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Men and Islands: Dealing with the Family in Empirical Labor Economics*

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One way to track the evolution of labor economics over the past couple of decades is to review past issues of the *Journal of Labor Economics*, which was first published in 1983, and of *Labour Economics: An International Journal*, which appeared 10 years later. In the first few volumes of *JOLE*, I found a surprising prevalence of papers that focused on demographic outcomes, such as marriage and fertility, or on interactions between family members. Two classic examples from 1985 are Margie McElroy's paper on the joint determination of employment and household membership for young men and an article by Yoram Weiss and Bob Willis on children as collective goods in divorce settlements.¹ But, though family and demographic issues made occasional appearances in its pages, a typical *JOLE* empirical paper of the 1980s focused on wage, employment, or other outcomes for (mostly) male workers. Usually, a dummy variable for marital status is included in the regression with other variables explaining labor market outcomes. When the outcomes of interest, such as consumption or wealth, could only be measured at the household level, they were treated as the decisions of a single agent identified, implicitly or explicitly, as the male head of household. Of course, family size and structure varies and affects household economic aggregates: this could be accommodated either by choosing relatively homogeneous samples (eg. married couples only), or by including demographic controls (such as marital status and ages and number of children).

To the applied labor economist of the early 1980s, the archetypal decisionmaker was a male agent confronting a set of labor market constraints and choosing his own work hours, job search efforts, or training. He may have been a husband or a father, but these were individual characteristics rather than economic connections—influencing, but exogenous with respect to, his actions as a worker. The appeal of this approach is obvious: it enables the analyst to avoid two types of complication and to focus on other theoretical or empirical challenges. The first complication is presented by the presence in the household of multiple agents with distinct preferences who are jointly determining the observed outcomes. The second complication arises from the fact that household composition itself represents a set of individual choices about coresidence and pooling resources that are not unrelated to choices

¹ Less socially significant, but more important to me, was a paper from my Ph.D dissertation on the added worker effect that same year (Lundberg, 1985).

about hours worked and other conventional labor outcomes. The first issue has been addressed head-on during the past couple of decades in the now-extensive literature on collective choice and bargaining models of the family. The second, however, has received little systematic attention, although *ad hoc* concerns about “selection” into marriage or parenthood arise repeatedly in the literature.

I would like to suggest that family arrangements in the developed world have become, over the past few decades, so complex, so varied, and so transitory that the key work-family problem facing labor economists is the simultaneity of individual decisions in these two domains. The presence of a partner, wife, or child in a man’s household influence his work effort and his earnings, but are also influenced by his past labor market decisions, current constraints, and his expectations about future opportunities. With widespread increases in divorce, cohabitation, and nonmarital childbearing, men are far more likely to be marginal decision-makers with respect to family status domains such as marriage and custodial parenthood, and these decisions are closely connected to a man’s strategies as an individual worker and investor. Demographic changes have practical implications both for the returns to marriage and costs of children literature, and for labor economists who use family status measures as controls for unobserved productivity. No single econometric technique or set of techniques can “solve” the family-work simultaneity problem, but a recognition that the world has changed in a way that makes a clear separation between family economics and labor economics impossible can improve our modeling of, and understanding of, work and income.

I. Family Economics and Labor Economics

The men and women that labor economists study are arranged into families and households with parents, children, and other related and unrelated individuals. Within these families and households, individuals share living quarters and income, provide and promise companionship and care. This economic interdependence is not restricted to people who share a residence: familial ties also lead to transfers of time and money between households. Two basic facts emerge as we think about the economic constellations of families: First,

family structure emerges from a set of economic choices that are of interest in themselves; this forms much of the subject matter of what is now called “family economics.” Decisions to marry, to cohabit, to bear children, to divorce, and to provide care for elderly parents and support for grown children are choices that are constrained by individual endowments, the availability of partners, the technologies of household production and contraception, labor market conditions, and the social and institutional environment. Second, family arrangements will in turn affect the actions of individuals as workers and consumers, because family members provide resources and support to one another, and also impose obligations and responsibilities.

The field of family economics has grown dramatically since the early 1980s, spawning new journals but still well-represented in *JOLE* and *Labour Economics*. In part, this growth reflects simple economic imperialism. The extension of economic thought into new areas of human behavior has contributed to the vitality of economics and to its pre-eminence among the social sciences, and family economics has been a particularly successful example of this expansive force. Lazear [2000] describes the pioneering work of Gary Becker, beginning with the initial publication in 1981 of *A Treatise on the Family* [1991]:

Almost heretical, Becker’s willingness to extend the economic framework to consider topics like marriage and divorce, love for children and parents, institutions such as primogeniture and even discipline, reward, and punishment in the context of the family, was nothing short of revolutionary. (p. 110)

Family structure has also become more interesting to labor economists as a result of two related trends: changes in the economic status of women and a decrease in the prevalence and permanence of marriage. Widespread increases in market work by women in developed and developing countries has given them greater and more visible control of economic resources, and has prompted dissatisfaction with theoretical approaches that are highly asymmetric for men and women, or that ignore women as economic agents altogether.² Most developed countries have also experienced significant demographic changes over the past few decades. The scope of these changes varies widely across nations, but in general marriage has become less universal and less permanent, and occurs later in

² Until very recently, for example, this would be a reasonable characterization of the retirement and aging literature in economics.

life. Nonmarital childbearing, divorce and remarriage, increased acceptance of cohabitation and same-sex partnerships—these phenomena have implications for important outcomes ranging from child wellbeing to the adequacy of retirement savings, and this has made family choices increasingly relevant to economists.

As family economics has expanded over the past couple of decades, labor economists' treatment of families has evolved. The analytical treatment of men and women has become more symmetric, and male and female workers are increasingly likely to be included in the same sample (particularly in European studies). For example, the original *Handbook of Labor Economics*, published in 1986, included separate chapters on male and female labor supply; the second set of volumes, published in 1999, has a unified chapter on labor supply.³ The rejection of the unitary framework for family decisions is also apparent in the authoritative survey by Blundell and MaCurdy, which devotes considerable attention to collective and bargaining models of labor supply in a family context. The time allocation and investment decisions of women have always been treated as conditional on family arrangements; a spillover effect of a more unified approach has been to make family more salient in studies of male workers as well. These changes have contributed to an erosion of a conceptual framework in which each agent is an isolated male—a “man on an island.”

