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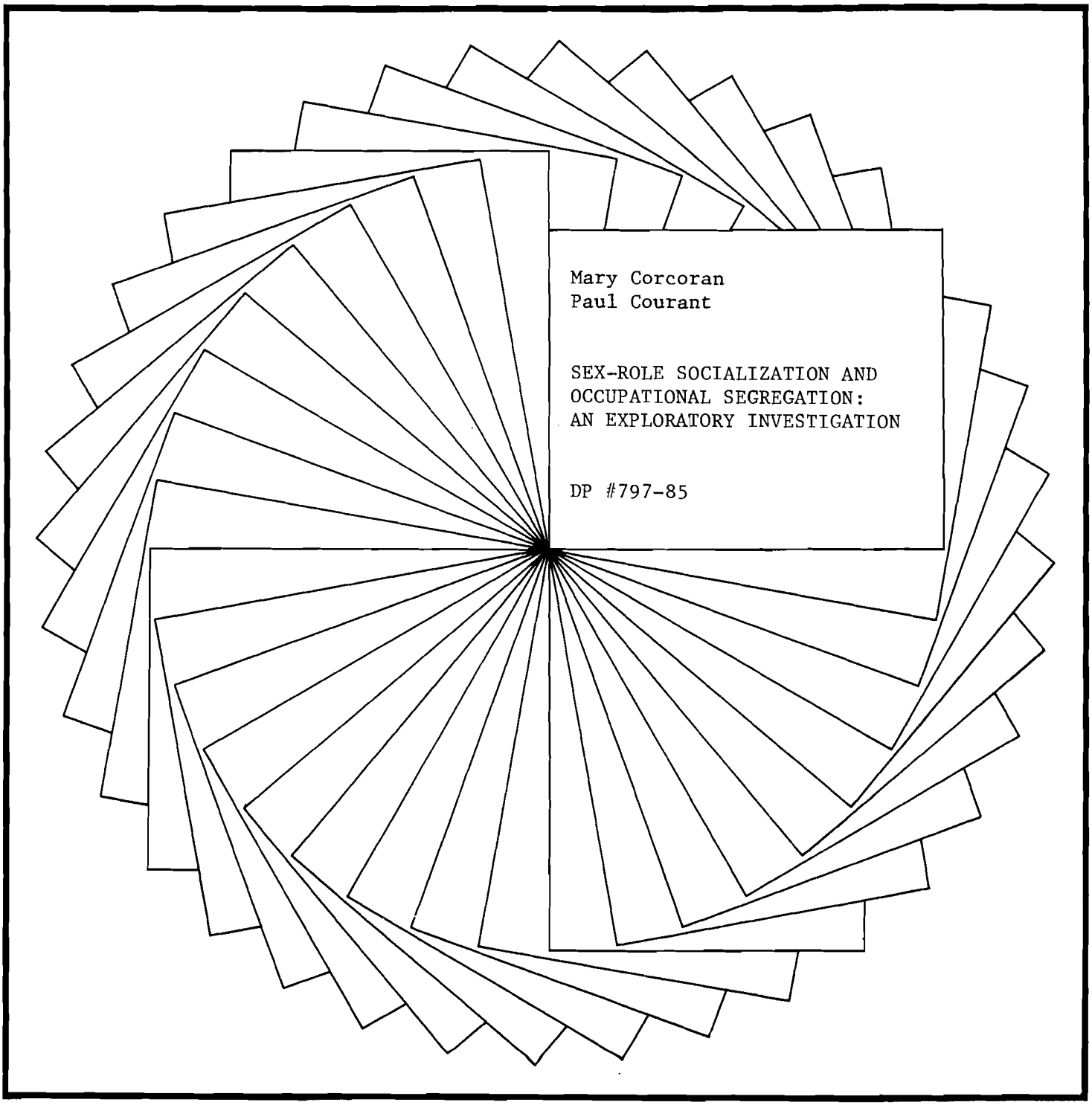

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SEX-ROLE SOCIALIZATION AND
OCCUPATIONAL SEGREGATION:
AN EXPLORATORY INVESTIGATION

DP #797-85

Institute for Research on Poverty
Discussion Paper No. 797-85

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November 1985

This project was funded by the Institute for Research on Poverty Small Grant Program supported by the U.S. Department of Health and Human Services. We are especially grateful to Deborah Laren for handling the computer work on this study, for helpful suggestions about the analysis plan and for editing advice. We also want to thank Martha Hill and Michael Ponza for giving us a copy of their parent-child datafile from the Panel Study of Income Dynamics, for allowing us to use their computer programs, and for providing considerable advice. Helpful comments from Gary Solon and from participants in The University of Michigan American Institutions and Public Finance Seminars are gratefully acknowledged. None of the above individuals or institutions is responsible for any opinions expressed in this paper.

Abstract

It is well known that women earn less than men. This paper reports on some preliminary attempts to assess the extent to which sex-role socialization and other pre-labor market phenomena in which boys are treated differently from girls may be among the causes. To that end, we begin by examining the defects of standard economic explanations of the wage gap and try to improve on those explanations by showing how socialization might be introduced into a model of the labor market. That model, as well as a number of findings from the psychological literature on the effects of socialization on occupational choice, is used to motivate three empirical explorations of phenomena that, if observed, would tend to support the proposition that sex-role socialization and other forms of differential treatment of males and females that occur before entrance into the labor market may be among the causes of male-female pay differentials. In all three cases, our results tend to confirm the basic idea that men and women have different tastes and talents (on average) when they get to the labor market, and that these differences are in part due to socialization and training of boys and girls that is oriented towards maintenance of traditional sex roles.

Our major conclusion is that there is good reason to believe that pre-labor market behavior of boys and girls (and their parents) may have important labor market consequences. The major policy implication is cautionary. To the extent that differential pay arises from events that occur before men and women get to the labor market (that extent being as yet unknown), it is important that more research be done before relatively radical policies aimed at changing the labor market (e.g., comparable worth) can be evaluated.

SEX-ROLE SOCIALIZATION AND OCCUPATIONAL SEGREGATION: AN EXPLORATORY INVESTIGATION

INTRODUCTION

It is well known that women earn less than men. For all of the rhetoric and research that take this fact as a starting point, its causes are not well understood. In this paper we advance the claim, based on our reading of the existing economic, sociological, and psychological literature, that events that occur before entrance into the labor market (some of which might best be termed "socialization" and others "pre-labor market discrimination") are likely to be important parts of a convincing explanation of observed wage differences between men and women.[1]

Having made this claim (in what we hope is a persuasive way) we report on three empirical exercises that tend to confirm it. We conclude that although we are a long way from making precise quantitative estimates of pre-labor market effects on labor market outcomes, there is good reason to believe that such effects are large enough to warrant a serious research effort on the topic.

