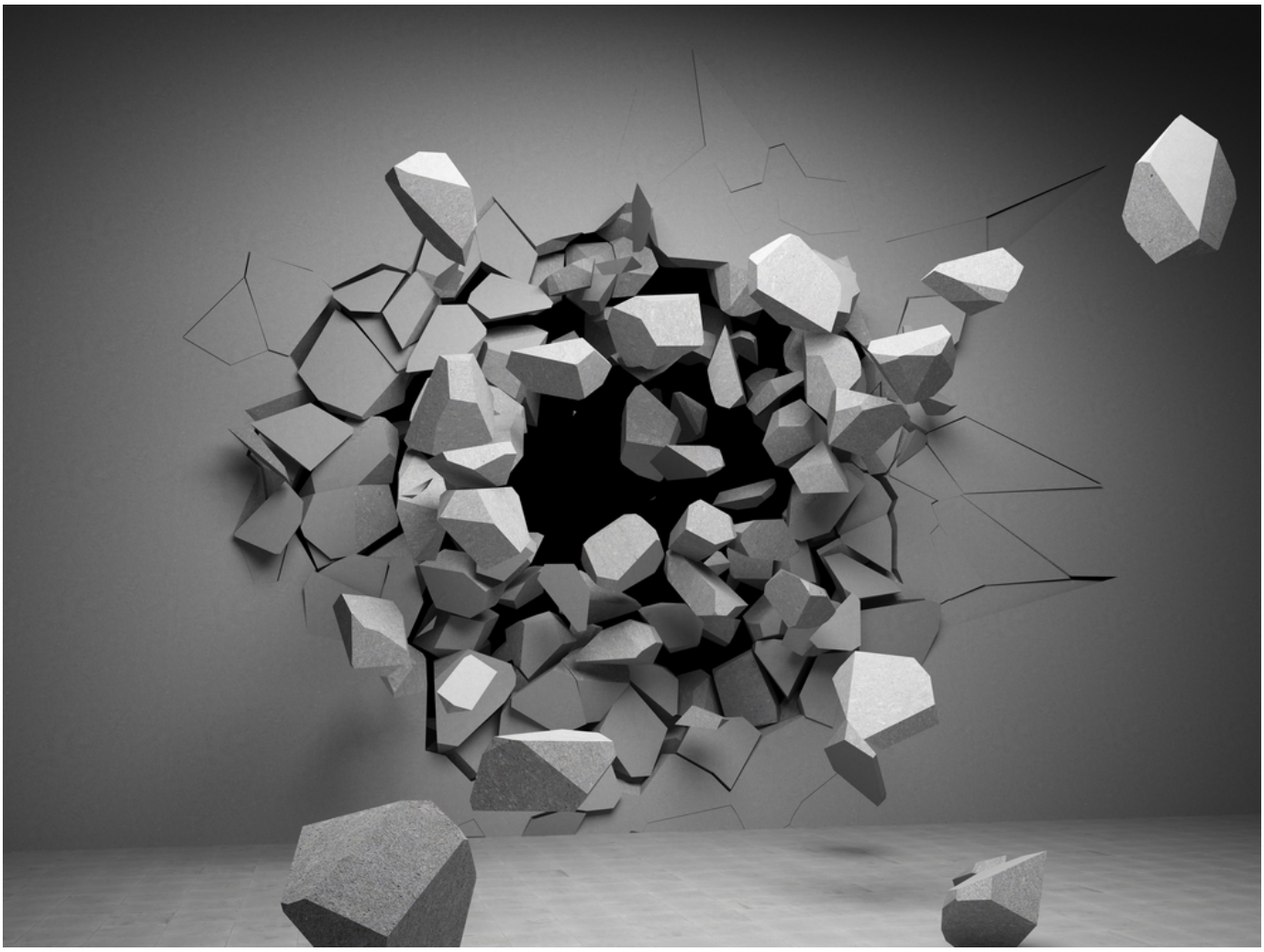
Creative Destruction

By Richard Alm and W. Michael Cox



Categories: Basic Concepts, Economic Regulation, International Economics, The Marketplace

By Richard Alm and W. Michael Cox,

JOSEPH SCHUMPETER (1883–1950) coined the seemingly paradoxical term "creative destruction," and generations of economists have adopted it as a shorthand description of the FREE MARKET's messy way of delivering progress. In *Capitalism, Socialism, and Democracy* (1942), the Austrian economist wrote:

> The opening up of new markets, foreign or domestic, and the organizational development from the craft shop to such concerns as U.S. Steel illustrate the same process of industrial mutation—if I may use that biological term—that incessantly revolutionizes the economic structure from within, incessantly destroying the old one, incessantly creating a new one. This process of Creative Destruction is the essential fact about capitalism. (p. 83)

Although Schumpeter devoted a mere six-page chapter to "The Process of Creative Destruction," in which he described CAPITALISM as "the perennial gale of creative destruction," it has become the centerpiece for modern thinking on how economies evolve.

