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Martin Browning, Pierre-André Chiappori and Yoram Weiss

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Introduction

The existence of a nuclear family is to a large extent dictated by nature. According to Aristotle (*Politics*, Book 1 part 2), “there must be a union of those who cannot exist without each other; namely, of male and female, that the race may continue (and this is a union which is formed, not of deliberate purpose, but because, in common with other animals and with plants, mankind have a natural desire to leave behind them an image of themselves).” However, families are also economic units that share consumption, coordinate work activities, accumulate wealth, and invest in children. Indeed, Aristotle adds, “The family is the association established by nature for the supply of men’s everyday wants.”

Economists’ interest in the family dates back to Cantillon (1730), Smith (1776), and Malthus (1798). These authors investigated the connections between economic circumstances and the size of the population. In particular, they discussed the subsistence wage and family size that can support a stable workforce over time, including current workers and their descendants who will replace them.¹ The main economic decision discussed in this context was the timing of marriage as a means to control fertility.² Later writers, including Mill (1848) and Le Play (1855), have shifted attention to the impact of the family on the standard of living of its members,

¹ “A man must always live by his work, and his wages must at least be sufficient to maintain him. They must even upon most occasions be somewhat more; otherwise it would be impossible for him to bring up a family, and the race of such workmen could not last beyond the first generation” (Smith 1776, p. 67).

² “Universally, the practice of mankind on the subject of marriage has been much superior to their theories; and however frequent may have been the declamations on the duty of entering into this state, and the advantage of early unions to prevent vice, each individual has practically found it necessary to consider of the means of supporting a family, before he ventured to take so important a step.” Malthus 1798, Book 4, chapter 14).

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via self-production, insurance, and redistribution of family resources. An important issue in this context was the allocation of bequests among siblings, which can affect marriage patterns, the incentives of children (and parents) to work and save, and the distribution of wealth in society.³

The role of the family has changed drastically in recent times. In modern societies, individuals can enter marriage and exit out of it almost at will, avoiding pregnancy is easy, child mortality is low, and both singles and married partners can choose whether or not to have children. As a result of technological changes, the importance of the family as a productive unit has declined sharply, and it has become much more common for both husband and wife to work in the labor market. There is higher turnover, and some individuals transit through several marriages, being single during a larger part of their life time. As marriages break and new marriages are formed, the traditional division of labor between husbands and wives, especially in taking care of the children, is put under pressure, and transfers between ex-spouses and custody arrangements are required to maintain the welfare of children under variable family arrangements. Despite the higher turnover and the changing household roles, marriage patterns in modern societies have some sustainable features, the most notable of which is the high correlation in the schooling attainments of husband and wives.

A unified approach to the family that is applicable to modern societies was first provided by Gary Becker (1973, 1974, 1991). This approach ties within-family allocations of time and goods to the aggregate patterns of marriage and divorce. The important insight of Becker's approach is that when each man (woman) can choose among several alternative spouses, competition over spouses matters. Then the options of each particular person willing to marry depend on whether individuals of the opposite sex are willing to marry him or her. Therefore, an equilibrium concept must be applied such that in existing marriages no one wants to become single or wants and can replace the current spouse. This broader perspective can address the stability of alternative matching profiles in society at large and ultimately explain the assortative matching patterns and high marital turnover that one observes in modern societies. Thus assortative matching by schooling in the society can be linked to the fact that within households, the schooling of husband and wife complement each other.

³ Based on his empirical study of family budgets, Le Play (1872) argued that the insurance role of the family is better served by the British system of inheritance, which allows a flexible allocation of bequests, than by the French system, which imposes equal division.

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Our book builds on Becker's work and the subsequent literature in empirical and theoretical family economics. There are two major strands to the recent economics literature on the family: what happens inside existing unions and who marries whom. Although the two strands of the literature have obvious mutual implications and sometimes meet, they are largely distinct (as can be seen from the largely disjoint set of contributors to the two strands). A principal aim of this book is to move forward the merging of the two strands (as well as providing a state-of-the-art discussion of the two strands). Accordingly, we divide the book into two parts. The first part covers the decision making within families; the second part examines the aggregate patterns in the marriage market and how the actions of different couples are interrelated.