ECONOMIC EXPLANATIONS OF THE WAGE GAP: SKILLS, PURE DISCRIMINATION, AND CROWDING

Consider what for most economists is the preferred explanation of low female wages--that women on average have lower skills (human capital) than men and that these skill differences are the source of the male-female wage gap. These skill differences are voluntary and arise because of women's familial responsibilities (Mincer and Polachek, 1974, 1978).

Past empirical tests of this explanation have consistently reported that while there exist large differences in men's and women's work histories, training, and labor force attachment, these differences typically account for about one-third of the wage gap between white women and white men (Oaxaca, 1973; Corcoran, 1978, 1979; Corcoran and Duncan, 1979; Treiman and Hartmann, 1981; Corcoran, Duncan, and Ponza, 1983, 1984; Blau, 1984; Duncan and Corcoran, 1984). This leaves two-thirds of the wage gap unexplained. This residual is invariably attributed to labor market discrimination, pre-labor market discrimination, or socialization, with no explicit modeling of how these processes operate (Treiman and Hartmann, 1981; Duncan and Corcoran, 1984).

The second major explanation of the wage gap, the "pure discrimination" explanation, was proposed by Becker (1957). According to this theory, employers may prefer one group of workers (men to women) and employers would be willing to pay a premium to indulge their preferences. Arrow (1972a, 1972b) has shown that if employers vary in their preferences, then market forces ought to reduce and eventually eliminate group wage differences over time, although such complicating factors as customer, co-worker, and statistical discrimination might slow this process down. How long the process "should" take is an empirical question, but we find it remarkable and implausible that the market does not seem to exploit the opportunities for profit implicit in a 20 to 25 percent wage gap (corrected for skills). Without detailed and testable modeling of the ways in which different kinds of discrimination are sustained in the presence of competitive forces, discrimination seems to us to have the same explanatory power as "not known."

According to the third major explanation, the crowding hypothesis, there are two kinds of occupations: "male" and "female" (Bergmann, 1974; Stevenson, 1975; Blau and Hendricks, 1979; Blau, 1984). There are far fewer "female" occupations than "male" occupations. Women tend only to enter "female" occupations. This raises the supply of workers to "female" occupations and lowers the supply of workers to "male" occupations. This oversupply of workers to "female" occupations artificially lowers wages in these jobs. Similarly, wages are artificially raised in "male" occupations.

Blau (1984) and Strober (1984) argue that while the crowding explanation is descriptively veridical, there is no widely accepted economic explanation that fully delineates the processes which maintain the sex segregation of occupations in the face of competitive forces.[2] By itself, crowding is neither a discrimination nor a sex-role socialization story, but could be either or both. Employers could deliberately steer workers into sex-appropriate jobs (labor market discrimination) either because of their own tastes or those of male workers; schools and career counselors could restrict girls' opportunities to develop "male" job skills and to enter "male" jobs (pre-labor market discrimination); or girls because of early sex-role socialization might voluntarily choose to develop skills and to select jobs that are consistent with traditional sex roles.

Both sex segregation and the large residual wage gap are consistent with labor market discrimination, pre-labor market discrimination, and socialization. None of the empirical work to date allows us to distinguish among these possibilities. The analyses in this paper should permit us to do so.

The remainder of this paper is in three parts. We begin by discussing how sex-role socialization might influence women's labor market outcomes. We outline a modeling strategy which allows sex-role socialization and other pre-labor market differences in treatment of boys and girls to affect both workers' and employers' economic behaviors. In the next section, we investigate empirically possible family socialization influences on children's education, on the sex-typicality of women's jobs, and on husbands' and wives' wages. In the last section, we discuss the implications of our empirical results.

SOCIALIZATION AND OCCUPATIONAL CHOICE

In an extensive review of the literature, Eccles and Hoffman (1984) suggest that sex differences in socialization might affect occupational behavior in at least four ways.[3] First, socialization may lead women to be more fearful or more anxious or less confident than men are (Horner, 1972; Tangri, 1972; Nicholls, 1975; Parsons, Ruble, Hodges, and Small, 1976). Horner's work on "fear of success" is in this tradition. Second, sex-role socialization may directly affect workers' skills and personality traits (Hoffman, 1972; Chodorow, 1978; Parsons and Goff, 1980). Some researchers argue, for instance, that girls are encouraged to be more dependent, more person-oriented, and less able mathematically than are boys. Third, children may internalize traditional notions of sex roles, accept these cultural sex stereotypes as fact, and eventually choose occupations that conform to these stereotypes (Bem and Bem, 1970; Marini, 1980; Tittle, 1981). Fourth, sex-role socialization may affect the values men and women attach to different activities so that workers

of both sexes tend to value "sex-appropriate" activities (Stein and Smithells, 1969; Stein, Pohly, and Mueller, 1971). Thus women may value person-oriented tasks more than men do, even if there were no sex differences in ability to perform such tasks.

The first two sets of phenomena are really human capital arguments. In both cases women differ from men in ways that may (on average) reduce these women's potential value in the labor market.[4] Such sex differences in human capital may or may not have been caused by discrimination. (Even when they have been, the discrimination takes place before entry into the labor market.) The third and fourth findings suggest that equally qualified men and women may evaluate the same job characteristics quite differently when choosing jobs. They are thus "taste" explanations when considered from the perspective of the labor market. Following the economic tradition that takes adults' tastes as given, such an explanation, at least at the stage of the labor market, identifies some part of the wage gap as a compensating wage differential. Note that "human capital" and "taste" differences may interact. Women may (on average) choose training that is consistent with their tastes for certain types of jobs. Having done this, they will have different human capital attributes from men (on average) when they enter the labor market.

Modeling Strategy

We start by restating two facts from the preceding sections: (1) On average, men and women perform differently in the labor market, and the differences are not fully accounted for by differences in measured human capital attributes. (2) On average, there are differences in the

upbringing of boys and girls, and these differences tend to be consistent with traditional notions about "appropriate" sex roles. The main thesis of this paper is that (1) may be largely accounted for by (2). The purpose of this section is to outline the processes that could lead to such a result. The discussion assumes that we start in a world where facts (1) and (2) are true. Thus the dead hand of history leaves us in these circumstances, and the question now is whether and how these circumstances can replicate themselves over time.

We reject the simplest explanation, that of direct discrimination against women on the part of employers, for the reasons given earlier in the discussion. Direct discrimination can and probably does play some role, and we discuss it further below, but it seems highly implausible that skill-corrected wage differences of 20 to 25 percent in a (roughly) competitive labor market can be accounted for by discrimination alone. Instead, we follow two other lines of inquiry. The first is based directly on the idea that men and women may value (on average) different types of labor market behaviors differently. The second embeds the first in models based on the literature on statistical discrimination (Aigner and Cain, 1977). Taken together, these two approaches add a supply side to the labor market that tends to generate distributions of tastes and skills that differ by sex in ways that make differential treatment on the demand side persist even where there are no intrinsic differences between men and women. Our purpose in using these kinds of explanations of differences in labor market outcomes of men and women is not to justify the differences as being in some sense warranted by economic reality. Rather, it is to provide a framework that permits pre-labor market

training and socialization to interact with labor market performance, and that also allows us to consider the strength of the market and social forces that stand in the way of the attainment of equal outcomes. Only by delineating such forces can social policy that would be effective in changing them be formulated.

