

A discusión

THE INTERGENERATIONAL TRANSMISSION OF GENDER ROLE ATTITUDES AND ITS IMPLICATIONS FOR FEMALE LABOR FORCE PARTICIPATION*

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Abstract

Using a sample of mother-child pairs from the National Longitudinal Survey of Youth 1979 we explore the intergenerational transmission of a social norm regarding women's roles and examine its implications for the labor market behavior of females. We find that a mother's attitudes towards working women have a statistically significant effect on those of her children. Furthermore we find that the component of this social norm that is correlated with the individual's mother's work behavior during that individual's youth not only affects the labor market force participation decision of a female individual, but also has an equally strong association with that of the wife of a male individual. The findings indicate that cultural transmission contributes to the intergenerational similarity in the work behavior of females.

Keywords: intergenerational cultural transmission, gender role attitudes, female labor force participation.

JEL Classifications: J12, J62, D1, Z1.

1 Introduction

Culture, measured in various forms, has been employed in empirical investigations to explain economic behavior ranging from countries' trade patterns (Guiso, Sapienza and Zingales 2005) to individual consumption and saving decisions (Carroll, Rhee and Rhee 1994, 1998). Culture is also seen as contributing to the correlation in economic behavior across generations. For example, while the parent-child similarity in economic status had typically been attributed to the role of the family financial background (see, for example, Mulligan 1997; Solon 1999), Charles and Hurst (2003) have argued that it partially reflects the similarity in parent's and their children's preferences. The intergenerational transmission of norms, values and beliefs has also been proposed as an explanation of the persistence of ethnic and religious minorities in contemporaneous societies (Bisin and Verdier 2000 and Bisin, Topa and Verdier 2004) and the functioning of current economic institutions (Guiso, Sapienza and Zingales 2006 and Tabellini 2007).

The role of culture in the similarity of labor market activity across generations is a relatively unexplored aspect of labor economics although Fernández, Fogli and Olivetti (2004), Fernández (2007a,b), Fernández and Fogli (2007) and Fogli and Veldkamp (2007) are recent exceptions. These papers focus on two important empirical findings. First, a woman's work behavior is correlated with that of women in her country of ancestry. Second, a woman's labor market behavior is positively correlated with that of her son's wife. The authors interpret these findings as evidence that cultural attitudes regarding the role of women in the family and the work place are transmitted across generations. This interpretation is also consistent with Guiso et al (2006) and Tabellini (2005, 2007) who highlight the importance of cultural

transmission for individual economic behavior. Guiso et al (2006) argue that beliefs and values related to the individual's religion and ethnic background are transmitted relatively unchanged across generations and this cultural heritage affects economic outcomes. In Tabellini (2007) children "inherit" the appropriate social norms and beliefs from their parents to ensure economic survival.

While the above forms of intergenerational cultural transmission have implications for the economic behavior of subsequent generations they each propose alternative mechanisms. These range from the transfer of quasi time invariant values to the inheritance of social norms which evolve according to economic considerations. Thus, the intergenerational correlation in female labor market behavior may result from values, such as religious beliefs, which are common to parents and children or may reflect the transmission of a social norm which incorporates economic experiences. Uncovering an intergenerational correlation in economic outcomes thus does not provide unambiguous support for all of these mechanisms.

In this paper we examine the presence of an evolving social norm affecting the female labor market. We believe that the component of the intergenerational economic correlation that responds to such a mechanism is the most meaningful from a labor market policy perspective. The last four decades have seen a drastic growth in the participation of women in labor market activities. One explanation of this phenomenon has emphasized the role of cultural transmission whereby the economic success of females affects the development of attitudes towards working women of subsequent generations.¹ If the economic performance of one generation of women affects that of the following generations by changing social norms, then economic policies designed to

¹See Fernandez (2007a) and Fogli and Veldkamp (2007).

influence the behavior of working age females might have a persistent effect on future generations. Such policies would then seem a powerful tool to address issues relating to gender, for instance, in the labor market. We therefore focus on the development and transmission of individual's attitude towards the role of women in the workplace and its implications for the intergenerational correlation in female economic behavior.

