

Recommendations for Further Reading

Timothy Taylor

This section will list readings that may be especially useful to teachers of undergraduate economics, as well as other articles that are of broader cultural interest. In general, with occasional exceptions, the articles chosen will be expository or integrative and not focus on original research. If you write or read an appropriate article, please send a copy of the article (and possibly a few sentences describing it) to Timothy Taylor, preferably by email at taylort@macalester.edu, or c/o *Journal of Economic Perspectives*, Macalester College, 1600 Grand Ave., Saint Paul, Minnesota, 55105.

Potpourri

An IMF staff team considers “Is the Glass Half Empty or Half Full? Issues in Managing Water Challenges and Policy Instruments.” “Lack of proper management exacerbates water challenges, even in countries with abundant water endowment. A case in point is Pakistan, where, despite an abundance of water a few decades ago, lagging policies have raised the prospect of water scarcity that could threaten all aspects of the economy. The bulk of Pakistan’s farmland is irrigated through a canal system, but canal water is vastly underpriced, recovering only one-quarter of annual operating and maintenance costs. Meanwhile, agriculture, which consumes almost all annual available surface water, is largely untaxed. The combination of these

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policies leads to overuse of water. In the Democratic Republic of the Congo (DRC), a country with an extensive system of rivers and lakes, years of poor management, conflicting water sector regulations, and low cost recovery have created a situation in which consumption of drinking water is far below the regional average and only a fraction of agricultural land is irrigated. . . . Experiences in some countries with naturally limited water resources have shown that sound water management can be achieved and water challenges are not insurmountable. . . . One notable innovation in Burkina Faso is the Bagre ‘growth pole,’ in which a huge manmade reservoir supports diverse activities, such as fishing and irrigation for crops. . . . For example, Burkina Faso introduced a progressive tariff grid for drinking water based on the volume of use, with the higher tiers subsidizing the lowest tier as well as part of sanitation activities.” IMF Staff Discussion Note SDN/15/11. The listed authors are Kalpana Kochhar, Catherine Pattillo, Yan Sun, Nujin Suphaphiphat, Andrew Swiston, Robert Tchaidze, Benedict Clements, Stefania Fabrizio, Valentina Flamini, Laure Redifer, and Harald Finger. June 2015, <http://www.imf.org/external/pubs/ft/sdn/2015/sdn1511.pdf>.

Ravi Kanbur and Adam Wagstaff ask: “How Useful Is Inequality of Opportunity as a Policy Construct?” “In policy and political discourse, ‘equality of opportunity’ is the new motherhood and apple pie. It is often contrasted with equality of outcomes, with the latter coming off worse. Equality of outcomes is seen variously as Utopian, as infeasible, as detrimental to incentives, and even as inequitable if outcomes are the result of differing efforts. Equality of opportunity, on the other hand, is interchangeable with phrases such as ‘leveling the playing field’, ‘giving everybody an equal start’ and ‘making the most of inherent talents.’ In its strongest form, the position is that equality of outcomes should be irrelevant to policy; what matters is equality of opportunity. . . . However, attempts to quantify and apply the concept of equality of opportunity in a policy context have also revealed a host of problems of a conceptual and empirical nature, problems which may in the end even question the practical usefulness of the concept. . . . Health inequality is emblematic of the difficulties that current approaches face. If children’s health is truly outside their control, then all of the inequality in their health is a legitimate objective of policy, not just that part which is explained by variables which measure parental circumstances. Similarly, especially for children but also for adults, if bad luck leads to ill health then wiping out this inequality as illegitimate for policy concern does not sit well with moral intuition—and yet that is what the present procedures which calculate inequality of opportunity in health tend to do.” July 2014, World Bank Policy Research Working Paper 6980, http://www-wds.worldbank.org/external/default/WDSContentServer/WDS/IB/2014/07/28/000158349_20140728112400/Rendered/PDF/WPS6980.pdf.