"Simple" Socialization

The pure socialization explanation of wage differences is straightforward.[5] Assume that individual workers (or potential workers) care about both income and other attributes of jobs. Further, assume that some of the attributes that they care about, for at least some of the workers, involve traditional notions of sex-appropriateness, and that jobs vary in the extent to which their requirements are traditionally "male" or "female" in character. A given worker may not care about sex-appropriateness, but then again he or she may care about it. On average, women will be willing to give up some income in return for job attributes that are more consonant with traditional female roles, and men will have a preference for traditional male roles. Note that attributes of the job may include such elements as the sex ratio of current employees, the extent of perceived co-worker prejudice, and the degree to which such prejudice would directly affect the worker.

If jobs with attributes that tend to be valued by women more than by men are relatively scarce, then it is easy to tell a story consistent with Bergmann's (1974) crowding hypothesis that would explain why jobs that are largely filled by women pay less, for a given vector of measured human capital attributes, than jobs that are mostly filled by men. All

that is occurring is a market equilibrium with a compensating wage differential--women are paying (in lower wages) for doing things that they value.[6]

Statistical Discrimination

Statistical discrimination is based on the idea that economic agents will use information on the average characteristics of groups in assessing the expected characteristics of individual members of the groups. The most familiar type of statistical discrimination occurs in insurance markets. Auto insurance rates are higher for teenagers, because on average teenagers are worse drivers than older people, even though some individual teenagers are surely better drivers than some adults. Men pay higher life insurance rates than women because on average men have higher mortality rates at all ages, notwithstanding the fact that many men outlive many women. The key feature here is that although some relevant information can be obtained about individuals (driving record, passage of a driver education course, weight, smoking behavior, etc.) and this information can be and is used, information about group membership is also relevant. Thus, rational insurance underwriters will use such information. In some sense, this is unfair to unusually careful teenagers or unusually healthy men, but failing to use such information would be unfair to adults on average and women on average.

The presence of group differences (on average) and imperfect measurement of individual attributes are both required for statistical discrimination to operate in labor markets. If, on average, men and women came

to the labor market with identical skills, group membership would convey no information. If test scores, educational credentials, etc., were perfect measures of productive attributes in each individual case, group membership would convey no additional information in the labor market. One person with a 3.28 grade point average from Hasty Pudding State and a combined GRE score of 1130 would be known to be exactly like another. But neither of these conditions holds in practice. Both the training and tastes of men and women will differ, on average, when they enter the labor market (Eccles and Hoffman, 1984), and we all know that credentials measure the productive attributes of individuals only imperfectly. (They don't even do such a good job predicting success in graduate school, surely a simpler problem than predicting success in the labor market.)

Leaving aside differences in tastes, suppose that job-related attributes are distributed differently for men and women. Due to differences in upbringing and training (see the discussion of simple socialization above) women will be more likely to have developed skills that are consistent with effective performance of traditional roles. Now consider an employer's evaluation of a man and a woman who have identical paper credentials. Knowing that men and women have different distributions of attributes, and that credentials measure true attributes only imperfectly, the employer's expectation of the woman's "true" attributes conditional on her credentials will be that the attributes are more consistent with those of women in general than the man's true attributes. If traditional male attributes are more productive in the job under consideration, the employer will expect the man to be more productive in the job, and will offer pay accordingly. If the stated assumptions of this

little example hold, competition will force this outcome--as long as men and women are drawn from different distributions of productive attributes at the level of the labor market, employers who treat men and women with the same paper credentials the same way will be less efficient than those who take sex into account in making their offers.[7] In practice, because the law prohibits paying the woman less for doing the same job as a man with the same training, there will be an obvious motive for the employer to do the kind of steering that is often cited as a cause of occupational segregation. Moreover, employer behavior of this sort is easily self-sustaining. A certain set of credentials admits men to one set of jobs and women to another. On average, men with these credentials are as productive as expected, and so are women, but the expectations for the two groups are different.[8] Finally, note that average differences in tastes for different kinds of work can reinforce this argument. If employers know that on average women (men) are more comfortable performing traditional roles, they will observe that productivity conditional on credentials is higher when they are placed in traditional roles. Again, employers will rationally tend to screen by sex.

Here we get into some issues of semantics that cannot be ignored. It is probably fair to say that anyone who is not trained in neoclassical economics would view the circumstances of the preceding paragraph as discrimination, pure and simple. After all, individuals whose measured characteristics are identical in every dimension save sex are treated differently by the demand side of the labor market. If that's not discrimination, what is? The answer lies in the fact that under the assumptions of the model, men and women with equal measured characteristics will, on average, have different productive characteristics,

because the distributions of productive characteristics from which they are drawn are different. Thus, sex conveys (in a statistical sense) information about the expected productivity of an individual, conditional on his or her other measured characteristics. From an economic perspective, acting on such information is not discrimination.[9] From a legal perspective, this is indeed discrimination (consider the recent court decisions requiring the use of unisex life tables for computing annuities). Whether the outcome in the preceding paragraph is called "discrimination" or not is less important than the fact that under the assumptions of the model there will be no immediate market forces that will tend to eliminate the differences in circumstances between men and women. As long as men and women have different average abilities when entering the labor market and the information conveyed by paper credentials is imperfect, market forces will not tend to eliminate the different outcomes in labor markets. The forms that the different outcomes take appear to be complicated enough in practice so that legal remedies can be only partially effective and will in any event (in the narrow economic sense) cause inefficiencies of their own. The question, then, is whether there exist forces that will tend to improve signals and equalize average abilities.[10]

Socialization and Statistical Discrimination over Time--A Vicious Circle

Statistical discrimination cannot be sustained unless the average differences between groups are sustained. Thus, if the relevant characteristics of women entering the labor market were to become, on average, the same as those of men, the kind of story outlined above could not

obtain. But the potential obstacles to such an event occurring are considerable. Suppose for the moment that the parents of both boys and girls are concerned with raising their children in a way that will maximize the lifetime income prospects for their children. (Thus, suppose that all values concerning appropriate sex roles were suddenly to vanish. They will reappear later in the discussion.) Suppose further that parents believe (accurately) that a son and a daughter who have equal innate abilities and who pursue identical courses of preparation for the labor market will be treated differently once they get there. (Parents need not attribute this to historical differences in group means, but they know the facts when they see them.) Under these circumstances, socialization and training of children towards traditional male values and roles will yield higher expected lifetime earnings potential for boys than they will for girls, given equal potential abilities. This in itself does not imply that it would be irrational for parents to socialize and train their girls to traditional male values and roles. The outcome depends on the opportunities available to women whose tastes and talents are more traditionally female in character. But it does imply the possibility of a sustained equilibrium difference in average outcomes, based on differences in tastes and in average ability <u>at the level of the labor market</u>, where the differences in ability and tastes are replicated from generation to generation.[11] Such a sustained equilibrium is all the more likely, even in this most narrow economic model, when we remember that one route to income available to women is to marry men, and at least in some cases traditional female characteristics may increase the returns from this strategy.