However, most labor economists will naturally be interested in the family status of individual workers as “controls” rather than as outcomes. In recent work in labor economics, it is still standard practice to specify an estimating equation of the form:

$$Y_i = \beta X_i + \gamma * Married_i + \delta * Dependent_Children_i$$

where the coefficient of interest is in β . The inclusion of indicators of marital status and the presence of children in the household as exogenous determinants of labor market outcomes is more common in papers that use data from the U.S. or U.K., and is often only mentioned in a footnote, or in the fine print of a table. A related approach, common in tax analysis, is to limit or stratify samples on the basis of demographics such as marital status.

³ Pencavel [1986], Killingsworth and Heckman [1986], and Blundell and MaCurdy [1999].

A couple of important questions arise: Are there situations in which controlling for demographics in this manner is appropriate, or at least defensible? How can we interpret the resulting coefficients on marital status and children? Browning [1992] provides a careful consideration of these questions with reference to the effects of children on the labor supply of women; in this lecture I want to extend this analysis to consider the effect of marriage and cohabitation as well, and to focus on the labor market outcomes of men.

There are several reasons why concentrating on male behavior and family status is appealing, beyond the obvious fact that it is the less-trodden path. One is that, since I live in the United States, it is difficult to avoid the current popular hype about marriage and the commonly-perceived need to persuade men to marry the mothers of their children. Politically, a principal manifestation of this concern is the marriage promotion initiative that has been proposed as a part of the reauthorization of welfare reform. Academically, the growing “benefits of marriage” literature shows that married people, and particularly married men, are healthier, wealthier, and happier than singles. Second, the evidence that family status and men’s labor market outcomes are strongly correlated has been bolstered by recent studies showing that fatherhood has surprisingly large effects on men’s labor supply. Finally, we might wish to focus on male behavior because we still believe the maxim I learned in graduate school: men are simple. It was standard procedure to restrict analysis samples to men to avoid complications such as dealing with endogenous selection into the labor force. However, this presumption may be misguided. When it comes to incorporating family status into the analysis of labor market outcomes, men may be just as complex as women—men’s family status is important, it is clearly endogenous with respect to labor market outcomes, and the practical significance of that endogeneity for labor economists is almost certainly growing.

II. What Do We Know About the Effect of Family Status on Men's Labor Market Outcomes?

Our decisions concerning how much to work and with whom to live are interdependent --perhaps this is stating the obvious. Yet family status continues to appear in published work as an exogenous determinant of labor market outcomes or, at best, as a non-random treatment correlated with fixed individual characteristics. Several strands of recent empirical evidence, however, suggest that family-work simultaneity may have important implications for our understanding of men's labor market behavior. First, married men behave very differently from single men, and fathers from non-fathers. Second, transitions into and out of marriage, cohabitation, and custodial parenthood appear to respond to current economic conditions, and not just to fixed individual determinants of labor market success. Finally, the demographic changes in developed countries that have marriage and parenthood more optional and less stable have made the simultaneity of family transitions, employment, and earnings more costly to ignore.

A. Marriage and parenthood are strongly correlated with male labor market outcomes.

Married men work harder, earn more, and are more stable workers than unmarried men. They are also less likely to engage in behaviors that impede labor market success, such as committing crimes and abusing drugs and alcohol. Waite and Gallagher [2000] document a variety of positive correlations between marriage and wellbeing using American data and argue that individuals should be encouraged to marry by providing them with more information about the benefits of marriage. Akerlof [1998] shows that marriage is positively associated with work hours and wages, and negatively associated with alcohol and drug use. The relationship between marriage and men's earnings is not limited to the United States: Schoeni [1995] finds that marriage is significantly correlated with higher earnings in 12 of 14 countries in the Luxembourg Income data sets from the 1980s.

As many researchers have noted, however, cross-sectional differences between the behavior of married and unmarried men cannot be regarded as the causal “effects” of marriage: there are likely to be pronounced selection effects due to both supply and demand factors in the marriage market. Men who are hard-working, law-abiding, risk-averse, and abstemious may be more attractive to potential wives as well as potential employers; men who prefer marriage to single life may also have more conventional and domesticated behavior both on the job and in their leisure activities. To the extent that these differences between men who are married and those who are not (or those who are custodial parents and those who are not) are due to fixed individual characteristics such as preferences or endowments, the effect of marriage or children on labor supply or wages can be identified by observing changes in these outcomes as a man’s marital status changes; i.e. using fixed-effect regression.

This technique has been widely used in the large literature on the “marriage premium” in men’s wages and earnings, which has been ably and recently surveyed by Ribar [2004]. All of the fixed-effects studies included in Ribar’s survey found a significant marriage premium in men’s hourly wage rate, and all but one of the studies used U.S. data. Richardson [2000] also finds a marriage wage premium for Swedish men.

Korenman and Neumark’s [1991] finding that much of the marriage premium arises from higher wage growth during the early years of marriage suggests that increased labor market effort by married men is likely to be the source of the wage premium. Little work has been done, however, on the effects of children and marriage on men’s labor supply. This is in sharp contrast to studies of women’s labor market outcomes, which have focused on the effects of marriage and, in particular, children on labor force participation and work hours as well as wage rates. An exception is Akerlof, who reports both cross-section and longitudinal analyses of the effects of marriage and children on a variety of measures of male “commitment to the labor market” including weeks worked, weeks unemployed, and hours worked. Pencavel [1986] finds that men work longer hours when their children are young, and Lundberg and Rose [2002] find substantial effects of both marriage and children on the annual work hours of men in the PSID, with sons increasing work hours more than

daughters. More recent longitudinal estimates by Choi, Joesch, and Lundberg [2004] using German data and my own estimates from the U. S. National Longitudinal Survey of Youth (NLSY) also find large marriage and child effects on men’s work hours. These estimates are reported in Table 1 and compared to the Lundberg and Rose results.

