The Review of Regional Studies

The Official Journal of the Southern Regional Science Association

BOOK REVIEWS

Book Review Editors:

Leslie Dunn and Robert Dunn

Department of Economics and Business, Washington & Jefferson College, USA

ldunn@washjeff.edu rdunn@washjeff.edu

Dale Jorgenson, Richard Goettle, Mun Ho, and Peter Wilcoxon. 2013. *Double Dividend: Environmental Taxes and Fiscal Reform in the United States*. MIT Press: Cambridge, MA, USA. ISBN: 9780262027090, 640 pp., \$58.00 (hardcover).

Reviewed by *Caleb Stair*, West Virginia University

With regards to environmental regulation, the double-dividend hypothesis suggests that increased taxes on polluting activities can provide two separate types of benefits: an improvement to the environment and an improvement in economic efficiency. The second benefit stems from the use of environmental tax revenues to decrease other taxes such as income taxes that distort labor supply and saving decisions (Fullerton and Metcalf 1997). *Double Dividend: Environmental Taxes and Fiscal Reform in the United States* discusses this hypothesis but with a different tactic than traditional work. Typically, the approach to environmental regulation and environmental taxes focuses on the monetary value of the negative environmental externalities that could be avoided. Some examples include health benefits from reduced air pollution, the social cost of carbon, and so forth. On the contrary, this book's analysis argues that a properly-structured environmental tax could benefit the economy even without considering the value of environmental benefits that would result.

An overview of the design of energy and environmental policies is provided in the first chapter. *Double Dividend's* authors present new models of consumer and producer behavior that capture features of behavior that are relevant for policy evaluation. They discuss their econometric approach to general equilibrium modeling, which includes recognized principles for producer and consumer behavior. Their model also accounts for the heterogeneity of industries and households exposed by microeconomic data.

Jorgenson et al. deal with the structure of their intertemporal general equilibrium model (IGEM) in the second chapter of the book. The basis for the demand side of the model is a model for consumer behavior that consists of three stages: full wealth allocated to full consumption; full consumption allocated among goods, services and leisure time; and finally consumption of goods and services allocated to commodity groups in the IGEM. The supply side consists of models of

producer behavior. The solutions to their IGEM are intertemporal equilibria. These contain the balance between demand and supply for all commodities in each time period.

An important challenge for general equilibrium models is capturing the heterogeneity of individual household's behavior. For this reason, the authors devote Chapter 3 to explain their modeling of consumer behavior. They employ exact aggregation over households to incorporate this heterogeneity. This aggregated model also includes the response of the household sector to variations in wages and prices, in addition to variations in full expenditures. The model then integrates all of the restrictions imposed by the traditional model of consumer behavior. The fourth chapter discusses the modeling of producer behavior. This chapter presents a novel approach to econometric modeling of producer behavior. The approach combines a flexible representation of the responses of inputs to changes in prices with a state-space model of the rate and biases of technical change. The authors also use a thorough breakdown of energy supply and demand when they implement their econometric model of producer behavior.

The next chapter completes the description of the demand side of the model. The demands for commodities and factors of production by the government sector are discussed, in addition to investment and exports. This "closes the loop" for commodity flows modeled in the authors' IGEM. This enables them to project the future growth of the U.S. economy. They note that demography and technology are the driving forces in their projections. Chapter 6 presents the economic projections described in the preceding chapter, but with no change in energy and environmental policies. The authors' projections show a slowdown in U.S. economic growth due to a reduced growth rate in the labor force and a slower growth of labor quality. The base case predictions show a continuing decline in energy intensity and a corresponding decrease in the growth rate of emissions. Jorgenson et al. combine information about energy and environmental pollution into the projections in the seventh chapter. Externalities or nonmarket outputs, which are essential for evaluating energy and environmental policies, are considered in the projections. These are classified into product and process emissions to be incorporated into the IGEM.