Leaving the narrow economic model, and recognizing that in the majority of households there is a positive preference on the part of parents (and if not parents, teachers, counselors, peers) for children of both sexes to act in conformance with traditional sex roles, the difficulties involved in generating equal outcomes for men and women in competitive markets become multiplied.[12] Indeed (and this is what social norms are all about) there will, on average, be all sorts of noneconomic (and perhaps some economic) rewards for behaving in ways that are consonant with traditional sex roles. In more formal terms, most people will have an element of the utility function (with positive weight) that values such consonant behavior. Moreover, following the logic of Cohen and Axelrod (1984), even nontraditional women who do not have such a value to begin with may "learn" to place positive weight on it. Life is easier when you don't buck the system. (But note that the "system" here is not the labor market, it is social norms.)

The preceding discussion suggests the possibility that once there are differences in the treatment of boys and girls (and men and women) there may be powerful forces blocking the erosion of such differences. Even if all overt discrimination (in the sense of equal pay for equal work) is eliminated, if the environments in which boys and girls are raised are different, the outcomes of men and women will differ as well, provided that the training and values of men and women differ in ways that affect productivity and the psychic rewards from pursuit of different types of market and nonmarket work.[13]

In sum, socialization and other forms of pre-labor market differences in treatment between boys and girls can lead to an equilibrium in which

men and women have different distributions of both tastes (values) and talents. As long as men and women differ on average, it will be costly for nontraditional members of either sex to choose to take nontraditional routes. Differences may tend then to persist from generation to generation. Women with nontraditional training and values can indeed enter the "male" labor market, but their credentials will mean less there than men's credentials will. Further, relatively traditional women will be willing to sacrifice economic rewards in order to obtain psychic ones in the "female" labor market. This latter behavior is optimal for those who engage in it, but has an externality that reduces the rewards available to nontraditional women by reducing the average productive characteristics (and hence value of credentials) of women in the "male" market.

Direct Discrimination

The preceding discussion suggests ways in which men and women might have very different labor market outcomes without any direct discrimination. Although we have argued above that direct discrimination is an inadequate account of differences of the magnitudes that we observe, here it is worth pointing out that in the context of the kinds of processes we have outlined above, direct discrimination can play an important role.

To begin with, ubiquitous tastes for discrimination are highly plausible if socialization is an important determinant of adult behavior. Precisely the same processes that lead women and men to value traditional roles and behaviors for themselves will lead them to value traditional roles and behaviors for each other. Thus it is plausible that co-workers, customers, and employers themselves would prefer an environment which is consonant with traditional values regarding sex roles.

Further, much of the preceding argument depends on the assumption that information about employees' true attributes is both imperfect and costly to obtain. The same will be true regarding information about employers' and co-workers' tastes. While it is highly plausible that there exist some workplaces in which employers do not care about traditional roles, and somewhat (although less) plausible that the same will be true regarding co-workers, it will be costly for a given potential employee to find such a workplace. Under these conditions, there will be room for some practice of direct discrimination, because the standard arbitrage mechanism that would lead to the erosion of discriminatory differentials in a competitive market will only operate to the extent that the gains from finding a nondiscriminating employer exceed the costs of search. If women employees expect discrimination in some types of work but not others, their reservation wages for the former will be lowered relative to those for the latter, even if some (hard to find) employers do not discriminate by sex for any type of job.[14]

EMPIRICAL TESTS OF SOCIALIZATION FACTORS

In the context of the preceding, the standard human capital regression tells us very little about the sources of male-female pay differentials. Explanations that are based on differences in employee tastes for job attributes are indistinguishable from explanations that are based on employer or co-worker discrimination. Further, the interaction between them--statistical discrimination induced in part by average

differences in tastes and training--is extremely hard to isolate empirically. Our intention thus far has been to show that it should be fairly easy to write down models in which many potentially important factors interact; but if we are to find out which of these factors are important in the labor market, we need empirically testable implications of socialization-based explanations that are different from discrimination-based explanations. We must turn to examination of processes that might generate the average differences in values and training that make the models fit.

The ideal way to disentangle the possibilities implicit in the preceding discussion would involve following a panel of children over time and examining how their family environments and their school environments affected their sex-role attitudes and aspirations; how families, schools, attitudes, and aspirations influenced decisions about investment in education and training; and how families, schools, attitudes, aspirations, and human capital affected job choice and wages. At key decision points--choice of college major, first job, etc.--we would need to ask detailed questions about the factors that influenced those decisions, particularly about paths not taken. We know of no data that would allow us to take this approach.[15]

We can, however, use currently available data to take a preliminary look at whether socialization might be important. At this stage we are looking for evidence of three types of relevant phenomena: (1) different treatment of boys and girls that will tend to provide boys with an advantage in the labor market; (2) direct links between the sex-role relevant labor market behavior of parents and that of their children's adult labor

market behavior; (3) labor market behavior on the part of adults that can be best explained as arising from the fact that men and women value traditional sex roles. None of these types of evidence would be as convincing as that which might be developed with the ideal data set discussed in the preceding paragraph, but it is worth noting that all three types of phenomena are quite different from each other, and finding examples of all three would suggest that socialization can have powerful effects on the adult labor market outcomes of men and women.

For the first two types of phenomena, we use a sample of young adults aged 25-30 years in 1981 to see if family factors that have been shown to influence sex differentiation in attitudes and aspirations also affect education and occupational choice. For the third, we look at an unusual sample of couples--couples for whom wives' predicted hourly earnings exceed the husbands' predicted hourly earnings. If couples try to maximize income when making decisions about labor market work and family time, then these couples ought, on average, to have a nontraditional division of labor within the household and the wives' actual wages ought to exceed the husbands' actual wages.

Family Socialization, Education, and Sex-Typicality of Jobs

A key assumption of socialization-based explanations of male-female wage differences is that sex-role patterns learned in childhood will affect adult economic behavior. Psychological studies of children's socialization have identified the following family factors which tend to reduce sex-role differentiation on psychological dimensions such as attitudes or aspirations: being raised in a female-headed household, being

raised in family with children of one sex, and having nontraditional parents (see Eccles and Hoffman [1984]; Marini and Brinton [1984] for summaries of this research). But no studies have yet established a link between early family socialization and women's actual labor market behaviors for a nationally representative sample of women.