Table 1: Effects of Marriage, Children, and Cohabitation on Men’s Annual Work Hours
(standard errors in parentheses)*

	Marriage <i>Cohabitation</i> (cross-section)	Marriage <i>Cohabitation</i> (fixed-effect)	One child (cross-section)	One child (fixed-effect)
Panel Study of Income Dynamics (1975-1992) ¹	148.5 (24.5)	103.7 (16.5)	68.3 (23.0)	82.0 (14.8)
German Socio-Economic Panel (1984-2001) ²	192.3 (37.0)	107.1 (22.2)	96.2 (35.3)	50.8 (21.8)
National Longitudinal Survey of Youth (1978- 1999) ³	362.1 (8.5) 203.5 (14.1)	115.0 (8.8) 143.0 (12.4)	-104.4 (9.7)	34.1 (11.0)

* Models also include number of other children, age, education, year

¹ Lundberg and Rose [2002], men 18-60, born 1950 or later.

² Choi, Joesch, and Lundberg [2005], men 18-50, born 1950 or later.

³ Author’s estimates, men 18-42, born 1957-1965.

Marriage is positively correlated with men’s annual work hours in both Germany and the United States, and the marriage effect remains substantial and significant in fixed-effect regressions. The cross-section coefficients on marriage are larger than the fixed effect estimates, indicating that men who married worked longer hours than single men even during years that they were not married, i.e. that there is positive selection into marriage. With the NLSY data, we also find that cohabitation is positively related to work hours. A larger proportion of the cohabitation effect on work hours comes from a change in work hours when living arrangements change rather than from the selection of men who work long hours into cohabitation—rather surprisingly, the cohabitation effect is stronger than the marriage effect on hours in the fixed-effect specification.

The birth of a child is associated with a substantial increase in work hours by German and American fathers, though this effect is somewhat smaller in the younger NLSY cohort. The contrast between the cross-section and fixed-effect estimates of the child effect on NLSY men is a dramatic example of selection: men with one child work more than they did before the child was born, but before the child was born worked one hundred hours per year less than men who never had children. In this cohort, there is positive selection into marriage but negative selection into fatherhood. It is clear from the fixed-effect estimates, however, that when men acquire either husbandly or paternal responsibilities, they increase their work hours.

How can we interpret the fixed effect coefficient in column 2—the “effect” of marriage on hours worked? In the marriage wage premium literature, a verbal rationale is usually provided; the wage increase that accompanies marriage is interpreted as employer discrimination in favor of married men, or as a compensating differential for less-pleasant jobs taken on by men whose financial responsibilities have increased, or as the result of an actual increase in a man’s productivity. Increased productivity is, in turn, attributed to increased specialization in market activities by husbands whose wives have taken over household responsibilities, to a spouse’s help and career support, or to reductions in risky and productivity-diminishing behaviors such as drinking and drug use. This last effect is rationalized as the result of a change in men’s preferences, an increase in the relative value of home time, or monitoring and control of men’s behavior by wives. The story, then, is that the net benefits of staying out late with friends declines with marriage, and early nights make it easier to get up and go to work in the morning.

Akerlof, who links delayed marriage to societal ills such as increased drug use and crime, argues that behavior changes coincident with marriage result from changes in the utility functions of men and women—he asserts that marriage is a cue for the adoption of a new identity. When a man marries, his utility function changes; in particular, his new preferences place a higher value on time spent at home. A fixed-effect estimate of the effect of marriage on hours worked, then, compares the optimal labor supply of two distinct agents. This is analogous to the conventional “unitary” model of married couple behavior, in which

marriage transforms two single individual into a new agent with a set of consensus preferences. In both these frameworks, no interpretation of the marriage coefficient in terms of the economic functions of marriage is possible—the agents involved in the before and after decisions are fundamentally different.

Collective models of the household, however, do allow for a behaviorally meaningful interpretation of the fixed-effect coefficients in Table 1. When an agent marries, he or she enters into a well-defined joint decision-making process with another agent, and the integrity of individual preferences is maintained. A very simple, static model of leisure demand can illustrate how marriage “effects” on labor supply can be interpreted as the consequence of pooling resources and sharing income with another, particular, agent.

Suppose that, when single, a man (who is agent 1) maximizes a utility function of the form:

$$u_1(l_1, c_1) = \alpha_1 \ln(l_1) + (1 - \alpha_1) \ln(c_1 - \bar{c}_1)$$

where l is leisure and c is consumption of a composite commodity, subject to:

$$c_1 = y_1 + w_1(T_1 - l_1)$$

T is his time endowment, w his wage rate, and y is non-labor income.

The resulting leisure demand function, indexed by s for ‘single’ is

$$l_1^s = \frac{\alpha_1(Y_1^s - \bar{c}_1)}{w_1} \text{ where } Y_1^s = y_1 + w_1T_1$$

Log leisure demand will be linear in the log of the leisure/income preference parameter, the log of the wage rate, and the log of discretionary full income (which in turn depends upon prices, endowments, and preferences.

$$\ln(l_1^s) = \ln \alpha_1 - \ln w_1 + \ln(Y_1^s - \bar{c}_1) = \ln \alpha_1 - \ln w_1 + \phi^s(y_1, w_1; T_1, \bar{c}_1)$$

When the agent marries, we assume that the couple maximizes a weighted average of individual utilities, subject to a pooled budget constraint. The couple therefore arrives at an efficient solution to the intrahousehold allocation problem, while maintaining their separate

preferences, as in Chiappori [1992]. Consumption of the composite commodity above a subsistence level is assumed to be a pure public good for the household, and this is what generates the returns to marriage—to keep things as simple as possible we introduce no utility interdependencies nor any household production.

