tive calendar. In Athens, banking, coinage, and commercial courts first appeared. Here, Goetzmann argues that public finance was necessary for the emergence of democracy. Athenian banks allowed deposits, while court systems regulated behavior. Athens needed finance to organize its long-distance trade, specifically its heavy importation of grain. Finance organized and supported this complex economic system, thus creating a larger division of labor. Athenian financiers recognized the price of risk or the "time value of money."

To administer their empire, the Romans developed a more complex financial system. For example, they invented limited liability and used silver currency, which they sometimes debased. In China, paper money aided transactions, and bureaucracy brought monitoring and incentives to address the principal-agent problem. Goetzmann describes the Knights Templar as an alternative banking institution that was separate from a particular state and that could provide credit and banking services for Western Europe. Venice was the first to issue public debt in the form of bonds. Later chapters explore the growing complexity of financial arrangements, largely in the European world.

Such a wide-ranging history should not be blamed for its omissions, but there are of course huge sections of the earth that receive little coverage. Ancient Egypt, for example, might provide an interesting case to compare with Sumeria. Finance in African societies or in the pre-Columbian Western Hemisphere would also be valuable points of comparison.

While the introduction is a bit slow to get going, his chapters that follow are masterful, and Goetzmann should feel no need to apologize for bringing into the text his own personal research stories. This is mostly a synthesis of research, but it is impressive in drawing a line from the ancient to the modern world. Finance, as a theme of history, should not be neglected. In this telling, finance emerges as a main theme of history. It is the lifeblood of civilization.

—Michael J. Douma
Georgetown Institute for the Study of Markets and Ethics,
Georgetown University

The Great Invention: The Story of GDP and the Making and Unmaking of the Modern World

Ehsan Masood

New York and London: Pegasus Books, 2016 (231 pages)

This highly readable story examines the limits of Gross Domestic Product (GDP). Unfortunately, Masood falls prey to some of the conceits of contemporary mainstream economics. Fortunately, the book's shortcomings are not fatal.

Masood starts with a history of GDP and its roots in the desire of the 1930s and 1940s to measure economies—first to gauge the effectiveness of government efforts at recovering from the Great Depression, then to track war readiness, and later to determine the effectiveness of the postwar Marshall Plan aid.

Gross Domestic Product has two fundamental flaws. First, a narrow focus on growth does not sufficiently measure other things that matter immensely, such as health, education, or poverty. Second, GDP's lack of environmental considerations is problematic as "a lightly regulated if not unchecked industrialization" (57) is pursued to advance growth at the cost of environmental degradation.

Four alternatives to GDP have emerged. First, the Human Development Index measures life expectancy, adult literacy, and per capita income. Second, Gross National Happiness gauges happiness based on sustainable development and environmental conservation, preservation of culture, and subjective expressions of happiness. Third, some have suggested accounting for the environment in GDP by including the replacement cost of natural resources (e.g., replacing a destroyed natural purification system with a water treatment plant). Fourth, more recent efforts have moved toward replacing GDP with a dashboard of indicators.

Masood argues for fixing GDP rather than ditching it. *The Great Invention* makes for great reading, and is an enriching yet accessible study for beginning and advanced economists alike. Alas, there are some fundamental difficulties.

Human development and GDP. Masood seems surprised that government advisors in the 1950s "were basically saying that developing countries had to get rich first through industrialization before they could spend [on social services, like health or education] (44)." Well … yes! Money does not grow on trees; wealth must be created before it can be spent.

There is no doubt that GDP does not capture all elements of human development. But more economic output *does* translate into more investment and more opportunities for spending on social services—even if the returns to growth initially accrue to a small portion of the population. Hayek reminds us that "a large part of the expenditure of the rich, though not intended for that end … serves to defray the cost of the experimentation with the new things that, as a result, can later be made available to the poor.… Even the poorest today owe their relative material well-being to the results of past inequality" (*The Constitution of Liberty*, 1960). Think of cell phones, computers, or cars.

What is more, there is good reason to doubt government's ability to allocate resources more efficiently than markets (see Hayek, "The Use of Knowledge in Society," *American Economic Review* 35, no. 4, [1945]: 519–30; or Leonard Read, "I, Pencil," 1958). Consider that the GDP per capita for 2014 was about $41,000 in countries within the highest quartile of economic freedom, and about $5,000 in the lowest quartile. These are still aggregates, but within the highest quartile of economic freedom, the poorest 10 percent earned a per capita income slightly above $11,000/year, while the poorest 10 percent in the bottom quartile earned about $1,000/year (J. Gwartney, R. Lawson, and J. Hall, *Economic Freedom of the World: 2016 Annual Report*).