Schumpeter and the economists who adopt his succinct summary of the free market's ceaseless churning echo capitalism's critics in acknowledging that lost jobs, ruined companies, and vanishing industries are inherent parts of the growth system. The saving grace comes from recognizing the good that comes from the turmoil. Over time, societies that allow creative destruction to operate grow more productive and richer; their citizens see the benefits of new and better products, shorter work weeks, better jobs, and higher living standards.

Herein lies the paradox of progress. A society cannot reap the rewards of creative destruction without accepting that some individuals might be worse off, not just in the short term, but perhaps forever. At the same time, attempts to soften the harsher aspects of creative destruction by trying to preserve jobs or protect industries will lead to stagnation and decline, short-circuiting the march of progress. Schumpeter's enduring term reminds us that capitalism's pain and gain are inextricably linked. The process of creating new industries does not go forward without sweeping away the preexisting order.

Transportation provides a dramatic, ongoing example of creative destruction at work. With the arrival of steam power in the nineteenth century, railroads swept across the United States, enlarging markets, reducing shipping costs, building new industries, and providing millions of new productive jobs. The internal combustion engine paved the way for the automobile early in the next century. The rush to put America on wheels spawned new enterprises; at one point in the 1920s, the industry had swelled to more than 260 car makers. The automobile's ripples spilled into oil, tourism, entertainment, retailing, and other industries. On the heels of the automobile, the airplane flew into our world, setting off its own burst of new businesses and jobs.

Americans benefited as horses and mules gave way to cars and airplanes, but all this creation did not come without destruction. Each new mode of transportation took a toll on existing jobs and industries. In 1900, the peak year for the occupation, the country employed 109,000 carriage and harness makers. In 1910, 238,000 Americans worked as blacksmiths. Today, those jobs are largely obsolete. After eclipsing canals and other forms of transport, railroads lost out in COMPETITION with cars, long-haul trucks, and airplanes. In 1920, 2.1 million Americans earned their paychecks working for railroads, compared with fewer than 200,000 today.

What occurred in the transportation sector has been repeated in one industry after another—in many cases, several times in the same industry. Creative destruction recognizes change as the one constant in capitalism. Sawyers, masons, and miners were among the top thirty American occupations in 1900. A century later, they no longer rank among the top thirty; they have been replaced by medical technicians, engineers, computer scientists, and others.

Technology roils job markets, as Schumpeter conveyed in coining the phrase "technological unemployment" (Table 1). E-mail, word processors, answering machines, and other modern office technology have cut the number of secretaries but raised the ranks of programmers. The birth of the INTERNET spawned a need for hundreds of thousands of webmasters, an occupation that did not exist as recently as 1990. LASIK surgery often lets consumers throw away their glasses, reducing visits to optometrists and opticians but increasing the need for ophthalmologists. Digital cameras translate to fewer photo clerks.

Companies show the same pattern of destruction and rebirth. Only five of today's hundred largest public companies were among the top hundred in 1917. Half of the top hundred of 1970 had been replaced in the rankings by 2000.

"The essential point to grasp is that in dealing with capitalism we are dealing with an evolutionary process," Schumpeter wrote (p. 82).

The Power of Productivity

ENTREPRENEURSHIP
and competition fuel creative destruction. Schumpeter summed it up as follows:

> The fundamental impulse that sets and keeps the capitalist engine in motion comes from the new consumers' goods, the new methods of production or transportation, the new markets, the new forms of industrial organization that capitalist enterprise creates. (p. 83)

Entrepreneurs introduce new products and technologies with an eye toward making themselves better off—the profit motive. New goods and services, new firms, and new industries compete with existing ones in the marketplace, taking customers by offering lower prices, better performance, new features, catchier styling, faster service, more convenient locations, higher status, more aggressive marketing, or more attractive packaging. In another seemingly contradictory aspect of creative destruction, the pursuit of self-interest ignites the progress that makes *others* better off.