Agent 1 from the single optimization above marries agent 2, and they choose leisure and consumption to maximize the function:

$$V = \mu u_1(l_1, c) + (1 - \mu) u_2(l_2, c) = \\ \mu[\alpha_1 \ln(l_1) + (1 - \alpha_1) \ln(c - \bar{c}_1)] + (1 - \mu)[\alpha_2 \ln(l_2) + (1 - \alpha_2) \ln(c - \bar{c}_2)]$$

subject to $c = y_1 + y_2 + w_1(T_1 - l_1) + w_2(T_2 - l_2)$. Agent 1's leisure demand function when married is:

$$l_1^m = \frac{\mu \alpha_1 (Y^m - \bar{c}_1 - \bar{c}_2)}{w_1} \text{ where } Y^m = y_1 + y_2 + w_1 T_1 + w_2 T_2$$

As above, this demand function is linear in logs:

$$\ln(l_1^m) = \ln(\alpha_1) - \ln(w_1) + \ln(\mu) + \ln(Y^m - \bar{c}_1 - \bar{c}_2) = \\ \ln(\alpha_1) - \ln(w_1) + \ln(\mu) + \phi^m(w_1, w_2, y_1, y_2; T_1, T_2, \bar{c}_1, \bar{c}_2)$$

The change in a man's work hours when he marries can be calculated by subtracting leisure demand from his time endowment in each state, and taking the difference, so that

$$\ln(l_1^s) - \ln(l_1^m) = -\ln(\mu) - \phi^m(w_1, w_2, y_1, y_2; T_1, T_2, \bar{c}_1, \bar{c}_2) + \phi^s(y_1, w_1; T_1, \bar{c}_1)$$

will be the value of the fixed-effect coefficient on marriage in a labor supply equation.

This implies that the “effect” of marriage depends upon own and spouse's characteristics through the difference in discretionary household income in the two marriage states, and on the sharing parameter (which in turn is likely to depend upon marriage market conditions and the laws and institutions concerning marriage). In this simple model income effects drive the results: the resources contributed by a man's wife tend to reduce marital, relative to single, labor supply, while sharing with the wife increases a man's work hours.⁴

⁴ What's love got to do with it? If the development of altruistic motives is coincident with marriage, we are back in a world where preferences change with marital status. If altruism takes the form of the husband valuing his wife's utility, however, this shift will be a much more restrictive one than the adoption of a new identity.

In this model, the observed reallocation of individual effort is a response to marriage-induced changes in economic constraints, rather than to a change in identity or preferences per se. The effect of marriage on work hours emerges from the opportunity to pool resources, share public goods and (in a more complete model) specialize in market or home goods and exchange within the household. This has several practical implications. First, it provides a basis for comparing marriage effects with those of other living arrangements, such as cohabitation. In a static framework, we would expect to see similar effects of marriage and cohabitation, since they provide the same opportunities for pooling income and sharing public goods. In a multi-period model, however, the shorter expected duration of coresidence will reduce incentives to specialize and lead to smaller apparent effects on labor supply. Second, even in this extremely simple model there is not a single return to marriage—the difference in work hours depends upon prices, preferences, and the sharing rule and should vary systematically across couples. Heterogeneous treatment effects are known to be important in many applications—here, they arise directly from the theoretical framework. Finally, the sample of men in a fixed-effect regression is self-selected—we only observe a change in marital status if, for some available partner: $u_1(l_1^m, c^s) - u_1(l_1^s, c^m) > 0$. The observed average effect of marriage will depend upon the characteristics of men who select into the “married” sample and therefore upon the structure of the costs and benefits of marriage.⁵

The interpretation of the fixed-effect coefficient has been developed in the context of the effects of marriage on men’s labor supply, it applies quite directly to the male marriage wage premium as well. The dominant explanation in the literature for a marriage effect on wages is that marriage, because of the opportunity to specialize and the responsibility to provide for dependents, increases the effort that men devote to market work and therefore increases their productivity. In that sense, the wage premium is simply a cumulative consequence of the marriage effect on work time. The wage premium can be expected to vary across households and time, both because the optimal allocation of time will depend

⁵ This point has also been made by Ribar [2004].

upon the characteristics of husbands and wives,⁶ and because the selection of men into the married sample will vary.⁷

The model above is an essentially static one, in which we can compare the utility and labor supply decisions of a man in two situations: single vs. paired with a spouse with particular preferences and endowments. It provides some insight into why a man's behavior might change when he marries, but is incomplete without some consideration of how men select into one marital status or another, and what determines the timing of changes in family status. The use of fixed-effect techniques as a panacea for dealing with endogenous family status comes into serious question when we examine the sources of family change.

B. A man's decision to co-reside with a spouse, partner or child is an economic choice.

The observed correlation between family status and labor market outcomes has three possible sources. First, marriage and the presence of children can have real effects on a man's allocation of time and effort. Second, family status may be correlated with unobservable, fixed determinants of productivity or of effort—what makes a man attractive to employers is not unrelated to what makes a man attractive to a potential partner. Third, family status and work effort may be simultaneously determined, in response to changing labor market conditions or personal attributes. The last factor implies that changes in family status may be correlated with time-varying unobservables that determine wages or hours (eg. a health shock or a change in your long-term career prospects), and this possibility generates serious practical problems for the returns to marriage literature.

⁶ This is not, of course, the only route through which a wife's human capital can affect her husband's labor market outcomes. The extensive literature on the effects of wife's education on husband's earnings begins with Benham [1974] and is developed by Grossbard-Shechtman [1986] as a theory of investment in spouse's productivity. Recent evidence includes Jepson [in press], who finds a positive and significant relationship between wife's education and husband's earnings in U.S. Census data from 1960 to 2000. Mamun [2004] allows the marriage (and cohabitation) premium for men in the NLSY to vary, and finds that it is positively associated with wife's education.

⁷ An example is Ginther and Zavodny's [2001] finding that "shotgun marriages" yield a lower wage premium.

Ribar discusses these issues in the context of estimating the benefits of marriage in terms of increased earnings, improved health, and better child outcomes. He outlines the possible connections between marriage and earnings—that marriage can affect earnings, earnings can affect marriage, and both can be influenced by unobservables, and surveys a variety of empirical techniques for sorting out causal effects, including fixed effects and instrumental variables (IV). He notes that the application of IV to this issue has been limited by difficulty in finding suitable instruments for marriage, and that IV may not be appropriate when the effects of marriage vary across individuals. Fixed-effects, which has been used extensively in marriage-wage studies, is appropriate only when the impact of marriage is limited to the time periods in which the individual is, in fact, married, and when the source of correlation between marital status and the error in the equation of interest is a time-invariant unobservable. Likely departures from these assumptions in the form of life-cycle decisionmaking and reverse causality present potentially insurmountable problems for the benefits to marriage literature.