Growth is not everything. But the tripling of global income per capita since 1950 is nothing to sneeze at. We should applaud the drop in global absolute poverty from 84 percent in 1820, to 40 percent in 1980, to 20 percent in 2007. Child labor fell by a factor of two in poor countries from 1960 to 2003. And we must be patient. For all but two hundred years of humanity's two hundred thousand years of existence, *everybody* was

poor (Croesus and Louis XIV represented infinitesimal portions of the population; they also lacked antibiotics and novocaine). It took the West fifteen centuries after the fall of Rome to achieve relatively widespread wealth. But that process has been accelerated: "even Sub-Saharan Africa, the world's development laggard, is today ahead of where the United States used to be! In 2006, its per capita GDP was the same level as the United States in 1820, but the United States did not reach Sub-Saharan Africa's current infant mortality rate until 1917, and life expectancy until 1902" (Indur M. Goklany, 2009, "Have Increases in Population, Affluence and Technology Worsened Human and Environmental Well-Being?" *Electronic Journal of Sustainable Development* 1, no. 3: 173–98).

Growth is good—not just for the rich but *especially* for the poorest. We should thus be wary of any policy that thwarts growth.

Environment and Cost-Benefit Analysis. I would like to see more environmental protection. (Although I should note that markets, the common law, and enforcement of property rights are a more effective mechanism than command-and-control tools. See Roger Meiners and Bruce Yandle, "The Common Law: How It Protects the Environment." PERC Policy Series 13 [1998]: 1–28.) But my basic needs are covered, and I am rich: with an annual income superior to $34,000, I am part of the top 1 percent of earners in the world (Branko Milanovic, *The Haves and the Have-Nots: A Brief and Idiosyncratic History of Global Inequality*, 2011). I am personally willing to forgo some consumption for a healthier environment. Masood implies that the inclusion of environmental factors into GDP allows us to measure "better things" (64). But who is to say, at the margin, where a dollar is better spent? On environmental protection? Or on health, or education, or housing for the poor?

Ignoring the environment in GDP is akin to saying that there is zero opportunity cost to industrialization and growth. But we must not forget the reverse side of the coin: if environmental *damage* has an opportunity cost, so does environmental *protection*. In the fifty years since the publication of Rachel Carson's *Silent Spring*, the ban on DDT has had a positive environmental impact—but some sources argue that it has caused fifty million human deaths from malaria.

Beyond the short-term trade-off, we must also look at the long term. Environmental protection is a "normal good"—that is, demand for it increases as income increases. At higher incomes, individuals will be more willing to spend a marginal dollar on the environment, rather than on basic needs for survival. In addition, higher income means better technology (and thus cheaper trade-offs) and generally more resources available for the environment. If there is a case to be made that growth can hurt the environment, there is also a strong case that growth is good for the environment (see again Goklany, "Increases in Population").

We are reminded here of the lament from the late, great economist James Buchanan (*What Should Economists Do?* 1979):

> If not an economist, what am I? An outdated freak whose functional role in the general scheme of things has passed into history? Perhaps I should accept such an assessment, retire gracefully, and, with alcoholic breath, hoe my cabbages. Perhaps I could do so if

> the modern technicians had indeed produced "better" economic mousetraps. Instead of evidence of progress, however, I see a continuing erosion of the intellectual (and social) capital that was accumulated by "political economy" in its finest hours.

Gross Domestic Product is an economic mousetrap. Instead of blaming the symptom, perhaps we should look more closely at the underlying culture that produced it: the over-mathematization of economics, the transformation of political economists into economic engineers, and the general (mis-)application of the laws of the natural sciences to the social sciences (see Hayek, *The Counter-Revolution of Science: Studies on the Abuse of Reason*, 1979). Recall that GDP emerged when economics turned its back on the market process and was forged as a tool for government management of the economy.

All in all, Masood poses troubling questions and lays the foundations for improvements to GDP. Perhaps his greatest lesson is that *macro*economics should not neglect the fundamental teachings of *micro*economics: we live in a world of scarce resources, so every action has an opportunity cost. GDP has limited use for cost-benefit analysis (and thus for economics) if it leaves out key components. We must be cautious about ignoring the cost of growth—but we should also not ignore the cost of blocking growth.

—Nikolai G. Wenzel (e-mail: nikolaiwenzel@gmail.com)
Center for Law and Economics, University of Paris Law School

The Wealth of Persons: Economics with a Human Face
John McNerney
Eugene, OR: Cascade Books, 2014 (357 pages)

In McNerney's *The Wealth of Persons* we find a much-needed clarion call to philosophers and economists to engage with one another again in order to rediscover the basis of all economics: the human person. McNerney appeals to a diverse, interdisciplinary set of thinkers, putting special emphasis on the work of Eric Voegelin, Bernard Lonergan, Joseph Schumpeter, and the personalism of Wojtyła and others. I found it particularly refreshing that McNerney presented a conversation between philosophical personalism and thinkers deeply engaged in the justification of the free economy. Where so many assume incompatibility between the two, McNerney's deep grasp of the historical sources shows that this split is of more recent vintage, and that earlier thinkers such as the scholastics of the School of Salamanca as well as economists such as Cantillon were already working along these lines before the division between Catholic and Protestant thought led to imbalance on both sides.

He begins by asking for a "higher viewpoint" from which economists can rediscover a substantive anthropology laden with meaning. The middle of the book reviews various theories of the entrepreneur, with special attention to Schumpeter. This matters because "visions" of economics based on the achievement of an equilibrium state run the risk of excluding the dynamism of the economic realm and the centrality of the entrepreneur as