Given the current, active state of the field, several different modeling strategies exist. Concerning the behavior of families, we explicitly recognize that spouses in marriage care about each other and their common children and yet may have conflicting interests. This situation allows for two distinct solution concepts; one is a noncooperative self-enforcing outcome, and the other is a cooperative solution that is efficient and requires binding commitments, enforced by formal or informal agreements (Lundberg and Pollak 1993). We discuss both alternatives, but the main message is that one can test which approach better fits the available data on consumption and work behavior of married couples. We show that even if the partners cooperate and act efficiently, the observed behavior, in terms of the consumption and work choices, will generally differ from that of a single decision maker. The differences arise from the recognition that changes in prices or incomes that influence the family budget constraint can also influence the relative "power" of the partners. For instance, transfers of income between husband and wife (or parents and children) that do not affect total family income have no impact on family behavior according to the traditional "unitary" model of the family but have systematic testable effects under the "collective" model that we propose.

There are also two approaches to model the competition over spouses and the division of gains from marriage. One strategy emphasizes frictions such that one can meet only with few and random members of the opposite sex before entering marriage (Mortensen 1988). The other approach ignores frictions, assuming that it is relatively easy to meet many partners in a short period of time (Gale and Shapley 1968; Shapley and Shubik 1972; Roth and Sotomayor 1990). In each of these cases, one can further distinguish between a "no transfers" case in which partners must accept the characteristics of their spouse, good or bad, and the "transfers" case in

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which spouses can effectively compensate (reward) for deficient (attractive) attributes. We discuss all these cases, showing their different implications for marriage patterns and for division of the gains from marriage.

The economic approach to the family can be contrasted with that of biologists and sociologists. These two fields use different methods that may yield different testable predictions. For instance, in discussing sex roles, economists often rely on the principle of comparative advantage. Thus a mother will spend more time with a child than with her husband if the ratio of her productivity at home relative to her market wage exceeds that of the father. The partners can then divide the gains in total output resulting from specialization. In biology, unequal division of labor is ascribed to the ability of women to have only a few children from different men, whereas a man can have many children from different women. Thus the mother is usually willing to invest more resources in the child than the father, who can potentially free ride on her desire to invest in the children. Hence men will compete for women who will select the most trustworthy men they can (based on some signals), but the end outcome is that men will spend less effort on each offspring (Trivers 1972). A significant difference between these two accounts is that the comparative-advantage argument rests on transfers of resources across spouses, that is, exchange that makes both parties better off (Bergstrom 1996; Cox 2007). As another example, sociologists often motivate assortative matching by inherent preferences to marry someone similar in terms of predefined attributes such as social status or ethnicity. In such a case, assortative mating is mainly constrained by groups size, and minorities are more likely to marry outside the group (Lewis and Oppenheimer 2000). Economists obtain a similar outcome, but the groups are formed in equilibrium as a consequence of optimal individual search and investment decisions (Burdett and Coles 1999; Chiappori et al., 2009). As these examples illustrate, economists bring to bear a large degree of free choice to individual agents subject to resource constraints and some aggregate consistency (an equilibrium) that makes all the individual choices mutually feasible and sustainable.

The economic approach to the family shares many features of the employment relationship that is widely discussed by economists. In both cases the issues of matching and the division of the surplus arise, as well as investment and effort spent in search. However, there are important differences that originate from the *noneconomic* aspect of the marriage relationship. First, some initial blind trust in the form of love is required to undertake commitments between the two partners. Based on such commitments, the partners can coordinate work and investment decision that

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increase their gains from marriage and stabilize their marriage *ex post*. Second, the presence of children, who are “public goods” for the parents, strongly influences entry into marriage and separation decisions. The partners cannot simply part and go their separate ways because they still care and are legally responsible for their children. These two differences make the analysis of the family radically different from the analysis of the employment relationship.

This book is intended for economists. It should be accessible to any graduate student in economics and has sufficient material for one or two semesters of lectures on family economics. Although somewhat technical, we verbalize and illustrate the main ideas so that the book can also be useful for scholars from other fields who wish to understand the economic approach without necessarily agreeing with it. However, the book will be useful mainly for those interested in modern societies with high marital turnover. Important problems that face traditional societies are not covered in this book. We do not discuss intergenerational transfers and dynastic households. Nor do we discuss the important issues related to the demographic transition from high to low population growth. For discussions of these issues, see Cigno (1991), Razin and Sadka (1995), Laitner (1997), and Hotz et al. (1997) in the *Handbook of Population Economics*, edited by Stark and Rosenzweig.