First, the decisions of the unmarried may depend upon the expectation or intention of marriage in the future. In Grossbard-Shechtman's model of marriage [1993], married men work harder because they need to make quasi-wage payments to their wives as compensation for the household production and other services they provide. Unmarried men who expect to marry may work harder to invest in the earnings capacity they will need in the future (or play harder to invest in memories they can enjoy in the future). These intertemporal effects will lead to predictable biases in fixed-effect estimates of the effect of marriage.

Second, individual decisions about when and whom to marry (or live with) and how many children to have respond to economic incentives. As economic conditions change, these responses can generate correlation between marital status and the unobservable determinants of earnings and employment. There is an enormous literature showing that tax and transfer systems influence marriage and fertility—the effects of substantive policy changes are often significant, and effects on the timing of family status transitions can be

large.⁸ Given the observed sensitivity of fertility and marital status to tax and transfer incentives, it seems likely that other shocks to an individual's wage and employment prospects could precipitate family status change as well. A particularly striking example of such a response to an exogenous shock to income and employment can be found in Black, McKinnish, and Sanders [2003]. They find that changes in county-level earnings in coal-mining and steel regions of the U.S. due to industry shocks generated substantial changes in welfare expenditures and the number of single-parent families. Ahituv and Lerman [2004] estimate a dynamic model of marriage and employment for young men, and find that marriage increases job stability and earnings, while job instability reduces the likelihood of getting married and staying married.

If men and women decide with whom they are going to live, if these decisions are not irrevocable, and if family structure is related to economic opportunities in complex ways, then treating family status as exogenous or even predetermined can result in biased inferences. Choi, Joesch, and Lundberg [2005] provide an example of this bias using an aspect of family structure that we might reasonably regard as exogenous: child gender. In the absence of sex-selective abortion, the birth of a son or a daughter should be a random event. Exogeneity at birth, however, does not imply that the gender of a child currently in a man's household is an exogenous determinant of his work effort.

Child gender appears to have a direct, causal impact on father's work behavior; Lundberg and Rose [2002] find, using the Panel Study of Income Dynamics (PSID), that the birth of a son has a positive impact on his father's work hours that is about twice as large as the effect of a daughter. The German Socio-Economic Panel (GSOEP) provides a record of children ever born for women, but, unlike the PSID, does not provide a fertility history for men. Choi, Joesch, and Lundberg find that the sex ratio (boys/girls) of children reported to be in the households of adult men in the GSOEP is 1.094—somewhat higher than the sex ratio at birth of 1.06. Since other research has shown that sons tend to reduce divorce

⁸ The effects of the American welfare system and welfare reform on a variety of demographic outcomes are surveyed in Moffitt [1998] and Blank [2002]. For examples of the marriage and fertility effects of taxes, see Alm and Whittington [1997,1999] and Whittington and Alm [1997]. Timing effects can be large: Brien, Dickert-Conlin, and Weaver [2004] shows that the remarriage of widows responds strongly to Social Security incentives—they are more likely to marry after turning 60, when their widow benefits will not be forfeited.

probabilities and increase the probability that parents marry following a nonmarital birth,⁹ it is possible that there has been excess attrition among the fathers of girls. Can we estimate the effects of sons and daughters on men’s work hours in Germany when daughters are underrepresented in their father’s households?

Table 2 reports the fixed-effects coefficients of a first son or daughter on the annual work hours of men aged 18 to 50 in the GSOEP who were born in 1950 or later. Column 1 is based on children currently in the man’s household, and shows that children have positive effects on their father’s work effort, and that the effect of sons is larger but not significantly so. This effect is considerably weaker than the Lundberg/Rose results using the PSID. However, the PSID results used the men’s fertility histories, so that the “first son” dummy was equal to one in all years subsequent to the child’s birth, whether the child continued to co-reside with his father or not. If unobservable characteristics that affect the probability that a man leaves, or fails to join, the household of his first son or daughter is correlated with unobservables that affect hours worked, then it is possible that German men with daughters still in their household are a self-selected group with respect to their labor supply behavior.

Table 2: Effects of Sons and Daughters on Men’s Annual Work Hours,
German Socio-Economic Panel*
(standard errors in parentheses; p-values in brackets)

	Children currently in man’s household	Children ever in man’s household
First child, son	70.0 (26.3)	62.4 (30.4)
First child, daughter	48.3 (25.7)	-45.0 (31.1)
Son-daughter	21.7 [0.48]	107.4 [0.01]

* Choi, Joesch, and Lundberg [2005]

⁹ See Dahl and Moretti [2004] for recent results and references.

In column 2, we attempt to reduce the selection bias caused by the excess attrition of girls' fathers by coding the "first son" and "first daughter" dummy variables equal to one in all years subsequent to the child's first appearance in the household. This is not equivalent to the information in a fertility history, because some fathers will never co-reside with their children (and this outcome may be sex-selective as well), but it does eliminate the effect of differential divorce or separation for fathers of sons and daughters. This change in coding dramatically changes the apparent effects of daughters—first sons still have a positive effect on their father's work hours, while daughters have an insignificant negative effect. It appears that the presence of a daughter in her father's household is correlated with unobservables that affect his work hours positively.¹⁰ We now have results that are generally consistent with those using U.S. data, though the difference between the work hours of fathers of sons and daughters is larger. These differences by sex of child are particularly striking, but it seems reasonable to infer that, in general, the presence of a child in a man's household cannot be regarded as an exogenous determinant of his labor supply behavior. Ignoring this potential endogeneity can lead to very misleading results about the "effects" of family status on men's behavior.

In the case of German men, selection bias emerges from the process by which children disappear from the households of their fathers (or, more properly, from the attrition of fathers from the households of their children). Dependence between the attrition process, child gender, and the unobservable determinants of the father's labor supply bias the estimates of the effects of child gender. Demographic changes that increase individual mobility across families, for example increases in the divorce rate and increases in the propensity to bear children in shorter-lived cohabiting unions, could exacerbate selection problems in analyses of the effects of family status on labor market outcomes.

¹⁰ The negative effect of daughters on fathers' work hours in column 2 incorporates both the direct labor supply effect and an indirect effect through the influence of child gender on the likelihood that a man continues to live with his daughter and, presumably, her mother.