Chapter 8 turns to energy and environmental taxes. These are illustrated by a carbon tax that is levied on greenhouse gas emissions in proportion to the carbon dioxide equivalent. The authors analyze five carbon tax policies occurring in the year 2020. They provide measures of the impacts of carbon taxes on individual and social welfare. Jorgenson et al. indicate that capital tax rate reductions provide the greatest improvements in social welfare for all the carbon tax rate trajectories.

The final chapter presents the confidence intervals for results detailed in each of the previous chapters. Jorgenson et al. demonstrate that a key advantage of the econometric estimation of the parameters of IGEM is that it provides the information needed to characterize the uncertainty of IGEM's base case projections and outcomes of policy simulation. The authors also discuss the delta method. It is a technique from econometrics and statistics that has been adapted for general equilibrium. Its primary purpose is to represent IGEM by a Taylor series approximation. The approximation depends on the parameter estimates and the disturbances from the behavioral equations. This provides a simple and powerful method for deriving measures of uncertainty for model outcomes.

Double Dividend is a book for anyone interested in environmental economics. The authors' approaches are novel and their conclusions are thought provoking. A researcher would find the IGEM section intriguing. Policy analysts can observe the benefits of insightful policy

design presented by the authors. The topics addressed in the book are particularly interesting to environmental and regional economists because these issues necessitate regional cooperation, and changes in one region could impact other surrounding areas. For example, one region's environmental benefits could spill over to neighboring regions and positively impact those economies. The authors conclude it is possible to increase household welfare through environmental taxes, but this is contingent on what is done with the tax revenues. There is also a decrease in economic equity in the system. Households with more capital are likely to benefit more from the reduction in taxes on capital (though all households should benefit to a degree). The book is not really a recipe for policy makers, rather it is a call to make cognizant choices. The political argument over pollution control would surely be impacted, but some concerns still exist. It needs to be determined if an increase in economic inequality is worth the benefits provided by this double dividend. If the benefits outweigh the costs perhaps it is feasible to select a policy where pollution control is truly beneficial for the economy.

References

Fullerton, Don, and Gilbert E. Metcalf. (1997) "Environmental Taxes and the Double-Dividend Hypothesis: Did You Really Expect Something for Nothing?" *NBER Working Paper 6199*. Cambridge, MA.

Philip J. Cook, Stephen Machin, Olivier Marie, and Giovanni Mastrobuoni, eds. 2013. *Lessons from the Economics of Crime: What Reduces Offending?* MIT Press, CESinfo Seminar Series: Cambridge, MA, USA. ISBN: 9780262019613, 241 pp., \$35.00 (hardcover).

Reviewed by *Amir Borges Ferreira Neto*, West Virginia University

Forty-five years after Gary Becker's (1968) seminal paper on the economics of crime, and with increasing interest to study crime from an economics perspective, *Lessons from the Economics of the Crime* is a collection of papers focusing on the study of crime with an emphasis on public policy. The book aims at providing a brief review of the literature in the field so far, and raises several questions for upcoming research.

The book is divided into three parts: "Policy Choice and Normative Framework", "Crime as a Rational Choice", and "Feedback and Interactions", in which the editors try to cover three main topics throughout the book: i) the normative framework; ii) criminal behavior as a rational choice, and iii) collectivism as a framework to study crime rates and patterns.

The first part of the book is comprised of three chapters. As the name suggests, the main focus is the discussion of public policies with respect to crime from a normative framework. Chapter 1 brings an empirical analysis on the classical relation between cops and arrests. The author uses the COPS (Community-Oriented Policing Services) hiring grants to evaluate the causal relation between the number of arrests (crime) and number of cops through a series of estimations. The results point to no impact on arrests given the receipt of COPS grants. Chapter 2 begins with an extensive review of the literature and a discussion of polar opposite views on legalization, bookended by *Milton Friedman* and *Robert Weiner*. The chapter then asks the question: is the war on drugs an optimal policy? The authors conclude that extreme policies (polar) are sub-optimal.