Producers survive by streamlining production with newer and better tools that make workers more productive. Companies that no longer deliver what consumers want at competitive prices lose customers, and eventually wither and die. The market's "invisible hand"—a phrase owing not to Schumpeter but to ADAM SMITH—shifts resources from declining sectors to more valuable uses as workers, inputs, and financial capital seek their highest returns.

Through this constant roiling of the status quo, creative destruction provides a powerful force for making societies wealthier. It does so by making scarce resources more productive. The telephone industry employed 421,000 switchboard operators in 1970, when Americans made 9.8 billion long-distance calls. With advances in switching technology over the next three decades, the TELECOMMUNICATIONS sector could reduce the number of operators to 156,000 but still ring up 106 billion calls. An average operator handled only 64 calls a day in 1970. By 2000, that figure had increased to 1,861, a staggering gain in PRODUCTIVITY. If they had to handle today's volume of calls with 1970s technology, the telephone companies would need more than 4.5 million operators, or 3 percent of the labor force. Without the productivity gains, a long-distance call would cost six times as much.

The telephone industry is not an isolated example of creative destruction at work. In 1900, nearly forty of every hundred Americans worked in farming to feed a country of ninety million people. A century later, it takes just two out of every hundred workers. Despite one of history's most thorough downsizings, the country has not gone hungry. The United States enjoys agricultural plenty, producing more meat, grain, vegetables, and dairy products than ever, thanks largely to huge advances in agricultural productivity.

New Product	Labor Needed	Old Product	Labor Released
Automobile	Assemblers	Horse/carriage	Blacksmiths
	Designers	Train	Wainwrights
	Road builders	Boat	Drovers
	Petrochemists		Teamsters
	Mechanics		RR workers
	Truck drivers		Canalmen
Airplane	Pilots	Train	RR workers
	Mechanics	Ocean liner	Sawyers
	Flight attendants		Mechanics
	Travel agents		Ship hands
			Boilermakers
Plastics	Petrochemists	Steel	Miners

		Aluminum	Founders
		Barrels/tubs	Metalworkers
		Pottery/glass	Coopers
			Potters
			Colliers
Computer	Programmers	Adding machine	Assemblers
	Computer engineers	Slide rule	Millwrights
	Electrical engineers	Filing cabinet	Clerks
	Software designers	Paper	Tinsmiths
			Lumberjacks
Fax machine	Programmers	Express mail	Mail sorters
Email	Electricians	Teletype	Truck drivers
	Software designers		Typists
Telephone	Electronic engineers	Mail	Postal workers
	Operators	Telegraph	Telegraph operators
	Optical engineers	Overnight coach	Coach drivers
	Cellular technicians		
Polio vaccine	Chemists	Iron lung	Manufacturers
	Lab technicians		Attendants
	Pharmacists		
Internet	Programmers	Shopping malls	Retail salespersons
	Network operators	Libraries	Librarians
	Optical goods workers	Reference books	Encyclopedia
	Webmasters		salespersons

Table 1 Technological Unemployment

Resources no longer needed to feed the nation have been freed to meet other consumer demands. Over the decades, workers no longer required in agriculture moved to the cities, where they became available to produce other goods and services. They started out in foundries, meatpacking plants, and loading docks in the early days of the Industrial Age. Their grandsons and granddaughters, living in an economy refashioned by creative destruction into the INFORMATION Age, are less likely to work in those jobs. They are making computers, movies, and financial decisions and providing a modern economy's myriad other goods and services (**Table 2**).

Job Destruction	Now (2002)	Then	Year

*. Fewer than 5,000.

Railroad employees	111,000	2,076,000	1920
Carriage and harness makers	*	109,000	1900
Telegraph operators	*	75,000	1920
Boilermakers	*	74,000	1920
Milliners	*	100,000	1910
Cobblers	*	102,000	1900
Blacksmiths	*	238,000	1910
Watchmakers	*	101,000	1920
Switchboard (telephone) operators	119,000	421,000	1970
Farm workers	716,000	11,533,000	1910
Secretaries	2,302,000	3,871,000	1980
Metal & plastic working machine operators	286,000	715,000	1980
Optometrists	33,000	43,000	1998
Job Creation	Now (2002)	Then	Year
Airplane pilots and mechanics	255,000	0	1900
Auto mechanics	867,000	0	1900
Engineers	2,028,000	38,000	1900
Medical technicians	1,879,000	0	1910
Truck, bus, and taxi drivers	4,171,000	0	1900
Electricians	882,000	*	1900
Professional athletes	95,000	*	1920
Computer programmers/operators/scientists	2,648,000	160,613	1970
Actors and directors	155,000	34,643	1970
Editors and reporters	280,000	150,715	1970
Medical scientists	89,000	3,589	1970
Dietitians	74,000	42,349	1970
Special education teachers	374,000	1,563	1970
Physicians	825,000	295,803	1970
Pharmacists	231,000	114,590	1970
Authors	139,000	26,677	1970
TV, stereo, and appliance salespersons	309,000	111,842	1970

*. Fewer than 5,000.

