be critical. Small and midsize companies will become much more important within the ecology of American business. The intensity of change in the new manufacturing will be much greater—there will be more startups, and more failures. Manufacturing will increase as a percentage of GDP, but not as a percentage of total employment.

### **The Rise of Mass Specialization and New Kinds of Companies**

Note that I am not saying we are going to see a return of the 1950s. This new manufacturing will be much different from any manufacturing system we are used to. What we will see is the reversal of a 100-year process of aggregation. Over a long period of time, manufacturing came to be not simply the making of things but also a large set of associated functions—R&D, design, marketing, sales, logistics, information systems, procurement and supply-chain management, and finance—all optimized around a system that functioned best when it had large production runs of essentially commodity products. Many, many “manufacturing workers” never built anything, were never even on a production line. All of these elements came to be clumped together in command and control systems, not because they naturally belonged together but because it was the most practical, cost-efficient way to manage manufacturing.

What we are now seeing, and will see more of, is a process of disaggregation. Many, probably most of these functions will separate from each other and the ecology of manufacturing will look very different. At the core of this ecology will be high-tech commodity manufacturers, with relatively few employees in big or small plants, depending on the market, building the core product. Surrounding this manufacturer will be a complex of independent firms that adapt the core product and offer highly specialized versions to particular submarkets; independent design, logistics, marketing and sales, and supply-chain firms. The result of this new manufacturing complex will be mass specialization at a level that has never before been possible. And while the core manufacturer of any given product complex will employ fewer men and women than analogous businesses of the past, the overall manufacturing complex will employ at least as many and probably more.

So what makes these new complexes possible? The new manufacturing technology will significantly increase the flexibility of the production line, will diminish the cost of changeovers, and will lower the cost of manufacturing the core prod-

uct. These lower costs will allow the additional costs of specialization to be brought into the value chains.

Why are these new complexes inevitable? Competition. The competitive pressures of many small and midsize businesses will simultaneously accelerate the manufacturing disaggregation already occurring and will create opportunities to develop very specific submarket niches. Core manufacturers will discover quickly that they cannot maintain the breadth of functions they now attempt to as they are out-performed by their more focused competitors, and the “specializers” will discover that the best opportunities lie in deep knowledge, not in breadth of coverage.

Will American consumers demand these highly specialized products? Of course. If there is a constant trend in consumption as nations and families become richer it is a move to higher value added products—whether that means higher basic quality, a closer fit to one’s precise desires, logistics exactly suited to one’s own schedule, or something else.

Will this new pattern look the same everywhere? Of course not. Obviously it will vary by products and markets. It will occur at different speeds. It will look different in different locations. But those differences aren’t relevant to the argument, as this process is already happening. For example, the U.S. auto industry now encompasses two very different models—the traditional American manufacturers that are as integrated and broad as they can possibly be, and the foresighted foreign companies—beginning with Nissan in Tennessee—that have begun life significantly less integrated and more disaggregated. The first model is declining and will continue to do so; the second will see even more radical disaggregation and become, even more than they already are, complexes of specialization.

Finally, if this new business system implies that there will be more jobs requiring specialized skills and few factory production line jobs, will American workers have the necessary skills? No, at least not right now. Our longstanding need for an education revolution may be the biggest barrier facing the evolution of America’s next business system.

### **Internet-Mediated Business Systems**

This new manufacturing system would eventually emerge under any circumstances, but it has been vastly accelerated by the emergence over the last (only!) 15 years of the Internet. Put simply, the Internet will render the large integrated company once made possible by command and control management inefficient, slow, and way too expensive. Companies will find it far easier, cheaper, and much more flexible to create linkages, partnerships, and joint ventures within specialized niches than to internalize those markets by mergers and acquisitions and then to manage them through command and control. Remember: Moore’s law states that the capability of information systems doubles every two years, and the capability of software doubles at an even more rapid rate. Cost is therefore constantly declining, whereas the cost of command and control will rise continually.

Moreover, the equity markets will enforce and reinforce the differences in these business systems. As we are already seeing, large companies that are integrated and diverse are now almost always valued less highly by the equity markets than the sum of their component parts. Why? Because they are less valuable. Today, diversification and command and control almost always reduce or destroy a company's value.

### **The Smart City as Platform**

Up to this point, my assertions have been as follows. Manufacturing will undergo a substantial change in both overall costs and in the kinds of costs it incurs. These changes will usher in an era of mass specialization and will lead to specialization complexes. Within this emerging business system, highly focused small and mid-size companies will be the dominant form of organization rather than the mega-size diversified company of today. Note, however, that "small" and "midsize" are relative terms; in an economy of our size growing at a reasonably rapid rate, there still will be plenty of very big companies.

Among the aspects of business that are less often recognized or stressed is the fact that a good deal of knowledge crucial to the functioning of any business is informal and uncodified, and exists largely in the minds of workers and in the processes and cultures of their companies. And while this is true of individual companies, it is even truer of groups of companies within the same value chains or that compete with each other—a condition that will be an order of magnitude more true of the specialization complexes that I am arguing will characterize the business system of the future. To give a simple example, the relationship between a manufacturer and a crucial component supplier is almost always characterized by an intensive flow of information going both ways, and most of this information is never written down.