The first chapter of this book presents some basic facts about marriage and the family. The chapter is intended to motivate the analysis that follows in the rest of the book by showing how marriage and fertility interact with economic variables such as work, wages, and investment in schooling. We display data showing that married men work more and have higher wages than single men, whereas the opposite patterns hold for women. We also document the patterns of assortative matching and show how they were affected by the rising investments in schooling and the higher labor-force participation of women. The subsequent chapters are then divided into two parts; the first part (Chapters 2–6) provides a micro-level analysis of family behavior, and the second part (Chapters 7–11) provides a macro-level analysis of marriage patterns and their welfare implications.

Chapter 2, addresses the question, “Why marry?” and we discuss several broad sources of potential material gains from marriage, such as sharing consumption and coordination of work and investment decisions. Chapter 3 provides a basic theoretical framework for the analysis of family behavior. The framework is intentionally broad, including features such as altruism, public and private goods, and interaction of several family members (including children) who may act independently or cooperatively. We

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compare the traditional “unitary” model that treats the family as if it is a single decision maker with alternative models that allow family members to have different views on the decisions that are to be made. We present both noncooperative and cooperative variants of these nonunitary models. In particular, we discuss the “collective approach,” which assumes efficiency and a stable rule for allocating family resources and provides a tractable way for predicting family behavior and its response to varying economic conditions (see Chiappori 1982; Browning and Chiappori 1998). Chapter 4 discusses in detail the collective model and its testable implications. A particular emphasis is given to testing efficiency, an assumption embedded in all cooperative models of the family. We also discuss the normative implications of the collective assumption that replaces conventional analyses of household welfare with an analysis of individual welfare. Chapter 5 discusses how to empirically recover individual preferences within the household and the associated decision rules implicit in the collective model. This chapter also summarizes the main empirical findings. It is shown that the unitary model is often rejected, but efficiency is not rejected. Importantly, the rule for sharing the marital gains can be identified (up to a constant), and it is found to respond systematically to marriage-market conditions such as sex ratios and divorce laws.

Chapter 6 extends the static framework and considers family choice over time and under conditions of uncertainty. We address the new strategic issues that arise in a dynamic setup and the important role of commitments. Partners anticipate on marriage that a negative future shock in match quality may cause separation, which will reduce their benefits from collective goods, including children. Based on this anticipation, they choose how much to invest in children and how much to consume each period. To attain efficient investment and consumption outcomes, commitments made at the time of marriage are usually required. For instance, a binding contract, enforceable by law, can be signed at the time of marriage that determines the proportion of family assets that each partner would receive on divorce.

Chapter 7 provides an extensive and integrated analysis of matching models. The main question here is, “who marries whom?” To address this, we discuss models with and without frictions. Usually, there is less sorting when there are frictions or when utility is transferable within couples, but the reasons differ. With frictions, individuals are willing to compromise rather than wait for a more suitable match. With transferable utility, a less attractive spouse can bid for a more attractive spouse by giving up part of his or her share in the gains from marriage. Chapter 8 discusses in

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detail how the shares in the marital gains are determined jointly with the equilibrium matches when frictions are assumed away. The main insight is that the individual traits of two married partners, such as their schooling or income, are insufficient to determine the division. Rather, because of competitive forces and the endogeneity of the equilibrium matching, it is the distribution of traits in the population at large that determines the outcome. Chapter 9 uses the same frictionless approach to address premarital investments, such as schooling, whereby individuals can accumulate assets that will influence their prospects of marriage and their share in gains from marriage. We emphasize the contrast between inherited traits such as ethnicity and acquired traits such as schooling. Both kinds of traits influence marriage patterns, but acquired traits are also affected by these patterns. In this case, a rational-expectations analysis is required to deal with the two-way feedbacks that arise. We apply such equilibrium analysis to discuss the interesting reversal in the education attainments of men and women, whereby women who in the past invested less than men in schooling now invest more than men do.

Chapters 10 and 11 introduce search frictions to address turnover in the marriage market, allowing for divorce and remarriage. We examine the welfare implications of turnover for men, women, and their children. We also discuss the role of different laws governing divorce, custody, and child support. These chapters provide a less alarming perspective on divorce than is adopted by many observers. We recognize that the emotional components of a match are subject to unanticipated shocks and that divorce and remarriage allow the replacement of a bad match by a better one. Moreover, in a search environment, couples that received negative shocks can more easily find a new partner when many couples rather than a few choose to divorce.

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PART I

MODELS OF HOUSEHOLD BEHAVIOR

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