We note that previous studies (see, for example, Vella 1994, Fortin 2005 and Farré 2006) have provided empirical evidence that an individual's background characteristics affect her attitude towards the role of women in the labor market and that these attitudes partially determine their level of labor supply. Moreover, Thornton, Alwin and Camburn (1983) find that a mother's attitude towards women working is associated with her children's attitude. While combining these findings appears to establish an empirical effect for a social norm regarding the role of women it does not, however, provide insight into the development of this norm.

Below we address the formation of attitudes towards gender roles, their transmission across generations and their impact on female labor market participation. We first construct an index of attitudes towards gender roles for a cohort of women living in the United States in 2004. By constructing the corresponding index for the children of these women we examine if there is any generational transfer of attitudes. We then investigate whether gender role attitudes are able to explain the subsequent labor market participation decision of the female respondents and that of the partners of the male respondents. Using instrumental variables methods we exploit the variation in these attitudes which results from the older generation's labor market behavior and examine whether it affects that of the younger.

Our empirical investigation employs observations on females from the National

Longitudinal Survey of Youth 1979 (NLSY79) merged with those of their children in the Children and Young Adults of the National Longitudinal Survey of Youth 1979 (CYNLSY79). We examine the relationship between the attitudes expressed in 2004 by female respondents aged between 40 and 47 years with those of their children expressed in the late 1990's and early 2000's when they are aged 15 to 22 years. As the respondents in the CYNLSY79 are too young to investigate the economic long term effects of attitudes, we return to the NLSY79 to examine the role of these attitudes reported in 1979 when the respondents are aged 15 to 22 years on their labor market behavior in 2004. Our results indicate that gender role attitudes are transmitted across generations. Moreover, they reveal an important effect, operating through this cultural transmission, from the work behavior of females of one generation on that of the subsequent generation.

The next section describes the data and presents our measure of attitudes. Section 3 analyzes the intergenerational transmission of gender role attitudes and Section 4 examines whether this transfer of attitudes across generations has implications for female labor market behavior. Section 5 provides some concluding comments.

2 Measuring Attitudes Towards Gender Roles

The NLSY79 survey is a nationally representative sample of 12,686 individuals aged 15-22 years when surveyed in 1979. These individuals were interviewed annually through 1994 and are currently interviewed on a biennial basis. We focus on the core random sample of 6,111 respondents designed to be representative of the non-institutionalized civilian segment of young people living in the United States in 1979.

The NSLY79 provides measures of labor market activity and household features

which characterize the individual's home environment when young. It also elicits the individual's opinion towards a woman's roles in homemaking and in the labor market. In 1979, 1982, 1987 and 2004, respondents are asked whether they strongly agree, agree, disagree or strongly disagree with the statements shown in Table 1.

The statements ask about different aspects of family and work life of women and generally imply that an unequal burden of homemaking activities should lie with the female and/or that a female's activities in the labor market are of secondary importance to: (a) her role as a homemaker; and (b) her husband's role in the labor market. Q5 is somewhat ambiguous but also seeks the respondent's reaction to the view that a male should devote his effort to market employment while a female should devote hers to homework.

Table 1 also displays the percentage of individuals who report valid answers in both 1979 and 2004 which "strongly disagree" or "disagree" with statements 1, 2, 3, 4 and 6, or "strongly agree" or "agree" with statement 5. We report the responses in both periods to investigate the intragenerational change in attitudes and because we use the 2004 attitudes to explore the intergenerational transfer of attitudes while the 1979 values are employed in the analysis of female labor force participation.

