Book Review

Nutrition Economics: Principles and Policy Applications

Suresh C. Babu, Shailendra N. Gajanan, and J. Arne Hallam

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The book by Babu, Gajanan, and Hallam is a welcome addition to the not-so-populated toolbox for nutrition policy analysts. "Nutrition Economics" covers theoretical and empirical aspects that are central to policy evaluation, and provides short and effective coverage of methods for non-experimental data, together with references, examples and Stata codes. It is a valuable primer for graduate students and practitioners willing to face the challenges of nutrition policy evaluation.

Nutrition Economics: Principles and Policy Applications is a book that was missing from the food economics and policy literary landscape. The authors make a commendable effort in bringing together the economic and quantitative (empirical) dimensions to provide a state-of-the-art overview of the practitioner's toolbox for the economic and policy analysis of nutrition issues.

The challenge is quite ambitious and Babu, Gajanan, and Hallam face it from multiple perspectives, to the point that this lengthy book consists of 8 sections and 17 chapters. Each chapter is concluded with a set of exercises, and the book is structured in a way that makes it especially suitable for teaching at the graduate level, but it is also valid resource for practitioners and researchers.

The introductory section sets the scene and explains the rationale of the book. In Chapter 2, it becomes clear that the main perspective is one of development. Seven global nutrition challenges are introduced with short and effective definitions: calorie-deficient diets; micronutrient deficiencies; stunting; wasting; overweight and obesity; exclusive breast feeding; and lower birth weight. The chapter continues by summarizing unanswered questions, and within the chapter conclusion there is a statement, which highlights what I believe to be the key contribution of this work: "We expect specialists to work for nutrition and ask them to address other related concerns, such as gender dimensions, when they are often not trained in these areas. Partly due to this, the design of the intervention is faulty and the implementation suffers as well." Chapter 3 explains the conceptual framework to explore the causes of malnutrition and connects them to other development objectives. The introductory section ends with a long table, listing the policy issues addressed within the book and their link with the various chapters.

The second part of the book covers the *Economic Analysis of Nutrition.* This section is a small book by itself, more precisely an introductory economics textbook, where topics in micro- and macroeconomics relevant to nutrition policy analysis are summarized in a concise form, but without missing the most basic concepts of economics. This section may be valuable to students and practitioners with little knowledge in economics. Chapters 4 and 5 explain the basic concepts in microeconomics and macroeconomics, respectively. These include the foundation for household-level demand analysis and intra-household allocation, but also partial and general equilibrium modeling and social accounting matrices.

The third part is also a concise treatment of economics concept, but it focuses on the economics of nutrient demand. Chapter 6 can be read as a homage to Deaton's (1980) book on the economics of consumer behavior, and it is concluded with a review of food demand studies published in the academic literature. A short and simple guide to estimating a quadratic Almost Ideal Demand System (AIDS) in Stata is also provided, something that graduate students will greatly appreciate. The authors are aware of the risks of black-box approaches to demand analysis, and recommend that statistical software should serve as a basis to understand how specifications, data, and estimation methods impact on results and policy implications, rather than as objects of faith. Chapter 7 on the *Demand for Nutrients and Policy Implications* reviews a variety of studies aimed at modelling the demand for calories. Again, succinct codes for estimation and simulation in Stata are provided.

The fourth part is entitled *Determinants of Nutritional Status and Causal Analysis*, although it reads more as an introduction to three methods that have played—and are playing—a major role in empirical economic analyses of nutrition in developing countries. Chapter 8 gives a short and practical overview of quantile regression; Chapter 9 is a precious introduction to intra-household allocation models; and Chapter 10 discusses the application of the Blinder-Oaxaca decomposition method. As usual, simple Stata commands are demonstrated at the end of each chapter. The boxes scattered in these chapters help the reader to link theory and methods to real policy problems explored in published works. These include the impact of acculturation on the diet of Hispanic youths in the US (box 8.1); stunting and gender-bias in 19th Century England (box 9.1); and the seasonality in anthropometric measures of Indian newborns ("Are Monsoon Babies Cursed?" box 10.1).