We use a subset of young adults from the Panel Study of Income Dynamics (PSID) of the University of Michigan to test for such a link. The PSID provides 14 years (1968-1981) of data for a nationally representative sample of 1480 individuals aged 12-17 in 1968. These individuals were 25-30 years old in 1981.[16] All were children in their parents' homes in 1968 and had established their own homes by 1981. About 800 are women. For each of these young adults the PSID provides measures of parental and family characteristics reported by the parents during the years the young adults lived in their parental homes and labor market information reported by the young adults after they had left home.

This PSID sample has both advantages and disadvantages for our purposes. Its strongest advantage is the richness of data on parents. Most important, the PSID provides measures of the nature, timing, and duration of mothers' labor market behaviors as reported by the mothers. Psychological theories of sex-role socialization strongly emphasize the importance of identification with and role-modeling of the same-sex parent. The PSID permits a direct test of whether girls emulate mothers' work behaviors.

Two disadvantages are the relative youth of the PSID sample and the lack of any direct measure of sex-role attitudes. At ages 25-30 years, many young adults are still launching their careers, and so this sample

is not well suited for examining wages and wage growth. Therefore, we concentrate on examining only education and the sex-typicality of occupations for these young adults. By age 25-30 years, most young adults will have completed their schooling. And family socialization effects on the choice of sex-appropriate occupations should be strongest early in workers' careers, when young adults are leaving their parental family to establish their own households. The lack of a good measure of sex-role attitudes means that we cannot directly test a key prediction of socialization models--i.e., that women who value traditional roles will be more likely to choose "female" jobs. Instead, we test whether family characteristics that have been shown to affect sex-role attitudes also affect education and the choice of a "female" job. This is a much weaker test.

Table 1 defines the variables we used in our analyses.[17] Two outcome measures are examined for young women: educational attainment and sex-typicality of jobs held since leaving home. Education equations are also estimated for young men to see if families exert similar effects on boys' and girls' schooling. All equations will be estimated separately by race, since it has been argued that different processes may govern both educational attainment and sex-role socialization for blacks and whites (Barnett and Baruch, 1978; Dorr and Lesser, 1980; Datcher, 1981; Eccles and Hoffman, 1984).

We regress our outcome measures on three sets of predictor variables. First, we include as controls the following conventional background measures: family income, father's education, mother's education, father's occupation, and number of siblings. With the exception of parental

Table 1

Family Background Measures and Child's Outcome Measures

Variable	Definition
Conventional background measures	
Family income	Annual family income (in thousands of 1980 $s) averaged over the years child lived at home
Father's education	Years of schooling attained by father as reported by the father[a]
Mother's education	Years of schooling attained by mother as reported by the mother[a]
Father's occupation	Duncan scores of father's one-digit census occupations averaged over the years child lived at home[b]
Number of siblings	Number of child's brothers and sisters
Measures of mother's work behavior	
Proportion of family income earned by mother	Labor income earned by mother during the years child lived at home divided by total family income during that period
Mother's proportion time worked	Total time worked by mother during years while child lived at home divided by the product of the number of years child lived at home and 2000
Sex typicality of mother's work experience	The percentage female in mother's occupation-industry categories averaged over the 14-year sample period.[c] Women who never worked during this time were assigned the sample mean.[d]
Family composition measures	
Mother-only household	= 1 if child ever lived in a mother-only household before leaving home[e] = 0 otherwise

Table 1, continued

Variable	Definition
Family composition measures, continued	
Duration in mother-only household	Number of years child lived in a mother-only household[e]
Opposite-sex sibling	= 1 if an opposite-sex child aged 0-17 years lived in child's parental home in 1968 = 0 otherwise
Opposite-sex sibling x family income	Family income if there is an opposite-sex sibling = 0 otherwise
Outcome measures	
Child's education	Years of schooling completed by child
Sex-typicality of child's work experience	The percentage female in child's occupation-industry categories averaged over this period after which the child had left home. (This is coded in the same way as is Sex-typicality of mother's work experience.)

[a]The child's report of parental education was used for cases with missing data on these variables.

[b]The child's report of father's occupation was used for cases with missing data on this variable.

[c]Industry is coded into two-digit categories for 1971 to 1981. Occupation is coded into one-digit categories for the years 1971-1974 and into two-digit categories for all the years thereafter. For each occupation-industry subgroup, we calculated a measure of percentage female. (See Corcoran, Duncan, and Ponza, 1983, for a more complete description of this procedure.)

[d]A dummy variable indicating whether the mother never worked is included to control for possible measurement error.

[e]We were unable to obtain information on these two measures for children whose fathers reported being in their second marriage in 1968--about 15 percent of the sample. We included a dummy variable for second marriages to control for possible measurement problems in all analyses using these measures.

schooling, these should have similar effects on boys' and girls' attainments. If children emulate the same-sex parent, then father's education should be a more powerful predictor for men's schooling, and mother's education should be a more powerful predictor for women's schooling.

The second set of predictor variables are three measures of mothers' work behavior: proportion of family income earned by mother, proportion of time worked by mother while the child was at home, and sex-typicality of mother's work experience. (See Table 1 for definitions of these variables.) These first two variables are included to pick up the extent of mothers' labor market commitment, following past research that indicates that girls whose mothers have worked extensively have more realistic work expectations, plan to work more in the future, and have more knowledge of occupations than other girls (see Marini and Brinton, 1984, pp. 210-211, for a summary of this research). However, extensive maternal work need not mean that mothers are transmitting aspirations for nontraditional market work to daughters, since most mothers, like most women, are employed in "female" jobs. An additional complication is that families in which mothers work a lot and contribute a large proportion of family income are likely to have less time and fewer resources than do families with similar levels of incomes in which mothers do not work. This ought to dampen achievement outcomes for both sons and daughters. Probably the cleanest measure of mothers' sex-role-relevant labor market behavior is the sex-typicality of jobs held by the mother.[18] Since "female" jobs are not characterized by low education, the sex-typicality of mothers' jobs likely will not affect daughters' schooling choices, but ought to affect their job choices.

The third set of variables are four family composition variables: whether child had a sibling of the opposite sex, an interaction between whether child had a sibling of the opposite sex and family income, whether child ever lived in a mother-only family, and years lived in a mother-only family. Eccles and Hoffman (1984) argue that there may be less sex-role stereotyping of daughters in families without sons. Girls may do better when they are not compared to--or do not compare themselves to--brothers, and parents may have higher aspirations for daughters when they have no sons. The opposite-sex sibling measure will test for this. Eccles and Hoffman also argue that parents may be less likely to differentiate between brothers and sisters in families with abundant resources. We include the interaction term to see if there is more differentiation between brothers and sisters in low-income families. Theorists have also argued that there should be less sex-role differentiation among children, particularly boys, raised in female-headed households, since there is no "male" role model for boys and since women who head households often must take on nontraditional roles--e.g., provider or disciplinarian. However, as McLanahan (1983) points out, father absence could also affect children by reducing economic resources and parental time available to children within the family. Thus, the measures of father absence may influence outcomes through several very different processes, and the net effect could go either way.