Table 1 reveals substantial variation in opinions towards working women both across gender and time noting that we employ, for convenience, the term "traditional" to reflect the view that females should specialize in home production and males in market production. In the 1979 data males give the more traditional responses although the difference varies by question. This conclusion is similar to Thornton et al (1983) noting that they examine a different sample and a different group of questions. Perhaps the most "definitive" statement here, in terms of defining a female's role, is

Table 1: Distribution of Gender Role Attitudes for Males and Females in the NLSY79 (1979-2004)*

	1979		2004	
	Males	Females	Males	Females
Q1: A woman's place is in the home, not in the office or shop.	0.69	0.84	0.90	0.92
Q2: A woman who carries out her full family responsibilities does not have time for outside employment.	0.66	0.77	0.81	0.85
Q3: The employment of wives leads to more juvenile delinquency.	0.69	0.76	0.71	0.72
Q4: It is better for everyone concerned if the man is the achiever outside the home and the woman takes care of the home and the family.	0.51	0.64	0.74	0.76
Q5: Men should share the work around the house with women, such as doing dishes, cleaning and so forth.	0.78	0.84	0.96	0.96
Q6: Women are much happier if they stay at home and take care of their children.	0.65	0.75	0.67	0.73
Index4 (four point scale)	16.25 (2.98)	17.77 (3.13)	17.82 (2.78)	18.76 (3.01)
Cronbach's Alpha	0.75	0.77	0.78	0.80
Observations	1780	2093	1780	2093

*The Table displays the percentage of individuals who "strongly disagree" or "disagree" with statements 1,2,3,4 and 6, or "strongly agree" or "agree" with statement 5.

Q1. While 69 percent of males disagree with Q1 the corresponding figure for females is 84 percent. Thus in 1979 a large fraction of males, and a non trivial fraction of females, held the opinion that women were not as welcome in the labor market as men. The responses also reflect that a significant number of the respondents, both males and females, think that the household's members suffer when women are involved in market employment.

Without exception the average response to each statement in 2004 is less traditional than in 1979. This indicates that as individuals age they become more supportive of a role for women in market employment. This may reflect a change in attitudes resulting from their own experiences or indicate that the earlier traditional influences may have weakened. It may also reflect an increasing societal acceptance of females in the labor market. However, despite this shift towards less traditional views in 2004 there remain a significant number of respondents who view a female's role in the labor market as unequal to that of a male's.

To examine the relationship between gender role attitudes across generations one could use the responses to each of the individual statements separately. However, the responses are highly correlated as they appear to capture the same latent "response".² An alternative is to follow Thornton et al (1983) and Vella (1994) and construct an index of attitudes. Accordingly, we first assign the following values to the answers of each question; 1 if "strongly agrees", 2 if "agrees", 3 if "disagrees", and 4 if "strongly disagrees". By summing these values we obtain an index ranging from 6 to 24, where a score of 6 denotes an extremely traditional attitude while 24 represents an extremely

²The Cronbach's Alpha statistic, a measure of the correlation in the responses to the different statements, indicates that the answers to the six questions are highly correlated. This measure is reported in the bottom line of Table 1.

non traditional attitude. We reverse the ordering of the allocation of points for Q5 to retain the traditional nature of the "agree" and "strongly agree" responses.

The descriptive statistics for the constructed index are also reported in Table 1 in the row "Index4 (four point scale)" and its histograms by gender and year are presented in Figures 1A and 1B. The general patterns of these indices are similar to those of the individual questions. However, some additional points are worth noting. First, since an individual who responded "strongly disagree" to all statements would be allocated a score of 24, the average female score, 17.77 in 1979 and 18.76 in 2004, and the average male score, 16.25 and 17.82 respectively, do not indicate that the "average" individual strongly supports gender equality in the labor market. This is illustrated in Figures 1A and 1B which show the masses of the indices are spread over a range of values and are not located at the higher (less traditional) values. Second, as each question is assigned scores of 1 to 4 a standard deviation of almost 3, as it is for both males and females in 1979, suggests there is substantial variation. This is also illustrated in Figures 1A and 1B. Finally, although the views are more supportive of female participation in 2004 than they are in 1979, the change is small.³

Vella (1994) discusses how the index based on this four point scale has some disadvantages. Summing the responses assigns an equal weight to each question and allocates somewhat arbitrary values to the responses. Thus, while our approach is attractive in that it captures the variation in discrete responses in a continuous measure we examined the implications of employing alternative aggregations. We first employed a binary method that quantifies the responses as agreement (strongly agree or agree) or disagreement (strongly disagree or disagree). We assign a value of one for

³Despite these similarities formal mean comparison tests reject the null hypothesis of equality across samples.

