

## Once Upon a Time There Was a Theory

**D**etermining what drives economic growth or decline depends as much on storytelling as on data. For the past decade or so, a new crop of theorists, including Paul Romer of the University of California at Berkeley and Robert Lucas of the University of Chicago, has been pushing "endogenous" growth. These economists argue that development results entirely from economic factors: once upon a time the U.S. was poor; then its population grew and became urbanized, allowing business to exploit economies of scale. As a result, the country became rich. There are even mathematical models to prove it. Economists understand all the variables in this story—population, production costs and profits—and so it is called endogenous (inside the economics).

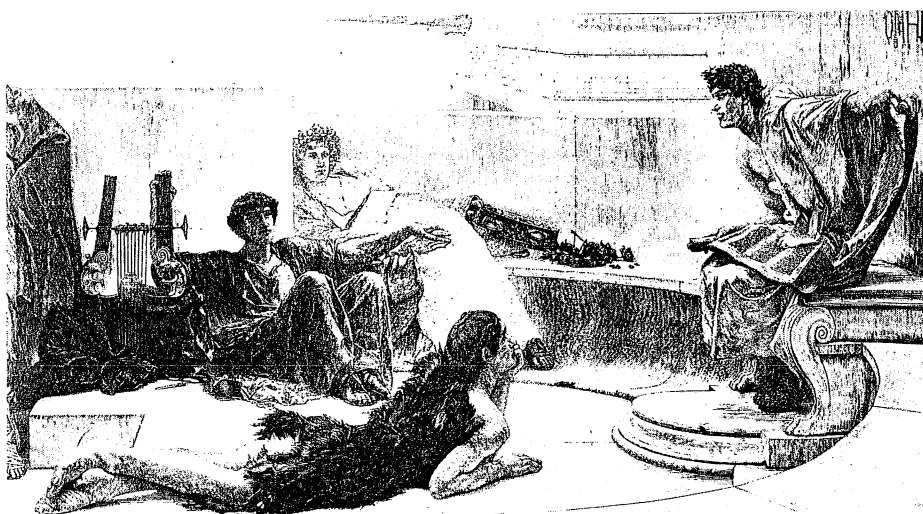
Economic historians such as Joel Mokyr of Northwestern University and Nathan Rosenberg of Stanford University, meanwhile, favor "exogenous" explanations based on outside factors, in particular technological change. Once upon a time we were all poor; then a wave of gadgets swept over England. As a result, we are all rich, or well on our way to it, if we will let people alone. This story does a better job of explaining, for instance, why China's per capita income grows by 10 percent a year: the Chinese, like the Koreans and Japanese before them, adopt the best methods invented thus far and quickly catch up with more advanced nations, regardless of endogenous factors in their economy.

The exogenous version has its own problems, but one of the major reasons the endogenist economic theorists argue against it seems to be that it offends their narrative sense. They do not like to have to step outside of economics to talk about the nature and causes of the wealth of nations.

Are endogenists being unscientific in wanting to tell one kind of story rather than another? Is economics as a whole simply not a science because its practitioners rely on narrative? Nobel Prize-winning physicist Steven Weinberg wrote a paper in 1983 called "Beautiful Theories" to make the point that aesthetic principles are at the heart of good phys-

ics. Indeed, astrophysicist Subrahmanyan Chandrasekhar wrote an entire, beautiful book on the matter, *Truth and Beauty: Aesthetics and Motivations in Science*. The same issues of narrative aesthetics appear in paleontology. Classical Darwinian evolution proceeds like a film in dignified slow motion: punctuated equilibrium interleaves still photographs with bursts of silent movies.

The notion of "science" as divorced



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**STORYTELLING** is essential to science and literature. Mathematical models may be in fashion now, but aesthetic principles guide scientists much as they did early readers of Homer.

from storytelling arose largely during the past century. Before then the word—like its French, Tamil, Turkish and Japanese counterparts—meant "systematic inquiry." The German word for the humanities is *Geisteswissenschaft*, or "inquiry into the human spirit," as opposed to *Naturwissenschaft*, which singles out the external world. When Sigmund Freud's translators rendered *Geisteswissenschaft* as "mental science," they left many readers wondering why a science had so much to do with Oedipus and other literary tales.

Most sciences do storytelling and model building. At one end of the gamut sits Newtonian physics—the *Principia* (1687) is essentially geometric rather than narrative. Charles Darwin's biology in *The Origin of Species* (1859), in contrast, is almost entirely historical and devoid of mathematical models. Nevertheless, most scientists, and economists among them, hate to admit to something so childish-sounding as tell-

ing stories. They want to emulate Newton's elegance rather than Darwin's complexity. One suspects that the relative prestige of the two methods has more to do with age than anything else. If a proto-Darwin had published in 1687, and a neo-Newton in 1859, you can bet the prestige of storytelling versus timeless modeling would be reversed.

Even when economists rely on models, decisions about what to include or what conclusions to draw turn on some principle of storytelling. Particularly important is the sense of beginnings and endings. To an eclectic Keynesian, the story "oil prices went up in 1973, causing inflation" is full of meaning. But for a monetarist, it ends too soon: a rise in oil prices without some corresponding fall elsewhere is not an equilibrium.

Meanwhile Keynesians accuse the monetarist plotline of an ill-motivated beginning: focusing on money, the end result of production, ignores where it comes from and why.

So when forecasters debate the impact of Federal Reserve Chairman Alan Greenspan's latest hike in interest rates, they are not just contesting the coefficients for their equations. They are debating which narrative style best describes the economy. And in economics, as in other sciences, you cannot get away from the aesthetics of human stories. Or, as Damon Runyon put it: "I thank you, Herbie, just the same," I say, "but I must do without your tip," and with this I start walking away. "Now," Herbie says, "wait a minute. A story goes with it," he says." Well, of course, this is a different matter entirely.

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