The last chapter in the first section discusses next steps to create and evaluate public policies. The authors introduce the concept of mechanism experiments, which they believe to be a compliment to classical policy evaluation. They provide several examples of how these

mechanism experiments can help to better create and understand crime policies. Some of the examples are: ruling out candidate policies (my personal favorite), prioritizing research funding, and strengthening causal inferences.

Chapters 4 through 6, the second part of the book, focus on crime as a rational choice. The main focus in this section is recidivism—the act of re-committing a crime after spending time in a correctional facility. But, as pointed out by *Aurélie Ouss* in Chapter 4, this definition varies depending on the country and administration. For instance, in the U.S. minimum sentences depend on repetition of the crime and the type of crime (felony versus misdemeanor). In France, however, re-offending is only considered recidivism if exactly the same crime is committed. Ouss also provides a good literature review on recidivism, comparing the United States with France on several grounds such as the prison system, sentencing, and costs, among others.

Complementing the literature review by Ouss, *Stefan Pichler* and *Daniel Römer* discuss recidivism among youth in Germany in Chapter 5. The authors find that judging youth by criminal law, that is convicting them by their crime and sending them to a facility, instead of rehabilitation programs, reduces re-offending. This finding is the opposite of that from studies using U.S. data. Pichler and Römer point out that such differences can be attributed to differences in the criminal justice system, the age group analyzed, differences in peer-effects, and the fact that their data include only incarcerated people. Chapter 6 concludes this section by studying hooliganism in Sweden. The authors use an interesting identification strategy—the variation created by the relocation of specialized police due to external incidents (9/11 and the Asian Tsunami in 2004)—to capture the effect of additional policing on hooliganism.

The third part of the volume concentrates on institutions influencing crime. Chapter 7 deals with crime and immigration, reviewing this almost nonexistent but important literature. Chapters 8 and 9 discuss Italy. The former looks at the effect of organized crime on politician quality, finding that an increase in crime during electoral periods leads to an increase in violence afterwards, as well as a higher probability of political scandal. The latter paper, on the other hand, compares police hiring in Italy where it is centralized with the United States where hiring is decentralized. *Paolo Buonanno* and *Giovanni Mastrobuoni* find small differences in elasticities between police and crime, favoring the U.S. system; but they make a point of noting that other advantages in the centralized system, such as internalization of crime displacement and less nepotism, are not tested. The final chapter is a case study of the Brazilian state of Minas Gerais, where institutional changes created more coordination between the different police forces, which led to an increase in police effectiveness.

All in all, *Lessons from the Economics of Crime* summarizes some of the results found so far on the economics of crime, but it does not provide a definitive answer to the question in the sub-title: “what reduces offending?” Going through the chapters does provide readers with important information that should enable them to draw some of their own conclusions. For example, preventive policing and police coordination seem to be effective, while incarceration and harsh punishment are not optimal, especially for youth.

In my opinion the book is a good collection of essays that helps readers understand the topic, especially by focusing on public policy. Young researchers will find this book to be a good starting point to get to know the literature, as well as a place to build from. Moreover, as each chapter provides a public policy section, the book becomes a good source of information for policymakers to consult. More specifically, regional scientists will appreciate the comparison

between different institutional frameworks in different countries such as Italy, Brazil, United States, Germany and Sweden, and how these differences affect criminal behavior.

References

Becker, Gary. (1968) "Crime and Punishment: An Economic Approach," *Journal of Political Economy*, 76, 169-217.

Eric A. Hanushek and Ludger Woessmann. 2015. *The Knowledge Capital of Nations: Education and the Economics of Growth*. MIT Press: Cambridge, MA, USA. ISBN: 9780262029179, 262 pp., \$28.00 (hardcover).