C. Demographic changes have made the consequences of ignoring the endogeneity of family status more serious.

In most developed countries, there have been dramatic changes in family structure during the past couple of decades: declining fertility, delayed marriage, increases in childbearing outside formal marriage, increased rates of partnership dissolution.¹¹ The increasing prevalence of cohabitation as a less formal context than marriage for both partnering and parenting has been a major feature of family change in many, but not all, developed countries. Cohabitation also appears to be particularly diverse as an economic institution—cohabiting arrangements vary dramatically both within and across countries in expected duration and the degree to which partners specialize. As a consequence of recent demographic trends, men's observed family status is more heterogeneous, more transitory, and more economically ambiguous than was true 20 years ago.

Family status is transitory:

The National Longitudinal Survey of Youth follows a large sample of American men and women who were 14 to 22 years old at the beginning of the survey and 36 to 44 in 2001. It provides a detailed picture of the partnering and parenting histories of this recent cohort and shows that, for many young adults in the 1980s and 1990s, marriage and cohabitation spells were very short. By 2001, 75% of the sample had married at least once, and nearly 40% of these marriages had ended before that date. Of these completed marriages, half lasted less than 5 years. Spells of cohabitation were even shorter: 36% of the sample cohabited at least once between 1979 and 2001, and most spells had ended either in legal marriage or separation by the last survey. Of all cohabitation spells, 45% ended in separation before 2001, and more than half of these lasted less than 2 years. Kiernan [2000] shows that patterns of cohabitation and marriage vary substantially across European countries: cohabitation has become the typical first partnership for women in Nordic and Western

¹¹ Cherlin [2004] provides a recent summary of demographic trends in the United States in comparative perspective, in which he points out that, though the U. S. has a very high marriage rate compared to most European and other developed countries, it also has a particularly high divorce rate and a high proportion of children not residing with both parents.

European countries, while marriage without prior cohabitation remains the standard in Southern and Eastern Europe. Cohabitation spells that do not end in marriage tend to be brief, though long-term cohabitation is becoming more prevalent in some countries, such as Nordic countries and France.

It is customary for economists to assume that individuals expect their marriages to be permanent, and there some empirical support for the contention that divorces are caused only by “surprises” (Weiss and Willis, 1997). However, it seems unlikely that the marital churning documented in the NLSY has not been accompanied by some changes in the expected duration of marriage. In recent surveys, the percentage of U.S. high school boys who say that it is “very likely” they will stay married to the same person for life is only 58% (Whitehead and Popenoe, 2004), and this seems like a very realistic assessment.¹² Cohabiting partners, whose unions tend to be more short-lived than marriages, are unlikely to expect a lifetime commitment and, for most men, custodial parenthood is often a casualty of partnership dissolution. If men have reasonable expectations about the probability of future changes in their marital and parental status, then their labor market behavior should depend upon expected future status as well as the current realization.

Rational expectations about future marital status should affect current labor supply behavior. Extreme gender specialization in home and market activities relies, if it is to be an economically sensible arrangement, on long-term marriage. There appears to be a negative empirical association between the degree of marital specialization and eventual divorce,¹³ and Gray and Vanderhart [2000] show that the male marriage wage premium decreases with the predicted probability of divorce. The direction of causality between divorce and specialization is difficult to untangle, but one interpretation of these relationships is that individuals who expect their relationship to end invest less in marriage-specific skills.

¹² This question was asked only of those who expect to marry.

¹³ Brines and Joyner [1999] find that more specialized married couples are less likely to divorce, while cohabiting couples are more likely to break up when their earnings are unequal (particularly if the woman earns more than the man).

Family status is heterogeneous

When economists think of the demographic life-cycle of an agent, we usually have in mind (and often formalize in theory) a stereotypical pattern in which an individual achieves adulthood and economic independence (leaving school, getting a job, and moving out of the parental home), then marries, then bears and rears children, then grows old, retires, and dies. The reality is that life-cycle patterns of union formation, childbearing, and the achievement of economic independence vary substantially across countries, across socioeconomic groups within countries, and across individuals. This heterogeneity has increased as the prevalence of cohabitation as an alternative to marriage, divorce and remarriage, nonmarital childbearing, and, in many countries, the extended coresidence of adult children have increased. In the United States, Furstenberg et al. [2004] note, “the sequencing of adult transitions has become increasingly complicated.” Adherence to a traditional life-cycle profile in the timing and sequencing of partnership and fertility has become optional as the penalties—social and economic—for deviating from that standard have decreased.

If traditional patterns of marriage and childbearing have become optional, then there are likely to be more people who are on the margin in decisions about family arrangements. This suggests that observed family status may have become more responsive to economic incentives, and therefore more strongly correlated with the determinants of labor market success. Table 3 reports the results of a linear probability model for the marital status of men aged 25 to 44 using cross-sectional PSID samples in 1970 and 2001. In 1970, when 93% of these prime-aged men were married, education was not significantly correlated with marital status and father’s education is only marginally significant. Even with controls for race and age, this model has very little explanatory power. In 2001, however, education is positively related to marriage, family background has a stronger effect, and the model explains several times the variance in marital status than it did 30 years earlier. Now, only 75% of these men are married, and the probability of being unpartnered or cohabiting has increased much more rapidly for less educated men. As marriage has become more strongly correlated with observable indicators of productivity, it is likely to have become more strongly correlated with unobservables as well, exacerbating selection bias problems.

Table 3: Marital Status of U.S. Men 25-44*
 Linear probability model
 (standard errors in parentheses)

	1970		2001	
Education	0.001 (0.003)	-0.001 (0.003)	0.014 (0.005)	0.018 (0.006)
Father high school graduate		0.045 (0.025)		0.069 (0.030)
Father > high school graduate		0.016 (0.031)		-0.025 (0.034)
R-squared	0.01	0.02	0.06	0.07
N	884	803	1496	1429

* Author's estimates, Panel Study of Income Dynamics (also controls for race and age)

The impact of greater variability in family structure goes well beyond legal marriage and child custody to more complex family types, new and old—including intergenerational households and “blended” families with remarried spouses and children from former unions. Same-sex partnerships and marriage have become a new subject for economic analysis.¹⁴ The economic implications of these alternative arrangements in modern economies are relatively unknown, and both family choices and family effects will be strongly influenced by the laws and institutions that regulate implicit and explicit contracts between family members.¹⁵

As partnerships and parental relationships become more short-lived and optional, the validity of fixed-effect approaches to estimating the effects of marriage, cohabitation, or children on men's wages and labor supply becomes increasingly dubious, and the

¹⁴ Black et al. [2003] and Plug and Berkhout [2004] examine the effects of sexual orientation on earnings in the United States and the Netherlands, respectively.