Table 2 gives the results for educational attainment. There is one major sex difference across the equations for nonblacks. Young nonblack women with brothers acquire significantly less education than do young nonblack women without brothers. This effect diminishes with income.

There is no such effect for nonblack men. Nonblack men with sisters do not acquire more education than do nonblack men without sisters. Since we control for number of siblings in these analyses, this does not occur as a result of nonblack girls with brothers coming from larger families. A second possibility may be that the presence of brothers reduces education for both young nonblack men and young nonblack women. To test for this, we added a same-sex sibling measure and an interaction term between same-sex sibling and income to the nonblack men's education equations. Results show no effect of brothers on nonblack men's schooling (not shown in table).

Sex differences for blacks in the effects of an opposite-sex sibling on schooling differed somewhat from those of nonblacks. Like nonblack women, black women with brothers acquire less schooling than do black women without brothers, and this effect is larger at lower levels of income. However, while having sisters had no effects on nonblack men's education, black men with sisters were actually at an educational advantage--relative to black men without sisters--and this effect decreased as income increased.

We also tested to see whether having brothers hurt black men's schooling by adding a same-sex sibling measure and an interaction between same-sex sibling and income to the black men's education regression. The presence of brothers had no direct effect on black men's schooling, but the interaction term was negative and significant, suggesting that at higher levels of family income, having a brother did reduce black men's schooling (not shown in table).

Other results are about as expected. Family status variables have generally positive effects on education--though the parental schooling

Table 2

Regression for Young Adults' Education by Race and Sex
(Young adults aged 25-30 in 1981 who were living with parents in 1968 and who had left home by 1981)

Variable[a]	Nonblack Women	Nonblack Men	Black Women	Black Men
Family income	.0028	.0114	-.0467*	.1082**
	(.0096)	(.0116)	(.0234)	(.0305)
Father's occupation	.0285**	.0010	.0212**	.0140
	(.0066)	(.0067)	(.0075)	(.0099)
Father's education	.0781*	.1708**	.0321	.0641
	(.0379)	(.0403)	(.0299)	(.0396)
Mother's education	.1260**	.1296**	.0184	-.0344
	(.0392)	(.0483)	(.0419)	(.0416)
Proportion of family income earned by mother	-.0714	1.6856	.5874	3.3597**
	(1.0574)	(1.3249)	(.9020)	(1.2331)
Mother's proportion of time worked	.2126	-.3337	.2945	-2.1838**
	(.5095)	(.5853)	(.5921)	(.7562)
Sex-typicality of mother's work experience	-.1279	.5564	-.2455	.2950
	(.4820)	(.4822)	(.4341)	(.6043)
Whether lived in mother-only household	-.3767	-.6309	-1.1052**	-.9597**
	(.3327)	(.4233)	(.3009)	(.3561)
Duration in mother-only household	.0378	.0086	.0520*	.0516*
	(.0355)	(.0497)	(.0242)	(.0247)
Opposite-sex sibling	-.7955*	.0007	-1.5537**	1.0374+
	(.3868)	(.4678)	(.4387)	(.5394)
Opposite-sex sibling x income	.0210*	.0019	.0900**	-.0683*
	(.0102)	(.0130)	(.0229)	(.0310)
Number of siblings	-.0948*	-.1155*	.0013	-.1013*
	(.0414)	(.0504)	(.0399)	(.0429)
N	453	405	326	282
R^2	.364	.268	.304	.251

Table 2, continued

Standard errors are shown in parentheses below the coefficients.

+Significant at the 10 percent level.

*Significant at the 5 percent level.

**Significant at the 1 percent level.

[a]Controls are also added for mothers who never worked outside the home and fathers who were in their second marriage in 1968.

measures are not significantly related to schooling for young blacks. Father's education also has a much larger effect on men's schooling than on women's schooling for nonblacks, but this difference is not statistically significant. The measures of mother's work behavior have no consistent effects on educational attainment for either blacks or nonblacks. There are, however, large effects on black men's schooling; black men's schooling goes up with the proportion of family income earned by their mothers and drops with mother's time spent working. This absence of consistent effects of mother's work behavior on children's schooling is not surprising given that most of these variables may be picking up effects of omitted social class, available parental time, and trauma due to family breakup. Finally, living in a mother-only home lowered schooling for both black women and men, and these effects diminished with the time spent in a mother-only home.

Table 3 reports the results of estimating the sex-typicality of young women's work experience after leaving home. Here, results are quite consistent with predictions of sex-role socialization theories. Women whose mothers worked in female-dominated fields tend also to work in such fields. Effects are sizeable and significant for both black and nonblack women, and effects for black women are 75 percent higher than those for nonblack women. There are few consistent or significant effects of the other maternal work variables, suggesting that the kinds of jobs mothers hold are more important than how much or whether or not they work. It may be that the maternal work variables affect other aspects of economic attainment such as labor force participation or wages. The conventional background and family composition measures are also insignificant,

Table 3

Regression for Sex-Typicality of Young Women's Work Experience by Race
(Young women aged 25-30 in 1981 who were living with
parents in 1968 and who had left home by 1981)

Variable[a]	Nonblack Women	Black Women
Family income	-.0002 (.0010)	-.0002 (.0022)
Father's occupation	-.0011 (.0007)	.0018* (.0007)
Father's education	-.0001 (.0040)	-.0021 (.0029)
Mother's education	.0013 (.0042)	-.0053 (.0039)
Proportion of family income earned by mother	-.0946 (.1114)	-.0392 (.0863)
Mother's proportion of time worked	.0485 (.0539)	.0879 (.0574)
Sex-typicality of mother's work experience	.1355** (.0509)	.2522** (.0418)
Whether lived in mother-only household	-.0501 (.0351)	-.0744** (.0283)
Duration in mother-only household	.0071+ (.0038)	.0054* (.0023)
Opposite-sex sibling	-.0090 (.0410)	-.0227 (.0420)
Opposite-sex sibling x income	-.0002 (.0011)	.0022 (.0022)
Number of siblings	.0007 (.0044)	-.0003 (.0037)
Education	-.0083+ (.0050)	-.0070 (.0055)
N	445	317
R^2	.063	.168

Table 3, continued

Standard errors are shown in parentheses below the coefficients.

+Significant at the 10 percent level.

*Significant at the 5 percent level.

**Significant at the 1 percent level.

[a]Controls are also added for mothers who never worked outside the home and fathers who were in their second marriage in 1968.

suggesting that social class and family structure have few effects on young women's taste for sex-appropriate work.