Reviewed by *Taining Wang*, West Virginia University

The past 50 years of development economics has endeavored to identify factors that explain the systematic differences of long-run economic growth. Yet, a consensus has still not been reached. Through this book, Hanushek and Woessmann make the case for human capital as being the essential factor to achieve a country's long-run economic growth. Nations with high human capital enjoy prosperity; however, nations with low human capital suffer from poverty.

In a sense, it is an ordinary argument in that the importance of human capital has been recognized as far back as the contributions of Adam Smith. Lucas (1988) incorporated human capital into traditional growth models and the accumulation of knowledge is also the central idea in endogenous growth theory (Romer 1990). Despite those focuses on human capital and growth, Hanushek and Woessmann argue that much of the empirical literature finds that human capital, as measured by years of schooling, has little marginal effect on growth. As a result, this has led scholars to focus on other driving forces, such as resource misallocation and the efficiency of management (Restuccia and Rogerson 2008; Nicholas et al, 2010).

Nevertheless, the authors argue that it is measurement error in the existing literature that makes human capital appear unimportant. While the high positive correlation between schooling years and wages (or per capita output) have led many studies to proxy school years for human capital, it is a problematic proxy as it fails to reveal different individual's skills in the labor market. In other words, getting more years of schooling does not necessarily yield enhanced working skills. It also cannot be assumed that one country's students will accumulate the same level of skills as other countries' students in the same number of years. These inappropriate assumptions are complicating factors when human capital is proxied by schooling years. As a result, the importance of human capital has been underestimated all too often.

Rather than focusing on how long people have stayed in school, a good human capital proxy should also identify how well and hard they study during school in order to more accurately reflect individuals' skills. Following this logic, Hanushek and Woessmann develop a new proxy for human capital, termed knowledge capital or cognitive skill. This proxy variable is constructed from international testing programs' results from math and reading skills exams across 50 countries. Although each testing program has been designed to reveal different aspects of student skills, the authors show that all testing programs cover a common dimension of skills and, therefore, can be used without bias as a better measure of human capital.

Hanushek and Woessmann find that knowledge capital significantly explains economic growth in a cross-section of 50 countries. They also show that once knowledge capital is considered, the marginal effect of the schooling year variable is no longer significant, and the

correlation between schooling years and annual GDP growth rate drops dramatically. Additional regression estimations with different samples and test scores reveal very similar results, in that knowledge capital, rather than schooling years, remains highly significant and robust to explain long-run economic growth differences between countries.

Nonetheless, a causal relationship, rather than a simple correlation between knowledge capital and annual growth is necessary for economic policy implications. Since endogeneity is the biggest issue under this objective due to potential omitted variables or dual causality, the authors attempt to minimize this problem through three approaches: instrumental variables (IV), a country-specific fixed-effects model, and a difference-in-difference model. Specifically, the authors solve the omitted variable problem by constructing seven instrumental variables, including external exit-exam performance, private school competition, and teachers' wage, that affect testing scores but not economic growth. Further, the authors settle the reverse causation issue by removing time invariant fixed-effects and using a difference-in difference estimator. All results demonstrate that knowledge capital can be interpreted as the cause of the growth. Namely, a one standard deviation increase in the cognitive skill of a country leads, on average, to approximately a two percent increase in annual per capita GDP growth.

A model no longer subject to potential econometric problems can now be fully applied to study international economic growth differences via knowledge capital achievement. The authors clearly illustrate this point by examining two famous examples in developing countries: the Latin America puzzle and the Asia miracle. Many detailed regression results reveal the fact that knowledge capital conveys significant and robust explanation on these two economic phenomena. Namely, all Asian countries in the sample show higher international testing scores on average than those in Latin America, whose scores are uniformly uncompetitive. In fact, this significant causal relationship holds not only within Asia and Latin America but in all developing or developed countries in their sample; countries with higher testing scores achieve higher economic growth. As a result, low performance in testing scores is now linked to the ineffective education policies that fail to improve knowledge capital in that nation.