Bengt Holmstrom offers a framework for “Understanding the Role of Debt in the Financial System.” “Panics always involve debt. Panics happen when information-insensitive debt (or banks) turns into information-sensitive debt . . . A regime shift occurs from a state where no one feels the need to ask detailed questions, to a state where there is enough uncertainty that some of the investors begin

to ask questions about the underlying collateral and others get concerned about the possibility. . . . These events are cataclysmic precisely because the liquidity of debt rested on over-collateralisation and trust rather than a precise evaluation of values. Investors are suddenly in the position of equity holders looking for information, but without a market for price discovery. Private information becomes relevant, shattering the shared understanding and beliefs on which liquidity rested . . . [T]here is a danger in the logic of money markets: if their liquidity relies on no or few questions being asked, how will one deal with the systemic risks that build up because of too little information and the weak incentives to be concerned about panics. I think the answer will have to rest on over-collateralisation, stress tests and other forms of monitoring banks and bank-like institutions. But my first priority has been to exposit the current logic and hope that it will be useful for the big question about systemic risk as we move forward.” January 2015, BIS Working Paper 479, Bank of International Settlements, <http://www.bis.org/publ/work479.pdf>.

Liran Einav and Jonathan Levin discuss “Economics in the Age of Big Data.” “Even 15 or 20 years ago, interesting and unstudied data sets were a scarce resource. Gathering data on a specific industry could involve hunting through the library or manually extracting statistics from trade publications. Collaborations with companies were unusual, as were experiments, both in laboratory settings and in the field. Nowadays the situation is very different along all of these dimensions. . . . The first feature is that data are now often available in real time. Government surveys and statistics are released with a lag of months or years. . . . However, administrative and private data that are continuously updated have great value for helping to guide economic policy. . . . The second feature is that data are available on previously unmeasured activities. Much of the data now being recorded is on activities that were previously difficult to quantify: personal communications, social networks, search and information gathering, and geolocation data. These data may open the door to studying issues that economists have long viewed as important but did not have good ways to study empirically, such as the role of social connections and geographic proximity in shaping preferences, the transmission of information, consumer purchasing behavior, productivity, and job search. Finally, data come with less structure. Economists are used to working with ‘rectangular’ data, with N observations and $K \ll N$ variables per observation and a relatively simple dependence structure between the observations. New data sets often have higher dimensionality and less-clear structure. For example, Internet browsing histories contain a great deal of information about a person’s interests and beliefs and how they evolve over time. But how can one extract this information? The data record a sequence of events that can be organized in an enormous number of ways, which may or may not be clearly linked and from which an almost unlimited number of variables can be created. Figuring out how to organize and reduce the dimensionality of large-scale, unstructured data is becoming a crucial challenge in empirical economic research.” *Science*, November 7, 2014, vol. 346, no. 6210, pp. 1243089-1 to 1243089-6.

The African Progress Panel is a group of 10 prominent individuals ranging from Kofi Annan to Bob Geldof. Leading staff members include Caroline Kende-Robb,

Kevin Watkins, and Maria Quattri. The group has published *People, Power, Planet: Seizing Africa's Energy and Power Opportunities*. "Measured on a global scale, electricity consumption in Sub-Saharan Africa excluding South Africa is pitifully low, averaging around 162 kilowatt hours (kWh) per capita a year. . . . The global average consumption figure is 2,800kWh, rising to 5,700kWh in the European Union and 12,200kWh in the United States. Electricity consumption for Spain exceeds that of the whole of Sub-Saharan Africa (excluding South Africa). To put the figures in a different context, 595 million Africans live in countries where electricity availability per person is sufficient to only light a single 100-watt light bulb continuously for less than two months. It takes the average Tanzanian around eight years to consume as much electricity as an American uses in one month. When American households switch on to watch the Super Bowl, the annual finale of the football season, they consume 10 times the electricity used over the course of a year by the more than 1 million people living in Juba, capital city of South Sudan. Ethiopia, with a population of 94 million, consumes one-third of the electricity supplied to the 600,000 residents of Washington D.C. . . . Around 30 countries in the region have grid-connected power systems smaller than 500 megawatts (MW), while another 13 have systems smaller than 100MW. For purposes of comparison, a single large-scale power plant in the United Kingdom generates 2,000MW." *Africa Progress Report 2015*. http://app-cdn.acwupload.co.uk/wp-content/uploads/2015/06/APP_REPORT_2015_FINAL_low1.pdf.