Division of Labor in Potentially Nontraditional Households

Another way to investigate sex-role socialization is to examine the wages and work behavior of husbands and wives in couples where the wives' predicted earnings exceed the husbands' predicted earnings. In such families, wives have an absolute earnings advantage. According to Becker's (1974) production theory of marriage, the spouse with the higher wage rate ought to specialize in the market while the other spouse (the husband) ought to specialize in home production. Thus, if only economics matters, in most of these families the wives' actual wages should exceed husbands' actual wages and husbands should spend relatively more time than wives in home production.[19]

We used a sample of 3066 pairs of married male household heads and wives in 1982 taken from the PSID to investigate this issue. Couples were excluded if either spouse was over 64 years old, a student, retired, or disabled. For each husband-wife pair, we constructed measures of predicted hourly wages for both husband and wife. The earnings functions used to construct these predicted wage measures estimated hourly wages as a function of education, age, age squared, whether lived in the South, and city size. The sample used for the men's equations was all employed men under 65 years who were not students, retired, or disabled. The sample for the women's equation was all employed women under 65 years who were not students, retired, or disabled, and who had worked continuously since leaving school. We restricted the sample to women who had continuous employment in order to estimate women's expected wage given that

women do not stay at home for family responsibilities. We mean this to measure a woman's labor market opportunities upon completion of schooling.

Wives' expected hourly earnings exceeded husbands' expected hourly earnings for only 133 of the 3066 husband-wife pairs (4.3 percent). These were very unusual couples; wives averaged about four years more schooling than did their husbands (12.8 versus 8.7). Wives' actual earnings exceeded husbands' actual earnings for only 33 of these 133 pairs (25 percent). This is far fewer than one would expect if families are solely income maximizers.

As a next step, we estimated the following equation for the 133 husband-wife pairs in which the wives had higher expected earnings than did their husbands.

$$p = a_0 + B_1 ed_H + B_2\ exp_H + B_3\ exp_H^2 + B_4\ ten_H + a_1\ ed_W + a_2\ exp_W + a_3\ exp_W^2 + a_4\ ten_W$$

p = 1 if wife's actual wage was larger than husband's wage
  = 0 otherwise
ed = years of school completed
exp = work experience prior to current employer
ten = years employed with current employer
h = husband
w = wife.

Here the dependent variable is a dummy variable that takes on a value of one when the wife's wage exceeds the husband's wage. The predictor variables are measures of the husband's and wife's education, work experience, and job tenure.

Table 4 reports the results when the equation is estimated using ordinary least squares.[20] The results are no surprise. Only two of the eight predictor variables have significant coefficients: wife's and husband's job tenure. The higher the wife's job tenure, the more likely her wage will exceed her husband's wage. The higher the husband's job tenure, the less likely his wife's wage will exceed his wage.

Since job tenure of both spouses seems to be a key factor in predicting which spouse will have higher wages, we regressed job tenure on potential experience (age - education - 6) and on number of children under age 14 years, separately for husbands and wives. Table 5 reports the results. For wives, number of children strongly predicts job tenure. For each child under age 14, a wife's job tenure drops by .58 years. There is no effect of children on husband's job tenure. Thus, even in families in which wives have higher predicted earnings than do husbands, children reduce the wife's job tenure, but have no effect on the husband's job tenure. This, in turn, reduces the chances that wives will actually attain higher earnings than their husbands. This behavior, of course, is completely consistent with the proposition that one partner (or both) values traditional sex roles. Indeed, in this case, there is a clear monetary value placed on traditionality.

Table 4

Regression for Dummy Variable Measuring Whether Wife's Wage is Greater than Husband's Wage (In all husband-wife pairs, wife's predicted wage exceeded husband's predicted wage)

Variable	
Husband's education	.0166 (.0288)
Wife's education	-.0134 (.0246)
Husband's experience prior to current job	.0038 (.0127)
Husband's experience squared	-.0002 (.0003)
Wife's experience prior to current job	.0137 (.0178)
Wife's experience squared	-.0002 (.0008)
Husband's job tenure	-.0243* (.0082)
Wife's job tenure	.0603* (.0130)
R^2	.219

Standard errors are shown in parentheses below the coefficients.

*Significant at the 1 percent level.

Table 5

Regression for Job Tenure of Each Spouse

Variable	Husbands	Wives
Potential experience	.2303*	.0862*
	(.0333)	(.0227)
Number of children younger than 14	-.0791	-.5849*
	(.3901)	(.2007)
R^2	.271	.159

Standard errors are shown in parentheses below the coefficients.

*Significant at the 1 percent level.

CONCLUSIONS

Our major theoretical finding is that in order to distinguish between socialization and discrimination as explanations for male-female pay differentials, one must look at each of the processes, rather than merely at the outcome, as is implicitly the case in the standard human capital regression. Further, the models we outline suggest that if socialization and other forms of pre-labor market differential treatment are important to begin with, labor market incentives will not tend to make them go away. In this paper, we have tried to look at both the process of socialization and the possibility that households train boys and girls differently, although our effort to look at socialization has been hampered by the fact that the data that we used contained no information on the attitudes of respondents in the sample. Indeed, having gone on at length about how a vector of sex-appropriate characteristics and tastes regarding them might operate in the labor market, the only measure we have of sex-appropriateness is the percentage female in mothers' occupations, and even this is not a pure taste variable.

The gap is important. The literature on sex-role socialization and occupational choice suggests that various family behaviors should influence occupational aspirations and the valuation of traditional sex roles, and that these in turn should affect behavior. The first link, that between family behavior and aspirations and attitudes, has been the subject of an extensive literature in psychology. The second link remains unexplored: what we have done here in our examinations is to jump from family circumstances to adult behaviors directly. Even that jump was complicated by the fact that our measures of family background (e.g.,

presence or absence of a father) could plausibly lead to any of a number of behaviors. In order to get much farther, we will need longitudinal data that has information about attitudes (of both parents and children) as well as about economic outcomes.