The authors in turn convey one important and normative economic policy implication: economic prosperity is directly linked to the development of knowledge capital. Any policy implication that is shifted away from human capital improvement, such as providing more public resources or improving the efficiency of regulation, is ineffective and should thus cease to be discussed. In other words, to improve economic growth, it is not the problem of how much expenditure should be, but rather how expenditures are used. Additionally, educational system reforms need to offer policies that improve incentives. Hanushek and Woessmann show that policies that can improve teachers' pay, develop effective accountability systems, and create reasonable competition among schools can enhance knowledge capital, and thus offer promise on economic growth.

Consequently, the improvement of a country's knowledge capital relies on educational reforms that can increase students' testing scores (i.e., knowledge capital) towards the level of developed countries. The authors close the book by linking the failure of implementing such educational reforms to transition costs. While those costs may include the additional expenditure on training high quality teachers and creating new testing and monitoring systems, Hanushek and Woessmann persuade countries that have been left behind to accelerate school reforms due to associated benefits. They show that it is a lucrative project if a country can simply compute the present value of its GDP accounting for improvements in knowledge capital over time. Through

projecting, the authors show that the present value of future GDP among countries can be increased by 4.3 percent on the low end and 13.8 percent on the high end. Since benefits of education reform clearly outweigh the costs, there are considerable opportunity costs to not reforming the educational system to improve knowledge capital.

Overall, I believe *The Knowledge Capital of Nations* provides a simple but powerful explanation of international growth differences: knowledge capital is the key to explaining differences in economic growth. It, however, provides little explanation for how knowledge capital can be increased rapidly in some countries compared to others. For example, what factors, such as policies or cultural norms, may either explicitly or implicitly create incentives to induce a country to improve knowledge capital over time? Also, the authors focus on contemporary economic growth; they do not address why the international income difference did not occur until 1960, nor do they discuss why income difference among rich and poor countries have grown larger in the past 50 years (Restuccia, 2011). Nonetheless, the book provides a new proxy for human capital to understand economic growth with sufficient evidence. It also solves many problems that the reader may be concerned with throughout their reading. The new evidence of human capital will surely bring back the debate of the driving force for development, and this idea awaits further testing.

References

- Lucas, Robert E. (1988). "On the Mechanics of Economic Development," *Journal of Monetary Economics*, 22, 3-42.
- Bloom, Nicholas, Aprajit Mahajan, David McKenzie and John Roberts. (2010). "Why Do Firms in Developing Countries have Low Productivity?" *American Economic Review*, 100, 619-623.
- Restuccia, Diego. (2011). "Recent Developments in Economic Growth," *FRB Richmond Economic Quarterly*, 97, 329-357.
- Restuccia, Diego and Richard Rogerson. (2008). "Policy Distortions and Aggregate Productivity with Heterogeneous Establishments," *Review of Economic Dynamics*, 11, 707-720.
- Romer, Paul. (1990). "Endogenous Technological Change," *Journal of Political Economy*, 99, 71-102.

Angus Deaton. 2013. *The Great Escape: Health, Wealth, and the Origins of Inequality*. Princeton University Press: Oxfordshire, UK. ISBN: 9780691153544, 376 pp., \$22.00 (hardcover).

Reviewed by *Hyunwoong Pyun*, West Virginia University

Angus Deaton's *The Great Escape: Health, Wealth, and the Origins of Inequality* explains how humans escape from poverty, how within-country and global inequality occurs, and discusses what we should do to fix inequality. He begins by discussing the movie "The Great Escape," which is about prisoners in World War II. In the movie, 250 prisoners escape from prison, while others do not. Deaton argues that the exact same situation happens economically with some people escaping poverty while others are left behind.

The Great Escape: Health, Wealth, and the Origins of Inequality is effectively divided into three parts. In the first part, Deaton explains how human beings escape from death. He

discusses possible reasons for enhancement of health in western countries. In the second part, Deaton explains economic growth and inequality using the U.S. example and expands into a discussion of global poverty. In the third and final part, he discusses foreign aid through consideration of ways developed countries can effectively assist less developed countries.

