ONE

Introduction

The Economic Organization of the Household is an introduction to the economics of the family. It uses the economic theory of production as well as the economic theory of the consumer to better understand the behavior of individuals and families. By behavior we mean more than just consumers' purchases of market goods and services as explained by neoclassical consumer theory. The economics of the family also sheds light on individual and family investments in monetary assets and human capital, the use of householders' time in market work, household work, and other nonmarket activities. Economics of the family goes further in providing an understanding of the effects economic forces have on the fertility, marriage, and divorce decisions of individuals and families.

The economics of the family has been called the "new home economics" in partial recognition of the long history of empirical studies of family behavior conducted by home economists. By the 1930s, "family economics and home management" had become a separate field of study within home economics. Purchasing behavior, family time use, and financial management were among the topics studied and taught. Home management theory was developed to provide a unified framework within which all family decision making could be understood (Deacon and Firebaugh 1988). As such, it was multidisciplinary in its attempt to integrate economics, sociology, and psychology into a single framework for the empirical study of family behavior. It utilized psychology and sociology more than it did economics, in part because economics at that time was focused almost exclusively on explaining the behavior of markets for consumer goods and services. Exceptions were Margaret Reid's 1934 treatise, *The Economics of Household Production*, dealing extensively

with the productive activities carried out by the household, and Wesley Clair Mitchell's 1912 article, "The Backward Art of Spending Money," focusing on the purchasing agent role performed by household members. Although both studies were used extensively by home economists, neither stimulated sufficient interest by economists to develop an economics of the family. Theory building by economists had to await the changes in consumer and family behavior that occurred after World War II and economists' struggles to understand them.

Traditionally, economists made use of the economic theory of the consumer primarily for the purpose of understanding the market demands for consumer goods and services. In the face of the failure of Keynesian macroeconomics to explain the surge in aggregate consumption after World War II, consumer theory was used to provide an adequate microeconomic grounding for the study of aggregate consumption and saving (Friedman 1957; Modigliani and Brumberg 1954). Inadequate explanations of national economic growth in the twentieth century led to the formal recognition within economic theory that people create human capital by investing in themselves and that human capital is itself an important generator of economic growth (Schultz 1974; Becker 1975).

The puzzling rapid rise in the labor force participation rate of married females beginning in the 1940s also stimulated labor economists to look within the household for answers. Jacob Mincer's (1963) recognition that married females made choices between market work and household work began to shed light on their market work behavior. Gary Becker (1965) recognized the productive activities of households, emphasized the time spent by individuals and families in household production (i.e., nonmarket work), and formally incorporated the economic theory of production into consumer theory. The baby boom of the 1940s and 1950s, the subsequent baby bust of the 1960s, along with the interconnections between the labor force participation of married females and fertility, stimulated the use of consumer theory in explanations of fertility (Becker and Lewis 1974). Similar inadequacies in the economic explanations of trends in marriage and divorce led to the application of consumer theory to the problems of explaining the marriage and divorce decisions individuals make (Becker 1973–1974; Becker et al. 1977; Manser and Brown 1979; McElroy and Horney 1981).

The economics of the family, therefore, has been largely a theoretical and empirical response to the demand for better explanations of the new or markedly changed individual and family behavior of the past forty to fifty years. As such, the economics of the family has joined sociology and demography in attempting to provide better explanations of the

important trends in household behavior: the important changes in consumption and savings patterns in the past half century, the increasing education and training of the population (especially females), the rising labor force participation rate of married women, the decline in fertility, the decline in marriage rates, the rise in divorce rates, and the connections among these diverse trends.