These knowledge-intensive specialization complexes will work best when the players are near each other, when suppliers, designers, marketers, salespeople, logistics specialists, and information system designers can meet often and informally. These complexes will inevitably be located in metropolitan areas. Our cities, therefore, will provide the basic platforms for the country's emerging specialization complexes.

To some degree this always has been true, but it will be more true and more significant in the coming decades because, to an important degree, competitive advantage will stem fundamentally from the quality of the specialization complex and platform as a whole. The quality of local governance, infrastructure, and education will be crucial determinants of which firms have a competitive advantage.

### **The Impact of the New Business System**

This new system will not emerge overnight and it won't completely displace the old system. The American economy is a big arena in which you can find representatives of all previous business systems in play at any given time. Nevertheless, the



new system will emerge surprisingly rapidly and will become our economy's dominant form. It will not alter our growth rate immediately, but over time it will raise our economic growth floor to better than 3 percent annually. So at the end of this discussion of the seeds of what I've called the American economic renaissance, I come to the conclusion that we will see a long-term growth rate in America of more than 3 percent. This isn't as high as China's or India's rate, and there still will be a waxing and waning business cycle, but we are, I would argue, vastly better off if we are cycling at a 3 percent to 3.5 percent trend than a 2 percent trend.

CONCLUSION: "NUDGING" THE NEW BUSINESS SYSTEM ALONG; OR,  
SNATCHING DEFEAT FROM THE JAWS OF VICTORY

I will borrow Richard Thaler's term "nudging" to make a point. The developments I have described are deeply rooted in changes unrelated to any particular politics or policies, but they are going to happen anyway. Or, more pointedly, they are going to happen somewhere; it is not inevitable that we will see their highest and most competitive forms develop in the United States. If anyone were inclined to ask what's required to "nudge" them along in the U.S., I'd argue that we will need four big developments:

*A very high level of private-sector capital investment:* If manufacturing is to return to the U.S. to any significant degree, it will require high capital investment. Because the natural innovators or investors are likely to be small or midsize companies, the investment needed will not come from the mega-companies. Much of the investment will have to be independent capital, and a well-functioning venture capital and private equity system will be essential. The U.S. will have to become more of a savings and investment economy and less a consuming one.

*A very high level of infrastructure investment and of public-sector investment:* The platforms of the new business system I've presented will be organized to a great extent around public infrastructure. If that is deficient or failing, the platforms will be uncompetitive. In the U.S. national budget we currently are planning to invest substantially less and consume more. I've argued elsewhere that U.S. growth depends significantly on a much higher level of public-sector investment, which in turn requires slower growth in other areas, such as entitlement spending. But of all the national budget scenarios one can imagine, this is the least likely.

*An education revolution:* We cannot underestimate the scale of the changes the new business system I've described will require in our education system. Professors Claudia Goldin and Larry Katz's book *The Race Between Education and Technology* brilliantly describes the major and unprecedented high school revolution that occurred as our last business system was emerging. We need an equivalent revolution today that must be a combination of real-world and virtual learning; public, private, not-for-profit, and for-profit schools; and education that has both classroom and on-the-job elements. In particular cities it will have to include highly specific training for work in particular specialization complexes. It will have to be both self-directed and mentored. This revolution has barely begun.

*A higher rate of business creation:* We already know that virtually all job creation in America comes from new businesses. The mega-companies have been shedding jobs for a generation; a new business system focused on hyper-specialization will have to reach new highs in business creation and startups.

There are other issues, of course, but these are enough for now. If we can achieve a higher rate of new business startups, much more private and public investment, and the beginnings of an educational revolution, the new American business system will happen.

Finally, in addition to the four big developments presented above, there is one more critically necessary condition: a well-functioning political system. At precisely the moment when the United States and its economy face enormous opportunities, if also tremendously difficult choices and requirements, what passes for political debate is either endless personal attacks or ludicrously simplified arguments that represent the last vestiges of the systems we are moving away from. The fundamental fact is that both parties are wedded to ideologies that have little to offer in the way of solutions for the real problems we face and the real changes that will occur.

For me the real political question is, can we get out of our own way and avoid snatching defeat from the jaws of victory? We don't need much. A serious politics based on a mantra of equitable growth. An understanding that our natural direction is not back to the economy of the 1950s but toward a very different system. And, finally, a realization that this system requires a recombination of the mix of government and market that has always characterized our nation. Just as the next American renaissance will stem from forces deep within our current economy and society, so will the next and more productive politics be more than a simple derivative of current leftist or rightist ideology. Our politics will become more effective as we focus on what is emerging rather than on what used to be.

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1. I refer you to a wonderful ebook by MIT professors Erik Brynjolfsson and Andrew McAfee, *The Race Against the Machine*, and to a fascinating *New York Times* article by John Markoff, "Skilled Work without the Worker."