Part I begins with an explanation of the history of life and death. Deaton starts with prehistory, going through the hunter-gatherer era and the development of agriculture. In the 18th century, as a result of economic growth, within-country health inequality is observed in British data for the first time. In the 19th century and the first half of the 20th century, improvements in nutrition, sanitation, and scientific advances such as germ theory led to an improvement in life expectancy. But the improvement in health was not shared equally around the world. Currently, there are poor countries whose infant mortality rate is still high, where more than one third of children under five are dying compared with only 15 percent in the world as a whole. Deaton claims that economic growth is not sufficient to solve this problem. He continues with an example of China which has experienced robust economic growth in the past 30 years, but seen slow declines in the infant mortality rate. Deaton argues that political decisions in China resulted in a tradeoff of well-being for economic growth. Education and government health care policies are key parts of a solution as most poor countries spend relatively little in these areas. This limited spending is due not only to dictatorial or military regimes, which likely do not care what their citizens want, but also results from the fact that countries with abundant natural resources have less need to collect revenue from the population. According to Gallup World Poll results, health is still not a priority in Africa. As part of a solution to this problem, African countries need more educated people, especially in the medical field. Deaton also explains what happens in modern, wealthier countries regarding health issues and notes that declining rates of cigarette smoking is key to understanding changes in health issues in rich countries. Lastly, Deaton compares rich and poor countries in terms of life expectancy and height to illustrate a clear unequal distribution of health benefits throughout the world.

In the second part of the book, Deaton turns to well-being. He shows the historical growth in gross domestic product (GDP) in the U.S. and its slowdown from 1930 to present while noting recent increases in the share of income accruing to top earners. Starting in the mid-1970s, skill-based technical progress, globalization, and the minimum-wage policy combined to create a large gap between rich and poor. Deaton is concerned about the inequality issue in the U.S. and its relation to politics. The declining power of unions and the rising power of the elderly make this inequality problem worsen via stagnant wages and increases in Social Security spending. Government tax policy partly drives the discrepancy in income as well. Next, he moves to the global case. There are several countries that have experienced economic growth on par with the U.S., while many others have not grown at all, which leads to global inequalities. Deaton also explores global income, within-country inequality, and how within-country inequality relates to world inequality. For example, while China and India have experienced rapid economic growth, economic inequality within these two countries has grown. Regardless, Deaton argues that most of the world inequality comes from the difference between countries, not from within-country inequality.

In the last part of the book, Deaton considers ways to assist poor countries. “aid illusion” means that simply transferring more money from rich countries to poor countries cannot solve the world poverty problem. Of course, economic growth in poor countries is the surest and the most lasting answer to fix global poverty. If poverty is a result of poor institutions, poor

government, and toxic politics, aid will not help much. This might be a reason why China and India have experienced substantial economic growth with relatively small amounts of aid while African countries have experienced sputtering economic growth, even though they have received proportionally larger amounts of funding. Ineffective aid is another concern as rich countries often offer support for political purposes, so aid could be concentrated on alliance countries and not on countries in which aid is most needed. Given such limitations of the present system, Deaton argues for “smarter aid” and advocates for selectivity, advance market commitments to control drug supply, and providing advice rather than making loans.

To sum up, Deaton provides an optimistic forecast even though threats such as climate change and an abundance of seemingly never-ending conflicts persist. A large number of improvements still need to be made, not only with respect to health and economic growth, but also in regards to declining violence and improving freedoms. *The Great Escape: Health, Wealth, and the Origins of Inequality* provide little new fodder for development economists: still, it is a good starting point for those interested in learning more about economic growth, global poverty, and inequality. Deaton's organized graphical data and perceptive intuition bring new vistas and understanding to the complex problem of social inequality.