INDIVIDUALS, HOUSEHOLDS, AND FAMILIES

The focus of the text is on the behavior of individuals and families. These terms, individuals and families, are by their nature vague and in need of clarification. For our purposes a household is a small group of people who use their collective resources to pursue the same goals. A household, therefore, can be an individual, a family (by which we mean a group of individuals living together and related by marriage, birth, or adoption), or a small group of families or unrelated individuals (so long as they jointly use their resources to pursue the same goals). Empirically, the U.S. Census Bureau's definition comes about as close as possible to defining the concept: a household is "all persons who . . . occupy separate living quarters. . . . A household includes related family members and all unrelated persons who share the separate living quarters" (U.S. Bureau of the Census 1982, p. 4). According to this definition, a household, then, may be an individual living alone and conducting her own affairs, a family, or a household. In the text, we use the terms consumer, individual, family, and household as synonyms unless otherwise noted. The term consumer is used in Chapters 2, 3, and 4 because the subject under discussion is the demand for consumer goods and services and for saving. The consumer in this context can be either an individual, a family, or a potentially larger entity like the Census-defined household. In Chapters 5, 6, 7, and 8, dealing with household time use, human capital, fertility, marriage, and divorce, the terms individual, family, and household are used more frequently.

AN OVERVIEW OF THE ECONOMIC ORGANIZATION OF THE HOUSEHOLD

Goals

Economists, whether studying households or firms, posit that decision makers make decisions among alternative courses of action so as to

further their goals. The decisions make a difference because of the different consequences each of the alternatives possesses. For economics to be relevant, then, decision makers must have goals they wish to pursue, there must be alternative courses of action that can be taken to further the goals, the decision makers must be able to choose among the alternatives, and the choices must matter in the sense that each alternative is costly and hence some alternatives further the goals better than others (i.e., more cheaply for a given degree of goal fulfillment or by increasing the degree of goal fulfillment at the same cost).

Rather than attempt to distinguish among the amazing welter of specific goals individuals and families have (e.g., to clean house today, complete a report at the office, potty train one's child, pass an algebra test), economists focus on what can be termed high-level goals to which the attainment of each of the myriad of lower-level goals contributes. In the case of individuals and families, the high-level goal is "satisfaction." The goal of individuals and families is said to be "maximizing satisfaction." Happiness and well-being are common synonyms for satisfaction. It is difficult to deny that individuals and families don't attempt to be as happy as possible or have as much well-being as possible given their resources and the constraints on their use. Thus, the assumption that individuals, families, and households act to maximize satisfaction seems to be a reasonable one.

Activities

Individuals and family members set about increasing satisfaction or their well-being by engaging in a set of activities. These activities are as diverse as the welter of lower-level goals. For the purpose of analysis, however, economists have grouped them in recognizable aggregate categories. Market work, household work, voluntary work, child care, and leisure are typical categories. Each of these aggregate activities yield satisfaction directly or indirectly. Market work yields income, which, in turn, is used to better one's life. Market work may also yield satisfaction directly in that some market work is pleasurable. Household work produces a set of household goods and services that, in turn, yield satisfaction: a clean house, a groomed lawn, laundered clothes, a shiny car, a fixed appliance, and so on. Like market work, household work may also yield satisfaction directly – as anyone who enjoys working in the garden or preparing a nice dinner will tell you. Voluntary work yields the satisfaction one obtains from furthering someone else's goals or the goals of an agency

one regards as worthwhile. Through voluntary work one may also gain the experience necessary to get more rewarding or higher paid market work. Child care develops socially and economically independent children as well as yielding the immediate fulfillment one gets from looking after one's own children. Leisure, whether watching TV, reading, playing a sport, or going to dinner and the theater, yields satisfaction directly.

Individuals, then, choose among the variety of activities open to them in their attempts to be as happy as possible. For instance, economists posit that an individual will choose to marry only if being married will make her/him happier than being single. Some activities are preferred more than others and these preferences partly determine which activities are chosen and how much of each is done. However, since resources must be employed to engage in any activity and, since engaging in one set of activities precludes the possibility of engaging in others, no activity is pursued to the exclusion of all others and no one does everything.

