Preface

For 20 years or so, the authors thought of putting together a new edition of our 1970 book, *Consumer Demand in The United States*, but for a variety of reasons this never came to fruition. While both of us were continuing to work on demand and consumption, our interests in doing so were somewhat divergent. HSH was focusing more on implementing the addilog models first introduced in his 1960 *Econometrica* paper, testing the Axioms of Revealed Preference, and developing a new family of functions for analyzing the distribution of income, while LDT was pursuing energy and telecommunications demand, and puzzling over how the theory of demand might be better integrated into psychology, and even more, into how the brain is structured and functions. However, it is now clear that a mechanical updating of the 1970 book would have been of little utility, and that delay has in fact been useful. For an interval of 35 years allows, not only for the use of substantive new bodies of data, and taking advantage of notable advances in econometric techniques, but also for the exercise to be tempered by sober reflection (and hopefully wisdom!) arising from many added decades of experience.

Not surprisingly, therefore, the present effort differs in major ways from the 1966 and 1970 books. While dynamics continues to be a main theme, the focus is away from development of a consistent system of equations for use in forecasting and projection (which was the primary motivation for the two earlier editions) to a more practical concentration on estimation of a broad array of price and total-expenditure elasticities. While the novelty in the 1966 and 1970 books was application of state- and flow-adjustment models, novelty in the present exercise takes three forms: (1) extensive analysis of cross-sectional data from the consumer-expenditure surveys conducted quarterly by the US Bureau of Labor Statistics (including merging into these surveys of price data collected quarterly by the American Chambers of Commerce Research Association), (2) attempts to graft the analyses onto recent advances in the neurosciences, and (3) extensive use of quantile regression in estimation.

Thirty-five years is obviously a long time between editions of a book, and the once-young authors are now hardly so. As a consequence, there undoubtedly will be some readers who feel that the theoretical structures employed do not adequately reflect the current state of the literature. This may especially appear to be the case in the cross-sectional analysis, for the models estimated with the cross-sectional data generally predate 1990. There are four reasons for this. In the first place, when the
focus is on the estimation of price and income elasticities, there is still no substitute, in our opinion, for the simple double-logarithmic function for ease of estimation, fit, and interpretation. Second, the current literature remains heavily conventional in its neoclassical orientation, which is at odds with a desire (though probably more on the part of LDT than HSH) to interpret results as much as possible in a neuroscience framework. Third, as a purely practical matter (and as will be seen), elasticities (viewed as mean tendencies) with the cross-sectional data are generally robust with respect to functional form and model sophistication. Finally, after years of estimating what probably numbers in the hundreds of thousands (maybe even millions) of demand functions, we have our own ideas of how to go about doing things, and - truth be known - are probably pretty set in our ways!

As in the first two editions, the book is targeted at a variety of readers. First, of course, is our fellow economists, who hopefully will find of interest our analyses of the BLS-CES quarterly surveys, application of the Bergstrom-Chambers model (which allows for state- and flow-adjustment within the same framework) in the aggregate time-series analysis, and our attempt to graft demand analysis onto neuroscience roots. As before, most of the models estimated are derived (often in what might seem excruciating detail) from first principles, which teachers and students in applied econometrics classes (if not others) can find useful as illustration of how empirical research is done. Industry, marketing specialists, and government and other forecasters interested in price and income elasticities provide a second target audience. Finally, specialists in econometrics may find of interest our use of quantile regression, together with the frequent appearance of long-tailed, asymmetric distributions of residuals and our various methods of effecting non-linear estimation.

Among other things, it is useful to contrast the preparation of the 1966 and 1970 books with that of the present exercise. Research for both the 1966 and the 1970 books was undertaken under contract for the US Bureau of Labor Statistics [for use in the (then) ongoing Interagency Growth Study], with some additional support provided by the Ford Foundation. The total amount involved was of the order of $75,000. Besides ourselves, upward of six research assistants, two computer programmers, and at least one secretary were involved. The 1966 edition took about 3 years to complete, and the 1970 edition about two. All work was done at Harvard Computer Center on an IBM 7094. Apart from several semesters of partial released time for LDT (together with the purchase of 4 years of survey data) provided by the Cardon Foundation for Economic Research in the Department of Agricultural & Resource Economics at the University of Arizona, no government, foundation, or private industry money has been used in the present effort. Work began on the cross-sectional analysis in the winter of 2000 and was pretty much completed by the fall of 2005. The time-series analysis was then started and was essentially finished in the summer of 2006. Thus, the present exercise has required about 7 years in total. While several of the graphs and charts have been prepared professionally, no research assistants, programmers, or secretarial assistance have

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1 Also, writers of principles texts can now have a large array of up-to-date price and income elasticities at their disposal.
been used. All statistical and econometric work has been done in SAS, and all on a personal computer, much of it during summers on a laptop. Among other things, equations, which often required a turnaround of 24 h to estimate in the 1966 and 1970 editions, could be estimated in a fraction of a second in the present effort. Most data in the first two editions were obtained in the form of worksheets from the Bureau of Labor Statistics and Department of Commerce or copied from the *Survey of Current Business* or *Historical Statistics of The United States*. In the present effort, the CES surveys were purchased on CDs from the Bureau of Labor Statistics, while all of the time-series data were downloaded from the Internet. To have participated in this much change in research technology over the course of our academic careers is obviously truly amazing.

The present work is both less and more ambitious than its two predecessors. It is less ambitious in that the focus, within traditional applied demand analysis, is quite narrowly on the estimation of price and income elasticities. On the other hand, it is considerably more ambitious in the type of data analyzed and, especially, in our desire to couple consumption behavior with neuroscience and Darwinian considerations. Above all, we are cognizant of the present effort’s shortcomings. While our analysis of data from the BLS consumer expenditure surveys is the most extensive of which we are aware, we have hardly done justice to the information that these surveys contain. Socio-demographical information is employed simply as control variables, only crude efforts are made to take into account household composition effects, and aggregation information is ignored completely. Also, while we feel it incumbent for demand theory to take its cue from the brain sciences, the models and approaches that are pursued should be viewed as first attempts and our interpretations of empirical results as simply suggestive of what hopefully will be things to come.

As with any large undertaking, we have benefited from the assistance, advice, and counsel of a number of individuals, colleagues, and organizations. We are particularly grateful to Sean McNamara of the Council for Community and Economic Research for making available to us the price data collected in the ACCRA quarterly surveys, to Donald Kridel, Gary Madden, Teodosio Perez-Amaral, Paul Rappoport, Barbara Sands and Dennis Weisman, to seminar participants at Kansas State and Curtin Universities, and to the Cardon Foundation for Economic Research in the Department of Agricultural & Resource Economics at the University of Arizona. We are grateful as well for the comments (both sympathetic and critical) of several anonymous readers. Also, we are especially indebted to Iris Geisler for invaluable help in penetrating the inner sanctums of SAS and to Nancy Bannister for her superb talents in preparing the manuscript for publication. Responsibility for omissions and errors remains, of course, with us. Finally, we should mention that we feel greatly honored by the impacts that the flow- and stock-adjustment models of the 1966 and 1970 editions of CDUS have had on applied demand and consumption analysis. Needless to say, the kudos of our peers in this regard has been exceedingly gratifying.

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