¹⁵ For example, Fogli [2000] examines the relationship between employment protection policies and the propensity of young adults to live with parents. Light and McGarry [2004] show that the stated bequest intentions of mothers depend upon whether they have biological ties with the children in the household.

interpretation of family status variables in cross-sectional studies of these outcomes becomes increasingly difficult. The possibility of correlation between time-varying unobservables in labor market outcomes and changes in family status is not simply an econometric quibble but rather an inevitable outcome of individual optimization that includes both living arrangements and time allocation.

Family status is economically ambiguous

The effect of marriage on a man's work effort will depend upon the economic interdependencies that his marriage entails, and therefore upon the degree to which he and his partner pool their resources, share public goods, specialize in market or home work, and insure one another against future events. Changes in the economic nature of marriage will change the true causal effect of marriage on labor market outcomes. For example, Gray [1997] argues that the secular decline in the marriage wage premium is attributable to decreased specialization by husbands and wives. To the extent that couples vary in their within-family economic arrangements (and it seems likely that expected duration and degree of specialization vary more than they did in, say, the 1950s), marital or partnership status will be an error-ridden measure of the constraint set facing household members.

Cohabitation appears to be a particularly diverse arrangement that ranges from a convenient and short-term sharing of a residence to a permanent commitment, including the raising of children, that is economically indistinguishable from marriage. The estimated "effect" of cohabitation on labor market variables is therefore particularly ambiguous, especially if we try to compare it across societies or groups. Kiernan [2001] documents the dramatic variation across European countries in the prevalence of cohabitation, and the proportion of women who have a first birth within a cohabiting union. Cohabitation is not, on average, the same phenomenon in different countries. For example, in the U.S., cohabitation before marriage is associated with increased divorce risk (Lillard, Brien, and Waite, 1995) while in Denmark, prior cohabitation is associated with more stable marriages (Svarer, 2004)—suggesting that the selection into this partnership status is simply different in the two countries.

Even within the U. S., there seems to be substantial variation in the nature of cohabitation: Mamun [2004] finds that the wage premium associated with a spell of cohabitation that ends in marriage is identical to the marriage premium in the U. S., while cohabitation spells that end in separation yield no significant premium. Manning and Smock [2003] report, on the basis of in-depth interviews, that it is more reasonable to regard cohabitation among young Americans in low-income communities a substitute for dating, rather than a substitute for marriage. They describe transitions to cohabitation that are gradual and informal—young men and women report “drifting” into coresidence for convenience and without a clear-cut joint decision being made. The simple identification of cohabitation status is also problematic—many respondents did not understand the standard term “unmarried partner” to imply opposite-sex cohabitation as well as same-sex partnership, and many couples stayed together some days of the week but not others, and continued to maintain a separate residence. If many couples are unsure whether they are “cohabiting” at the time of the survey, measurement error in family status is unavoidable, and results will be particularly sensitive to survey design.

Measurement error also arises because the thresholds between singlehood, cohabitation and marriage will vary for couples with a given level of commitment and economic integration. Some committed couples with children will decide on formal marriage while others do not; some dating couples will temporarily share a residence, and will perhaps be more likely to do so when housing costs are relatively high—observed family status will be an error-ridden economic indicator. The presence of children in the household may also be an ambiguous indicator of parental responsibilities without detailed information on custody, care, and support arrangements. This ambiguity presents an impediment to efforts to take a “natural experiment” approach to dealing with the endogeneity of family status. It would be tempting to use policy variables, such as changes in tax or pension treatment of partnership status, as instruments for estimating the effect of marriage on wages or labor supply. If such policies affect the legal or reported family status of individuals rather than their actual economic arrangements, however, these estimates will be biased indicators of marriage as an economic determinant of individual behavior.

III. Some Modest Proposals

What do the literatures on the benefits of marriage and on the effects of children on men's labor market outcomes suggest about the way in which labor economists should deal with the family? I would argue that there is not one correct approach, whether one is analyzing individual outcomes such as wages and employment, or household outcomes such as savings. As is customary in the design of effective empirical approaches, judgment is required, and a clear awareness of the question one is trying to answer. An essential tool for success, however, is an acknowledgment that current partnership and parenting status are current choices—choices that can change and are expected to change, and that respond to the social, economic, and institutional forces that also condition labor market behavior.

A. Treat individuals, not households, as economic agents.

Increased attention to the role of family ties as determinants of men's labor market behavior would seem to push economists in the direction of a family-centered theoretical framework, but this is not the case. Recognition of the fact that a man's observed family status reflects his current economic connections with other individuals, rather than a set of fixed individual characteristics, serves to reinforce, rather than undermine, a theoretical stance that is focused on individual decision-makers. Methodological individualism, as Chiappori [1992] has argued, is a particular strength of the economic approach, and can be maintained even if family decisions are made jointly by two or more agents.

In an analysis of individual labor supply, current marital status is determined jointly with hours worked (like, for example, current homeownership status). A man's marital status reflects both current and past choices, and may depend upon expected future labor market opportunities as well. As intertemporal models of labor supply recognize that current work hours depend upon expected lifetime profiles of wage rates; so would a more complete model include expected lifetime profiles of marital and parenting opportunities. What this suggests is that labor economists who are interested in the relationship between family status and labor

market outcomes follow the familiar process of replacing an endogenous choice variable with the exogenous constraints that determine that choice—in this case, demographic, policy, and institutional factors that affect the costs and benefits of coresidence, legal marriage or children.