The Future of Children has devoted a nine-paper issue to the subject of "Policies to Promote Child Health." From the introductory essay by Janet Currie and Nancy Reichman: "Unfortunately, the fragmentation of children's health care services and resources in the United States, combined with a crisis response approach to child health, has produced an inefficient system. Moreover, because this fragmentation results in a lack of data about the cost effectiveness of various interventions and policies, it's hard to make informed policy choices. We suspect that, for many dimensions of child health, an ounce of prevention would be worth a pound of cure, but it's difficult to prove this without hard evidence on the costs and benefits of different approaches. . . . [S]pending on child health has increased over time, but that the largest share of the increased spending over the past century has been for health care, while spending on other determinants of child health, which may be as or more important, has not kept pace. . . . Many child health problems start early in life, in utero, or perhaps even before mothers conceive . . ." Spring 2015, <http://www.princeton.edu/futureofchildren/>.

Asli Demirguc-Kunt, Leora Klapper, Dorothe Singer, and Peter Van Oudheusden report results from "The Global Findex Database 2014: Measuring Financial Inclusion around the World." "The Global Financial Inclusion (Global Findex) database provides in-depth data showing how people save, borrow, make payments, and manage risk. . . . The indicators are based on interviews with about 150,000 nationally representative and randomly selected adults age 15 and above in more than 140 economies. . . . Between 2011 and 2014, 700 million adults became account holders while the number of those without an account—the unbanked—dropped

by 20 percent to 2 billion. What drove this increase in account ownership? A growth in account penetration of 13 percentage points in developing economies and innovations in technology—particularly mobile money, which is helping to rapidly expand access to financial services in Sub-Saharan Africa. Along with these gains, the data also show that big opportunities remain to increase financial inclusion, especially among women and poor people. Governments and the private sector can play a pivotal role by shifting the payment of wages and government transfers from cash into accounts. . . . In developing economies 1.3 billion adults with an account pay utility bills in cash, and more than half a billion pay school fees in cash. Digitizing payments like these would enable account holders to make the payments in a way that is easier, more affordable, and more secure.” April 2015, World Bank Policy Research Working Paper 7255, <http://www.worldbank.org/en/programs/globalindex>.

Interviews

Alvin Roth is interviewed by Douglas Clement. “God makes wheat, but the Chicago Board of Trade makes #2 hard red winter wheat. It has a lot less variance than wheat. You know what you’re going to get and, therefore, you don’t have to care who you’re buying it from. You don’t have to inspect it. But before wheat was commodified, you had to have someone look at the wheat to see what you were buying. . . . In those markets, you can make an offer to the entire market. I want #2 hard red winter wheat from whomever; it doesn’t matter who I get it from. But, of course, labor markets aren’t like that, and many other markets aren’t like that—because you care not just about the price, but also about who you’re dealing with. . . . Instead, it’s personalized prices, maybe doubly personalized prices. How much will Google pay me to work for them? How much would I need to take their offer, rather than a different salary from Facebook? . . . There isn’t a sharp line between matching markets and commodity markets. I think there is sort of a continuum. There are markets where price does all the work: the New York Stock Exchange, for instance. Its job is to define at any moment the price at which supply equals demand for each of a bunch of financial commodities. The labor market is very personal, but price also matters a lot, so it’s somewhere in the middle of the continuum. For school choice and kidney exchange, we don’t let prices work at all. And lots of markets fall somewhere between kidney exchange and the market for wheat.” *The Region*, Federal Reserve Bank of Minneapolis, June 2015, pp. 14–25, <https://www.minneapolisfed.org/publications/the-region/interview-with-alvin-roth>.