Figure 1.A: Females and Males in the NLSY79 (Attitudes measured in 1979)

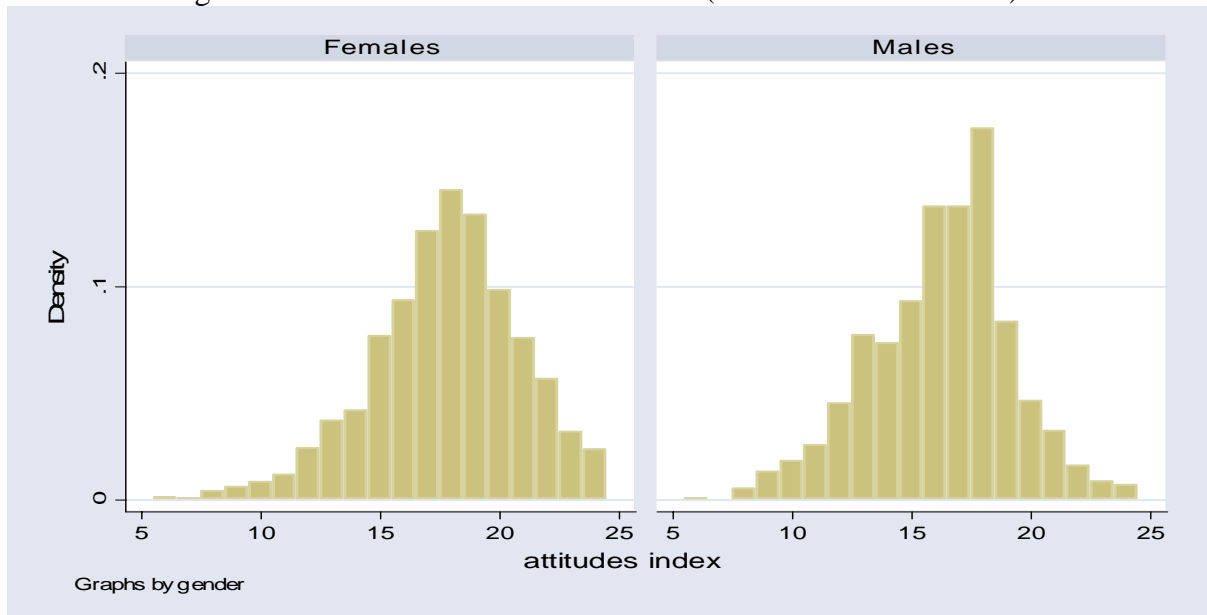


Figure 1.B: Females and Males in the NLSY79 (Attitudes measured in 2004)