Resource Constraints

To engage in activities, one must have resources: if an activity takes no other resources, it at least takes time. Resources are at once the means by which activities are conducted and also an important constraint on the number and extent of activities performed. The resources are of several sorts, including monetary, physical, and human. A household's monetary resources include its monthly income, its savings and investments, and its credit. Physical resources are the myriad of multi-use household goods. Included are the house, the set of appliances and furniture, audio-visual systems, clothes, linens, cars, tools, and athletic equipment. Human resources are of two sorts: the knowledge and skills embodied in the individuals and the time of each individual in the household. Until the 1950s, consumer theory focused almost entirely on income as the resource constraining individual and household behavior. The recent insight that physical and human resources also constrain behavior stems from the challenges economists faced in explaining the rather dramatic shifts in time allocation, marriage, and fertility over the past forty to fifty years.

Technological Constraints

Each activity has an underlying technology that is employed to engage in the activity. An activity's technology can be viewed as a recipe by which the resources required are employed. For example, the amount of time

and skill required and the piano, piano bench, sheet music, and physical setting of the piano produce the activity of playing the piano. The more skill, sheet music, and time with the same piano, the longer and better the piano concert. Likewise, the more soiled clothes, laundry detergent, hot water, electricity, and time with the same washer and dryer, the more clean clothes. Thus, the technology of the activities form important constraints on the activities the household engages in as well as the amount of satisfaction yielded directly or indirectly by the activities.

Legal and Socio-Cultural Constraints

The behavior of households is as bounded by legal and socio-cultural constraints as it is by technology and the resources at the households' disposal. Legal constraints are of two sorts: they enjoin households from engaging in some activities or from using some resources. Thievery, murder, and the consumption of certain substances are prohibited, while other substances can only be consumed by adults. We all are subject to being taxed. While such laws can be broken provided one is prepared to pay the possible consequences, we do not in this text discuss these possibilities. They are left for a text on the economics of crime. However, we do discuss tax and welfare policies that impinge on households' choices.

Socio-cultural constraints are likewise important in ordering the economic organization of the household. The roles socio-cultural constraints play in ordering behavior is the natural purview of family sociologists and, as such, are de-emphasized or neglected in this text. We do not dwell on the roles that cultural and religious factors play in constraining household choice. No text can do everything. However, since religion does feature importantly in fertility, marriage, and divorce decisions, we devote some space to this subject in Chapters 7 and 8.

The Organization of the Chapters

In writing this book, we begin by describing a simple economic model of the household and we add layers of complexity to this model as we move from chapter to chapter. Chapters 2 and 3 present a static, one-period economic model of consumer demand for goods and services. In these two chapters, we also examine the role that income and prices play in facilitating and constraining the household's purchase decisions. In Chapter 4, we move to a multiperiod model that can be used to examine questions of saving, borrowing, and consumption. This allows us to use the model

to examine the hypothesis that past actions and expected future conditions and actions help to determine present behavior. With Chapter 5, we up the ante even more by introducing time and production technologies as additional constraints that affect behavioral choices. Chapter 5 develops the concept of the production function as the representation of household technology and by so doing we gain new insights about the household as a producer of goods and services. Chapter 6 introduces the economic concept of human capital, its creation, and its implications for both market and household production. Finally, Chapters 7 and 8 utilize the household production function and the concept of investment in human capital to enhance our understanding of households' fertility and marriage behavior.

While the economic models build in their complexity as we move from Chapter 2 to Chapter 8, we endeavor to use graphical presentations of the models whenever possible, reserving much of the more complex mathematical modeling for the mathematical notes sections at the ends of the chapters. In this way, we hope this text will be useful for both junior- or senior-level economics seminars and first-year graduate seminars.

TWO

Household Equilibrium

INTRODUCTION

We are now ready to begin the economic analysis of the household. This chapter is devoted to developing the basic economic model of the household that underlies the remaining discussion. The model is set up to analyze the household's demand for goods and services, which will prepare for the discussion in Chapter 3. The model abstracts from the many household attributes and environmental factors, concentrating on two important attributes: (1) the set of goods and services the household can afford, given its income and market prices, and (2) the goals of the household expressed in terms of the preferences it has for goods. The former attribute – what the household can have – is described by the household's budget constraint; the latter – its goals – is described by the household's preference map and utility function. We discuss each in turn. To add concreteness to the analysis we will use food as an example. Hence, we are interested in developing a model of the household that will allow us to analyze the demand for food. The analysis will be general, however, and applicable to the demand for any good.