Dani Rodrik is interviewed by Aaron Steelman. “The root of it is the problem that the profession has more or less the wrong idea about how economics as a science works. If you ask most economists, ‘What kind of a science is economics?’ they will give a response that approximates natural sciences like physics, which is that we develop hypotheses and then we test them, we throw away those that are rejected, we keep those that cannot be rejected, and then we refine our hypotheses

and move in their direction. This is not how economics works—with newer and better models succeeding models that are older and worse in the sense of being empirically less relevant. The way we actually increase our understanding of the world is by expanding our collection of models. We don't throw out models, we add to them; the library of models expands. Social reality is very different from natural reality in that it is not fixed; it varies across time and place. The way that an economy works in the Congo is very different from the way that it works in the United States. So the best that we can do as economists is try to understand social reality one model at a time. Each model identifies one particular salient causal mechanism, and that salient effect might be very strong in the Congo but it may be very weak at any point in time in the United States, where we may need to apply a different model. . . . Economists know how to think about various causal mechanisms that operate as part of social reality, but what they're very bad at in practice is navigating among the models describing them. How exactly do I pick the right model for a given setting? This is a craft because the evidence never settles it in real time. We have these periods of fads where we say the New Keynesian or the Neoclassical model explains everything. We lose sight of the fact that models are highly context-specific and we need to be syncretic, simultaneously carrying many models in our mind." *Econ Focus*, Federal Reserve Bank of Richmond, Third Quarter 2014, https://www.richmondfed.org/publications/research/econ_focus/2014/q3/interview.

Claudia Goldin is interviewed by Jessie Romero. "Across the wage distribution, the vast majority of the gender gap is occurring within occupations, not between occupations. There's considerable discussion about occupational segregation, but you could get rid of all occupational segregation and reduce the gender gap by only a small amount. . . . So then the question is, why are there some occupations with large gender gaps and others with very narrow gaps? There are some occupations where people face a nonlinear function of wages with respect to hours worked; that is, people earn a disproportionate premium for working long and continuous hours. For example, someone with a law degree could work as a lawyer in a large firm, and that person would make a lot of money per unit of time. But if that person worked fewer than a certain number of hours per week, the pay rate would be cut quite a bit. Or someone could work fewer or more flexible hours as general counsel for a company and earn less per unit of time than the large-firm lawyer. Pharmacy is the opposite—earnings increase linearly with hours worked. There's no part-time penalty." *EconFocus*, Federal Reserve Bank of Richmond, Fourth Quarter 2014, pp. 24–28, https://www.richmondfed.org/publications/research/econ_focus/2014/q4/interview.

Discussion Starters

Elizabeth R. Berman and Rachel K. Johnson tell the story of "The Unintended Consequences of Changes in Beverage Options and the Removal of Bottled Water on a University Campus." "Policy changes related to the types of bottled beverages

sold at the University of Vermont in Burlington, Vermont, provided an opportunity to study how changes in beverage offerings affected the beverage choices as well as the calorie and total and added sugar consumption of consumers. First, in August 2012, all campus locations selling bottled beverages were required to provide a 30% healthy beverage ratio in accordance with the Alliance for a Healthier Generation's beverage guidelines. Then, in January 2013, campus sales locations were required to remove bottled water while still maintaining the required 30% healthy beverage ratio. . . . However, between fall 2012 and spring 2013, when bottled water was banned, the per capita number of bottles shipped to campus increased significantly. Thus, the bottled water ban did not reduce the number of bottles entering the waste stream from the university campus, which was the ultimate goal of the ban. Furthermore, with the removal of bottled water, people in the university community increased their consumption of other, less healthy bottled beverages." *American Journal of Public Health*, July 2015, vol. 105, no. 7, pp. 1404–08.