Webmasters	500,000	0	1990

*. Fewer than 5,000.

Table 2 The Churn: Recycling America's Labor

Over the past two centuries, the Western nations that embraced capitalism have achieved tremendous economic progress as new industries supplanted old ones. Even with the higher living standards, however, the constant flux of free enterprise is not always welcome. The disruption of lost jobs and shuttered businesses is immediate, while the payoff from creative destruction comes mainly in the long term. As a result, societies will always be tempted to block the process of creative destruction, implementing policies to resist economic change.

Attempts to save jobs almost always backfire. Instead of going out of business, inefficient producers hang on, at a high cost to consumers or taxpayers. The tinkering shortcircuits market signals that shift resources to emerging industries. It saps the incentives to introduce new products and production methods, leading to stagnation, layoffs, and bankruptcies. The ironic point of Schumpeter's iconic phrase is this: societies that try to reap the gain of creative destruction without the pain find themselves enduring the pain but not the gain.

About the Authors

W. Michael Cox is senior vice president and chief economist at the Federal Reserve Bank of Dallas. Richard Alm is an economics writer at the Dallas Fed. They are coauthors of *Myths of Rich and Poor* (1999).

Further Reading

Cox, W. Michael, and Richard Alm. "The Churn: The Paradox of Progress." Federal Reserve Bank of Dallas, annual report, 1992.
Davis, Stevens J., John Haltwanger, and Scott Schuh. *Gross Job Creation, Gross Job Destruction.* Cambridge: MIT Press, 1996.
Schumpeter, Joseph A. *Business Cycles: A Theoretical, Historical, and Statistical Analysis of the Capitalist Process.* New York: McGraw-Hill, 1939.
Schumpeter, Joseph A. *Capitalism, Socialism, and Democracy.* 3d ed. 1942. New York: Harper and Brothers, 1950.
Schumpeter, Joseph A. *The Theory of Economic Development: An Inquiry into Profits, Capital, Credit, Interest, and the Business Cycle.* Cambridge: Harvard University Press, 1936.

RELATED CONTENT
Thomas McCraw on Schumpeter, Innovation, and Creative Destruction

Thomas McCraw of Harvard University talks about the ideas of Joseph Schumpeter from his book, Prophet of Innovation: Joseph Schumpeter and Creative Destruction. McCraw and EconTalk host Russ Roberts discuss innovation, business strategy, the role of mathematics in economics, and Schumpeter's vision of competition embodied in his most important idea--creative destruction.

READ THIS ARTICLE

RECENT POST

Feb 5 2018

ECONLOG

Henderson on BBC Newsday

By: David Henderson

I will be on BBC Newsday tonight at 10:06 PST live. That's 6:06 a.m. tomorrow London time. Topic: Drop in stock prices.

READ MORE

Feb 5 2018

LABOR MOBILITY, IMMIGRATION, OUTSOURCING

Southern Blacks Voted With Their Feet

By: David Henderson

Millions of black people in the Jim Crow South were prevented from voting. That's the bad news. Fortunately, there's some good news. They were able to vote with their feet and millions of them did. In doing so, they benefited themselves both economically and politically, and also benefitted millions of white people in ...

READ MORE

Feb 4 2018

LABOR MOBILITY, IMMIGRATION, OUTSOURCING

An Immigration Puzzle Solved

By: David Henderson

Of immigration and partial derivatives. To the surprise of some, the Republican Congress largely supports Trump's restrictionist approach to immigration. Apparently Republicans are favoring their nativist base over their traditional allies in business. Why? The Republican Party has long been the party of both business...

READ MORE

COLLECTION: BASIC CONCEPTS

The article you're reading is part of Econlib's Basic Concepts collection. Explore other Basic Concepts articles:

Feb 5 2018

Division of Labor

Division of Labor
Michael Munger

Feb 5 2018
Recessions
Geoffrey Moore

Feb 5 2018
Interest
Paul Heyne

Feb 5 2018
Gross Domestic Product
Lincoln Anderson