The fifth part, *Program Evaluation and Analysis of Nutrition Policies* is, in my opinion, the most valuable contribution of this book. Chapter 11 introduces the reader to ex-post evaluation methods when data are non-experimental. It is impressive how the authors can condense each method in a couple of pages or less. As for the rest of the book, this is a strength if one is looking for a quick introduction to methods that currently represent the core of policy analysis. Our history of nutrition policymaking is long enough to learn from the errors and successes of the past, and the program evaluation toolbox will help us in that direction. After introducing the concepts of randomization, Chapter 11 continues by explaining the Instrumental Variable approach, the Difference-in-Difference estimator, Regression Discontinuity Designs, and Propensity Score Matching. Needless to say, published references and commented Stata examples are provided. Chapter 12 reads more as a case study on safety nets and social protection. The chosen approach to discuss ex-post evaluation rests on panel data, and a brief discussion on panel regression concludes the chapter. A more detailed presentation of the Regression Discontinuity approach is covered in Chapter 13, in relation to evaluation on school nutrition measures.

The sixth part looks at *Economics of Triple Burden*, and Chapter 14 is a very comprehensive overview of the economics behind the obesity epidemics. The chapter covers many topics, including the quantification of the health costs of obesity, geographical and income disparities, schools and food deserts, the role of fast food, and peer effects. There are two pages aimed at answering the "Big Question": *Will Fat-taxes or Soda-taxes Work?* This chapter is not different from the rest of the book in terms of style. The authors, rather than providing simplistic answers or bombastic statements, redirect the readers to a multitude of well-selected published works. There is also one short (too short!) paragraph on the *Policy Angle from Behavioral Economics,* which picks up a couple of behavioral issues that might prove to be very important in addressing the obesity epidemics, including hyperbolic discounting or status-quo biases. This Chapter is mainly US-centered, despite providing some references to obesity in OECD countries and Latin America, but not much is written about the Triple Burden in developing countries and the difficulty to develop policies and program to address obesity in countries where undernutrition is still a major issue.

Part G has a generic title, *Special Topics in Nutrition Policy*, but especially the first chapter of the section, Chapter 15, addresses an important dimension, too often overlooked in policy studies, that is the need to adopt a multi-sector approach in nutrition policy. An extended conceptual framework is provided, drawing from Babu and Mthindi (1994) and updated with more recent scientific contributions. Understanding the "Nutrition pathways: Entry points for policy interventions" (this is the caption under the conceptual framework picture on page 317) is a key challenge, and this chapter makes a step forward by looking at the existing evidence on the agriculture-nutrition-health interconnections, and the potential for new research. Chapter

16 is a self-contained contribution, and the chapter introduce the reader to the application of a tool (a knowledge-based system) to develop decentralized nutrition interventions, based on the original contribution by Suresh Babu and various co-authors. At a first glance, this chapter may appear inconsistent with the broader approach followed in the book, but it is true—as the authors notice—that food system-based approaches deserve more attention to answer complex questions.

The last part consists in the concluding Chapter 17, F*uture Directions for Nutrition Policy Making and Implementation*. The authors list 13 lessons learnt in the last three decades, and it is worth reading and reflecting on them. Key lesson number 7 is emblematic, and tells us why a book like this is precious, especially if used to teach graduate students: "Monitoring and evaluation of program implemented, both for their process lessons and impact of the benefit, are needed" (page 346). In the "big data" era, with a sufficiently long history of nutrition policies, economists are still begging for "adequate" data, which means systematic and detailed information not only on food and nutrition choices, but also on all relevant environmental variables. The toolbox to provide answers is there, and the range of tools is well covered in this book, but how often do we have the data to properly evaluate specific policies and programs?

Nutrition Economics: Principles and Policy Applications is a timely book. It stimulates the reader towards a rigorous approach in nutrition policy analysis, and especially towards learning and adopting quantitative methods that are under-used in the food policy literature relative to other fields of application as labor and health. The book contains all key words in the nutrition economics discipline and it is easy for the reader to find the relevant "half-page" that covers the policy or the method of interest. The authors should be praised for the incredible

effort to be exhaustive, and for their ability to translate potentially difficult technicalities into simplified examples, including references to Stata commands.

There is definitely a trade-off between coverage and depth, the book is dense and heterogeneous in the level of technical detail provided. I would have liked to see a more extensive discussion of program evaluation methods, for example by looking at the extension of regression discontinuity designs to allow for fuzzy cut-off points, how difference-in-difference could be combined with propensity score matching, or also looking at model-based scenario analyses and interrupted time series. Similarly, it would have been nice to see a broader exploration of the existing literature, for example to include many recent nutrition policy evaluations in Europe, or more emphasis on the behavioral dimension of nutrition choices. However, this would have meant a different book, with a more advanced target audience. Thus, *Nutrition Economics* should be welcomed as a book that is accessible to non-economists and provides them with the necessary foundations, but also as a primer in program evaluation for graduate students.

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