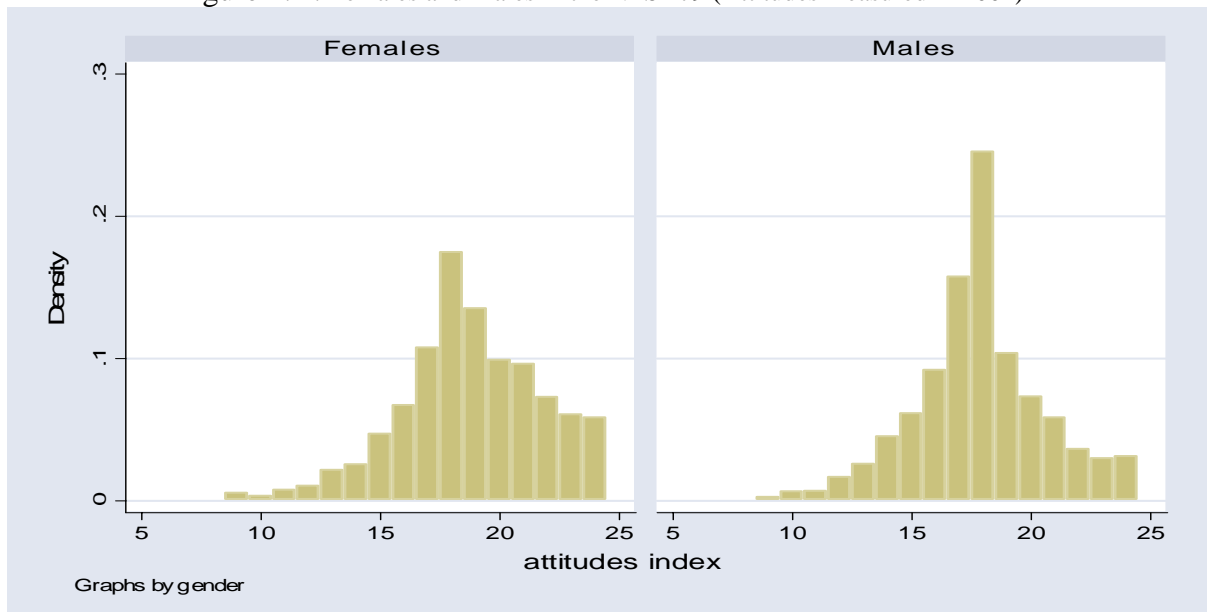
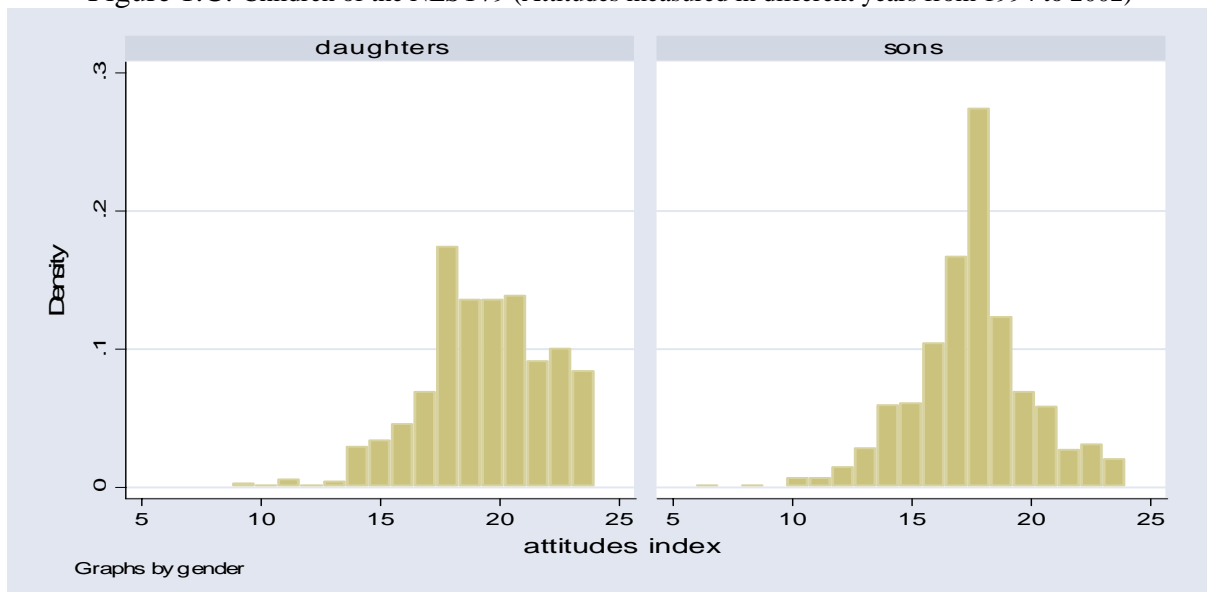


Figure 1.C: Children of the NLSY79 (Attitudes measured in different years from 1994 to 2002)



disagreement and a value of zero otherwise thereby producing a two point response for each question. We also employed factor analysis to construct an aggregate measure of gender role attitudes as a weighted average of the six individual responses. Our preferred measure is the four point scale index of attitudes as it exploits more of the available information and is easier to interpret than the aggregate factor. Accordingly, we use this measure below, but reproduce all the major empirical results using the alternative measures. Although we do not provide the results in detail here our main conclusions are unaffected by our index choice.