THE BUDGET CONSTRAINT

In each period (say, a year) we suppose the household to enter the marketplace to purchase those quantities of food and other goods and services that will maximize the family's satisfaction. In doing so it faces market prices for food and other things along with the limited income it possesses.

Its choices are necessarily made in the light of these facts. We can gain great insight into the choice environment faced by the household by organizing and representing these facts both algebraically and geometrically. We do the algebraic representation first.

Let the market price at which a unit of food may be purchased during the time period under consideration be p_f dollars per unit of food. Likewise, let p_o be the price at which units of the composite good "all other goods" may be purchased. Similarly, let the quantities of food and "all other goods" purchasable per period by the family be q_f and q_o respectively.[1] And let the family's total income per period be Y.

There is no reason to suppose that the family will not use all of its income because, as we will see subsequently, using all of its income is the only way it can achieve the greatest satisfaction or well-being. Thus, the family spends all of its income on the two composite goods, food and "all other goods."[2] This concept called the budget constraint can be represented as

$$p_f q_f + p_o q_o = Y. \tag{2.1}$$

Definition: The budget constraint represents all the possible combinations of food and "all other goods" purchasable by the family, if it uses all of its income in the period of analysis.

By setting q_f at 0, the maximum quantity of "all other goods" purchasable by the family, q_o^m, can be found by solving equation (2.1) for q_o,

$$q_o^m = Y/p_o. \tag{2.2}$$

[1] The terms *price per unit quantity* and *quantity of food* are intentionally vague. For this analysis we cannot add pounds of beef, oranges, apples, and lettuce to obtain pounds of food. Such a measure is useless because we have added unlike things. Nor can we add the price per pound of beef to the price per pound of lettuce and get a meaningful price of food. Instead, price and quantity *indexes* for food must be developed in addition to price and quantity indexes for "all other goods" and services. Accomplishing this reduces all food items into one composite "good" we call food and "all other goods" and services into another composite good we will call "all other goods."

[2] The composite good "all other goods" includes any saving that the household does and thus really does encompass all the uses to which the household puts its income other than purchasing food. Thus, expenditures really do equal total family income. The price of the composite good "all other goods" is similar in concept and construction to the consumer price index (minus the food component) the U.S. Bureau of Labor Statistics uses to trace the general level of all consumer prices in the economy. Likewise, the price of food, p_f, is similar in concept and construction to the price index of the food component in the consumer price index.

Likewise, the maximum quantity of food purchasable by the family, q_f^m, is

$$q_f^m = Y/p_f. \tag{2.3}$$

Consequently, the family's budget constraint says that the family is able to purchase quantities of food between 0 and q_f^m and quantities of "all other goods" between 0 and q_o^m with its income of Y in the time period under study.

A geometric representation of the budget constraint can be obtained by solving equation (2.1) for q_o and plotting the resulting line on a graph with q_o measured along the vertical axis and q_f measured along the horizontal axis. The resulting equation is

$$q_o = Y/p_o - (p_f/p_o)q_f. \tag{2.4}$$

The shape of equation (2.4) is best illustrated in the following example. Suppose $Y = \$40$, $p_f = \$8$/unit, and $p_o = \$4$/unit. Then, we can use equation (2.4) to find the various quantities of food and "all other goods" that are possible for the household to purchase. In this case equation (2.4) is

$$q_o = 40/4 - (8/4)q_f = 10 - 2q_f.$$

The following tabulation gives the possible combinations open to the family:

q_f	q_o
0	10
1	8
2	6
3	4
4	2
5	0

These combinations are plotted in Figure 2.1 with the points joined to show the budget line. The line has as its vertical intercept the point (q_o^m, 0), which represents the maximum quantity of "all other goods" purchasable by the family (i.e., 10 units) and the zero quantity of food it can purchase as a consequence. The line's horizontal intercept is at point (0, q_f^m), representing the maximum quantity of food purchasable (i.e., 5 units) with the family's income of \$40 and the consequent zero quantity of "all other goods."