IEEE Spectrum has published a "Special Report: 50 Years of Moore's Law," with a dozen short articles looking back at Moore's original formulation of the law, how it has developed over time, and prospects for the law continuing. March–April 2015, at <http://spectrum.ieee.org/static/special-report-50-years-of-moores-law>. As one example, Chris Mack writes about "The Multiple Lives of Moore's Law: Why Gordon Moore's Grand Prediction Has Endured for 50 Years": "A half century ago, a young engineer named Gordon E. Moore took a look at his fledgling industry and predicted big things to come in the decade ahead. In a four-page article in the trade magazine *Electronics*, he foresaw a future with home computers, mobile phones, and automatic control systems for cars. All these wonders, he wrote, would be driven by a steady doubling, year after year, in the number of circuit components that could be economically packed on an integrated chip. A decade later, the exponential progress of the integrated circuit—later dubbed 'Moore's Law'—showed no signs of stopping. And today it describes a remarkable, 50-year-long winning streak that has given us countless forms of computers, personal electronics, and sensors. The impact of Moore's Law on modern life can't be overstated. We can't take a plane ride, make a call, or even turn on our dishwashers without encountering its effects." At <http://spectrum.ieee.org/semiconductors/processors/the-multiple-lives-of-moores-law>. As another example, in "Graphic: Transistor Production Has Reached Astronomical Scales," Dan Hutcheson writes: "In 2014, semiconductor production facilities made some 250 billion billion (250×10^{18}) transistors. This was, literally, production on an astronomical scale. Every second of that year, on average, 8 trillion transistors were produced. That figure is about 25 times the number of stars in the Milky Way and some 75 times the number of galaxies in the known universe. The rate of growth has also been extraordinary. More transistors were made in 2014 than in all the years prior to 2011." At <http://spectrum.ieee.org/computing/hardware/transistor-production-has-reached-astronomical-scales>.

Tomáš Hellebrandt and Paolo Mauro forecast "The Future of Worldwide Income Distribution." They look at a wide array of household-level evidence on the distribution of income in more than 100 countries, and use estimates of

economic growth to project what the distribution of global income will look like in the future. They write: “Global income inequality started declining significantly at the turn of the century, and we project that this trend will continue for the next two decades, under what we consider the profession’s ‘consensus’ projections for the growth rates of output and population.” April 2015, Peterson Institute for International Economics, Working Paper 15-7, <http://www.piie.com/publications/wp/wp15-7.pdf>.

James Bessen discusses the interaction between technology and employment in “Toil and Technology.” Here’s one example: “Just because computers can perform some job tasks does not mean that jobs will be eliminated. Consider bank tellers. Automated teller machines (ATMs) were first installed in the United States and other developed economies in the 1970s. These machines handle some of the most common tasks bank tellers performed, such as dispensing cash and taking deposits. Starting in the mid-1990s, banks rapidly increased their use of ATMs; over 400,000 are installed in the United States alone today. One might expect such automation to decimate the ranks of bank tellers, but in fact the number of bank teller jobs did not decrease as the ATMs were rolled out. Instead, two factors combined to preserve teller jobs. First, ATMs increased the demand for tellers because they reduced the cost of operating a bank branch. Thanks to the ATM, the number of tellers required to operate a branch office in the average urban market fell from 20 to 13 between 1988 and 2004. But banks responded by opening more branches to compete for greater market share. Bank branches in urban areas increased 43 percent. Fewer tellers were required for each branch, but more branches meant that teller jobs did not disappear. Second, while ATMs automated some tasks, the remaining tasks that were not automated became more valuable. As banks pushed to increase their market shares, tellers became an important part of the ‘relationship banking team.’ Many bank customers’ needs cannot be handled by machines—particularly small business customers’. Tellers who form a personal relationship with these customers can help sell them on high-margin financial services and products. The skills of the teller changed: cash handling became less important and human interaction more important.” *Finance & Development*, March 2015, vol. 52, no. 1, pp. 16–19, <http://www.imf.org/external/pubs/ft/fandd/2015/03/bessen.htm>.