3 The Intergenerational Transmission of Attitudes

To investigate the intergenerational transmission of gender role attitudes we merge the data for the female respondents of the NLSY79 who subsequently had children with that of their children collected in the Children and Young Adults of the National Longitudinal Survey. A survey of all children born to the NLSY79 female respondents began in 1986 and since 1995 children aged 15 years and older have biennially completed an interview modeled on the NLSY79 questionnaire. In 1994, 1996, 1998 and 2002, children were asked the same questions regarding a woman's roles that their mothers were asked in 1979 and 2004.⁴

Our sample comprises children aged 15 to 22 years old in 2002 when they reported their attitudes. When this information is not available in 2002 or children are older than 22 years in 2002, we use the information on attitudes from a previous year. Table 2 shows the age distribution and the year in which the children's attitudes are

⁴Some females from the 1979 sample have multiple children which appear in the children's survey. The distribution of children per mother in the sample is the following: 1 child (12%); 2 children (39%); 3 (30%); 4 (12%); 5 (5%); 6 and greater (2%).

measured. The observations generally correspond to the years 1998 and 2002 and individuals are, on average, younger than their mothers were in 1979.

The children's attitudes are presented in Table 3. The comparison between Tables 1 and 3 indicates that both young males and females in the years from 1994 to 2002 have views more supportive of a female role in the labor market than their respective counterparts in 1979. In fact, their answers are more similar to those reported in 2004. A comparison of the descriptive statistics of the four point scale indices indicates a strong relationship in the contemporaneous views of these two cohorts in the late 1990's and early 2000's. The male score is 17.68 for the younger cohort compared to 17.77 for the older cohort in 2004 and the score for females is 19.62 compared to 18.76 for their older counterparts. The standard deviation of the indices is still approximately 3 for both young males and females although it has reduced in comparison to the responses of the previous cohort. Figure 1C reinforces the similarity of the distribution of contemporaneous attitudes across the two generations.

We now explore the contemporaneous relationship between the index of a woman and that of her child. Alternatively one could explore the relationship between the attitudes of these two cohorts when both were aged 15 to 22 years. The argument behind such a choice would be that this value for the mother captures best what was transferred to her from her own mother. However, our objective is to empirically assess the impact of the mother's attitudes which have been updated according to her own work and family experiences. Therefore the later measurement of the index seems more appropriate. This is also consistent with Bisin and Verdier (2001) and Tabellini (2007) where parents optimally choose social norms to pass on to their children.

We first examine the link between the mother's attitude value recorded in 2004,

Table 2: Age and year at which children's attitudes are reported

age	Obs	year	Obs
15	226 (18.26%)	2002	355 (28.68%)
16	321 (25.93%)	1998	421 (34.01%)
17	85 (6.87%)	1996	307 (24.80%)
18	233 (18.82%)	1994	155 (12.52%)
19	254 (20.52%)		
20	65 (5.25%)		
21	52 (4.20%)		
22	2 (0.16%)		

Table 3: Distribution of Gender Role Attitudes for Children of the NLSY79 (1994-2002), at age 15-22*

	Sons	Daughters
Q1: A woman's place is in the home, not in the office or shop.	0.83	0.92
Q2: A woman who carries out her full family responsibilities does not have time for outside employment.	0.80	0.91
Q3: The employment of wives leads to more juvenile delinquency.	0.84	0.90
Q4: It is better for everyone concerned if the man is the achiever outside the home and the woman takes care of the home and the family.	0.71	0.84
Q6: Men should share the work around the house with women, such as doing dishes, cleaning and so forth.	0.93	0.97
Q6: Women are much happier if they stay at home and take care of their children	0.70	0.82
Index4 (four point scale)	17.68 (2.61)	19.62 (2.75)
Cronbach's Alpha	0.75	0.79
Obs	778	715

*The Table displays the percentage of individuals who "strongly disagree" or "disagree" with statements 1,2,3,4 and 6, or "strongly agree" or "agree" with statement 5.

when the sample is aged from 40 to 47 years, and the value of the child's index recorded in the late 1990's or early 2000's. Regressing the child's index on her/his mother's, a gender dummy and an intercept produces a coefficient on the index of 0.219 with a standard error of 0.028.⁵ Replacing the 2004 attitudes value for the mother with her 1979 value, produces a coefficient of 0.082 with a standard error of 0.022. This reduction in the coefficient indicates, as suggested above, that a mother's contemporaneous views play a more important role in shaping her child's attitudes.