Fortunately, such data do exist. One example is the Political Socialization Family Study, a survey carried out by Kent Jennings at the Institute for Social Research, that followed a national sample of 1700 high school seniors and their parents from 1965 to 1982 (when the children were 35 years old). Parents and children were each interviewed in 1965, 1973, and 1982. The Socialization Panel provides measures of sex-role attitudes and economic behavior for both parents and children at several points in time, and we plan to use these data to explore directly the transmission of tastes for sex-appropriate job attributes from parents to children.[21]

In spite of the absence of attitude measures, our empirical results tend to confirm the idea that pre-labor market differences between boys and girls may be important. The result concerning the effect of brothers on the schooling of nonblack girls indicates that families treat boys and girls differently in a way that advantages boys once they enter the labor market. If families do this in one way, it is plausible that they do it in other ways as well. Indeed, our results are especially interesting in light of the well-known fact that the typical courses of study undertaken by boys and girls are quite different from each other. Earlier in this paper, we suggested that unmeasured human capital differences might arise from sex-role socialization--girls might value behaviors that were relatively unprofitable in the labor market. It may

also be the case that what girls study in school has effects on what they are able to do as women. If so, the fact that families treat boys and girls differently as regards schooling may be doubly important. The obvious research implication of this is to find out whether course of study has effects on pay and occupation (Project TALENT of the American Institutes for Research, and the Survey of Income and Program Participation, carried out by the Census Bureau, may provide some help here). While as a general matter we do not believe that further exploration of human capital explanations of pay differentials will be very informative in distinguishing between discrimination and socialization, the human capital approach could be very instructive in determining whether differences in the content of boys' and girls' schooling matter in the labor market.

That the sex-typicality of mothers' occupations influences that of daughters' also tends to indicate that sex-role socialization matters in the labor market behavior of women. Again, we find this result to be suggestive of a process at work rather than a description of the process or a good measure of its power. With better measures of the ways in which the upbringing of boys differs from that of girls, we would expect to see more of an effect, rather than less.

Finally, the finding that consistency with traditional sex roles regarding child-rearing versus market work seems to be more important in determining household division of labor than is income maximization also supports the idea that at the level of the labor market, different tastes (presumably arising from socialization) account for some of the differences between the behavior of men and women. In a way, the result is not

surprising--it is universally known that women do most of the child-rearing. Yet is is hard to account for either the finding or its plausibility unless one believes that there are powerful forces at work leading members of both sexes to perform traditional roles. That the outcome of these forces is readily observable in this case suggests that they may also be at work in other cases that are relevant to differences in pay between men and women.

We began by arguing that socialization might be an important part of an explanation of male-female pay differentials. Our findings here suggest that this indeed may be the case, although in order to find out how the process works and how important it is, a great deal of work remains to be done.

Notes

[1]We do not claim that all of the observed wage differential arises from such causes. Indeed, it is quite consistent with the story that we tell below that various kinds of direct discrimination may play an important role in labor markets.

[2]A number of scholars have proposed partial explanations of the sex segregation of jobs (see, for instance, Bonacich, 1972; Edwards, 1975; Kessler-Harris, 1982; Matthaei, 1982; Strober, 1984).

[3]The following paragraph summarizes and paraphrases a far more extensive discussion by Eccles and Hoffman, pp. 375 ff.

[4]Note that such differences are not accounted for in the empirical implementations of the human capital model described earlier.

[5]See Corcoran and Courant (1985) for a more formal presentation of the argument in this section.

[6]This explanation does not provide an account of why "women's" jobs would be relatively scarce. However, <u>if</u> the workplace is organized in this way, it does explain why women would not all move into "men's" jobs and arbitrage the differences away. This is especially plausible if co-worker prejudice is worth paying something to avoid.

[7]See Aigner and Cain (1977) for a discussion of the technical requirements needed to make this example "fly."

[8]Spence (1973) constructs an example in which education (paper credentials, in our terms) is valuable in predicting differences in productivity within groups but is not used to compare across groups. The discussion here is consistent with that example and adds a reason why the two groups might not be directly compared.

[9]To the extent that a Spence-type signaling equilibrium were all that was operating, but average differences in productive ability vanished, there would indeed be economic discrimination, although there would also be forces tending to generate a market in the signals that would tend to make the discrimination disappear over time.

[10]Having framed the question to include the possibility that the reliability of signals might be changed, we ignore the issue in the discussion that follows. However, if the logic of the argument here is correct, it is highly rational for women to go out of their way to acquire credentials that are considered highly reliable. In this interpretation, the dramatic increase in female attendance at law schools and business schools may say less about a taste for the relevant professions than about the value of acquiring (relatively) reliable signals.

[11]Lundberg and Startz (1983) present a model of investment in education that exemplifies this kind of process. In their model, human capital investment is affected by group differences in labor market outcomes, which in turn generate such differences.

[12]Indeed, widely held preferences for consonance with traditional roles and values will also have a direct effect in the labor market. If co-workers are more productive in a traditional environment, employers will be rationally leery of placing women in nontraditional roles, even if the women are known to be fully able to meet the technical requirements of the job. Further, such discrimination on the part of co-workers (or employers) can induce behavioral responses on the part of potential women employees. If there is an expectation of "hassle" of various kinds when a woman performs a nontraditional role, then it will be worth some

pay reduction to take a position (a traditional position) that will offer a more pleasant environment. Here the expectation of discrimination induces a behavioral response that can be interpreted as a compensating wage differential--where the compensation is in exchange for avoiding painful circumstances.

[13]See Loury (1981) for a discussion of a model in which, for blacks and whites, equal opportunity may not lead to equal equilibrium outcomes, in spite of equal intrinsic abilities. The mechanism in Loury's model is that blacks and whites, owing to segregation, grow up in different neighborhoods, and neighborhood characteristics matter to the acquisition of wealth-enhancing skills. In the context of the argument we make in this paper, the different "neighborhoods" for boys and girls are different patterns of socialization and training. The logic of the argument is essentially the same, with the addition here that socialization may lead men and women to place different psychological values on different types of work.

[14]See Courant (1978) for a model of housing market discrimination that is constructed along these lines. Adaptation to search in a labor market is straightforward. See Akerlof (1985) for a more elegant generic form of such a model, in which the key assumption is that not all potential traders make contact with each other.

[15]And even here we would not have examined the operation of the labor market itself.

[16]This age range was chosen to ensure representativeness. Most children remain living with parents until age 17, and most have left home by age 25 years. See Hill et al. (1983) for a more extensive description of this sample.

[17]There are relatively little missing data on the predictor variables used in these analyses, since parents provided contemporaneous reports of their attributes. We deal with missing data on predictor variables by using pair-wise deletion when creating matrices for OLS regression. There are also relatively little missing data on outcome measures. Any cases with missing data on outcomes are dropped from analysis runs.

[18]This could arise from tastes or "steering" into sex-typical jobs. In either case, it is readily observable by both researchers and daughters.

[19]This assumes husbands and wives are equally talented at home production.

[20]The same pattern of results is obtained when this model is estimated using probit analysis.

[21]Another potentially quite useful dataset for examining the causes and consequences of sex-role attitudes is the Thornton Detroit Family Study--a longitudinal study run by Arland Thornton at the Institute for Social Research which has followed a sample of mothers and newborns since 1962. The study is currently in its fifth wave and provides rich detail on parents' sex-role attitudes and economic behavior throughout their children's childhood and on children's sex-role attitudes and aspirations. Since the children are quite young (age 23 years in 1985), it is too early to obtain precise measures of their economic outcomes. As the study continues and the children age, the survey will become an increasingly valuable resource.

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