There is, of course, general recognition that marriage and children are likely to be endogenous in any analysis of labor market behavior, yet a brief review of recent issues of *Labour Economics* and the *Journal of Labor Economics* reveals many examples of marital status “controls” in both cross-section and longitudinal studies and quite a few cases of child controls as well. It is probably worth asking what the motivation for including these variables might be, and the answer is not hard to find—they are used as proxies for unmeasured determinants of labor productivity. The idea, it seems to me, is that family status is believed to be correlated with the error term in a wage/hours/earnings equation, and so including measures of marital status, etc. will “sop up” some of the omitted variables bias in the coefficient of interest, whether it is the returns to education and training, or the wage elasticity of labor supply. Since the focus of these analyses is not on the impact of family status, it is of minor interest that no causal interpretation of these coefficients is possible, and they are often not even reported. Will including an endogenous control variable such as marital status reduce the bias on the coefficient of interest? Under many circumstances, yes—but not surprisingly, this will depend upon the error structure of the particular application, and it may in fact exacerbate the original bias.

When analyzing household outcomes such as consumption or wealth, rather than individual outcomes, it is not straightforward to implement an individual-based approach—family wealth depends upon the characteristics of all household members and not just those of the household “head.”¹⁶ However, what this approach does suggest is that current family outcomes should depend upon expectations about future changes in family structure, and upon factors that will influence individual welfare in case of family growth or dissolution.

¹⁶ Lundberg and Ward-Batts [2004] find that adding wife’s characteristics significantly improves a traditional model of household wealth.

For example, household savings behavior will depend upon the legal regime for asset division following divorce (Aura, 2002).

B. Reconsider ‘treatment’ and ‘control’ groups in policy analysis

Once we recognize that an individual’s family status changes, is expected to change, and may be influenced by policy, traditional methods for identifying populations affected by policy need to be adjusted. Agents who are not directly affected by tax and transfer policies because their current family status leaves them ineligible may respond to policy changes if they expect to be eligible in the future. There are several possible routes through which individuals outside the eligible population could be affected. Using state and time variations in welfare generosity, Rubalcava and Thomas [2000] show that the benefits available to single mothers affect consumption behavior in married-couple households. In this example, welfare reform that reduces and restricts benefits can affect the consumption of non-eligible families through effects on the divorce threat points of a married couple. Because wives in low-income couples now expect to be relatively worse off in case of divorce or separation, their bargaining power is reduced and consumption shifts towards the preferred bundle of the husbands. However, the same policy change could alter the composition of the sample of married-couple families by reducing divorce and separation rates, or affect savings and durable goods consumption by changing the expectations of the married couple about the likelihood of future divorce. Careful difference-in-difference studies take into account possible sample composition effects of policy changes, but indirect effects on the behavior of the currently non-eligible are seldom considered.

In studies of pension policies, effects on the labor supply and savings of the young are considered as a matter of course—we recognize that economic agents expect to age and become pension-eligible. There are few examples of studies that acknowledge the married may expect to become divorced, or the single to become married or cohabiting parents. One exception--Cubeddu and Ríos-Rull [2003] model changes in family structure as exogenous shocks that affect an individual throughout his life, and show how the expectation of these shocks affects savings behavior. In this model changes in family structure are treated as

exogenous, but the introduction of a dynamic element is an interesting development in the integration of family change with other aspects of individual economic behavior.

Finally, studies of the effects of labor market interventions also tend to neglect the possible spillover effects of such policies on the behavior of family members. Policies that restrict working hours have received a great deal of attention from economists, but studies of German work-sharing or the recent mandatory hours reduction in France focus on workers directly affected. Hunt and Katz [1998] found that reductions in the standard hours of German men were accompanied by a small hours decrease for their wives as well. Ahmed [2004], however, finds evidence for a substantial added worker effect in France—women married to men directly affected by the hours reduction policy increased their own work hours in response.

C. Investigate the implications of family status for the allocation of time and resources

We still know remarkably little about what goes on inside households, and how the presence of a partner or a child affects the constraints (or perhaps the preferences) of individual workers. The basic economic functions of the family—pooling resources, sharing public goods, providing insurance, enjoying time and activities together—occurs largely outside the view of economists and we construct models of this behavior using rather stylized notions of what it is that families do. It is difficult to understand broad and significant labor market changes such as the increasing market work by women, or to design policies that might influence that behavior, without knowing how this trend emerges from and influences changes in family behavior. How do basic family economic interactions vary across individuals, countries, and time? Perhaps more important to economists, how are the economic functions of families affected by legal and labor market institutions, by market forces, and by demographic changes?

Even basic descriptive information about how income, work hours, and consumption change as individuals change family status, and how this varies over populations, is in short

supply.¹⁷ New data sources, particularly longitudinal data sources, on time use and consumption are becoming available in many countries, and should provide opportunities for researchers to fill many of these gaps.

IV. Conclusion

This is no single answer to the question—how should a labor economist interested in explaining traditional labor outcomes treat an individual’s family status? There are occasions when, for descriptive or accounting purposes, it is appropriate to include among the determinants of wages and hours, variables that are properly considered endogenous. However, marital status and the presence of co-resident children cannot be regarded as pre-determined in the sense that educational attainment might be, and if one is not including variables such as homeownership and job tenure on the right-hand side of an equation, then family status probably doesn’t belong there either.

Economists have been inclined to regard marital status and fatherhood as either individual characteristics, or as non-random but homogeneous “treatments” affecting individual outcomes. As patterns of partnership and parenting become more heterogeneous and more flexible, we should begin to treat family status variables as error-ridden indicators of an individual’s contemporaneous economic arrangements with other agents. Even labor economists, who are so attuned to issues of selection and endogeneity, have been inclined as a group to take the easy way out on family matters. This approach seems to emerge from an implicit conceptual framework that we have been slow to revise—that marriage (or committed partnership) is a universal, permanent, and homogeneous arrangement. We’ve been reluctant, in the face of dramatic demographic changes in many countries, to recognize that marriage and custodial parenthood may have become optional, transitory, and conditional on market experiences and opportunities—rather than permanent reflections of an individual’s capacities and character.

¹⁷ Some recent exceptions include Light [2004], who documents how needs-adjusted income varies for individuals who move between single, cohabiting, and married, and Ziol-Guest, Kalil, and DeLeire [2004] who show how expenditure patterns change when cohabiting couples marry.

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