Before interpreting this relationship as evidence of cultural transmission two estimation issues should be addressed. First, the statistically significant role of mother's attitudes might reflect the effect of omitted economic and family features of the environment in which the child was raised. Accordingly, we examine whether maternal attitudes play a role after including controls for the child's background. Second, a mother's attitude may be endogenous if it is affected by her children's behavior and attitudes or if contemporaneous unobserved factors affect both attitude values. To account for this potential endogeneity we employ instrumental variables.

Column 1 in Table 4 presents the estimates of a model for the child's attitudes index that includes a number of variables characterizing the child's household during her/his youth. These include dummy variables for the child's gender and religious background, the number and gender composition of siblings, an indicator for first born child, the mother's age when the child was born, the parents' education level and work behavior and geographical and regional variables. The results have some interesting features. First, and most importantly, is the statistically significant contribution of the mother's attitudes. The positive coefficient indicates that women with more

⁵Estimating the relationship separately for sons and daughters produced almost identical estimates for the slope coefficients.

Table 4: The effect of Mother's Gender Role Attitudes on Children's Attitudes

Dependent variable:	Child's Attitudes Index				Reduced form equation for the mother's attitudes index
	(1) Sons&Daughters (OLS)	(2) Sons (OLS)	(3) Daughters (OLS)	(4) Sons&Daughters (2SLS)	(5) Sons&Daughters (OLS)
MOATTITUDES04	0.167 (0.028)***	0.186 (0.040)***	0.153 (0.040)***	0.221 (0.064)***	
MOATTITUDES87					0.354 (0.028)***
MOATTITUDES79					0.159 (0.029)***
SON	-1.700 (0.208)***			-1.631 (0.218)***	-0.281 (0.216)
OLDSIBLING	-0.198 (0.190)	-0.310 (0.271)	-0.201 (0.281)	-0.172 (0.201)	-0.270 (0.199)
MALESIBLINGS	-0.240 (0.339)	-0.253 (0.492)	-0.102 (0.519)	-0.412 (0.362)	-0.196 (0.359)
SIBLINGS	-0.313 (0.061)***	-0.230 (0.086)***	-0.381 (0.094)***	-0.338 (0.065)***	0.060 (0.064)
MOAGEBIRTH	-0.124 (0.045)***	-0.115 (0.062)*	-0.145 (0.067)**	-0.123 (0.048)**	-0.052 (0.047)
MOIMIGRANT	-0.293 (0.465)	-0.007 (0.675)	-0.638 (0.660)	-0.299 (0.528)	-0.307 (0.522)
MOEDUC	0.158 (0.045)***	0.125 (0.062)**	0.188 (0.067)***	0.162 (0.049)***	0.076 (0.047)
MOWORK14	0.227 (0.183)	0.380 (0.258)	0.113 (0.270)	0.102 (0.205)	0.566 (0.195)***
MALEPRESENT14	-0.796 (0.623)	-1.690 (0.867)*	-0.045 (0.967)	-1.022 (0.678)	0.569 (0.671)
MALEWORK14	0.215 (0.420)	0.137 (0.622)	0.434 (0.592)	0.263 (0.456)	-0.572 (0.450)
MALEEDUC14	0.073 (0.041)*	0.099 (0.052)*	0.050 (0.067)	0.092 (0.044)**	0.034 (0.043)
RELIGIONCHILD	YES	YES	YES	YES	YES
CONSTANT	15.45 (1.809)***	12.47 (2.452)***	27.73 (2.823)***	15.72 (2.173)***	9.747 (1.904)***
OBSERVATIONS	1027	517	510	892	892
R ²	0.23	0.15	0.17		0.31

- See Table 10 for variable definition. Standard errors in parentheses, * significant at 10%; ** significant at 5%; *** significant at 1%.
- Additional controls included are age and year in which the child reports attitudes, his/her race, indicator variables for the region of residence (North East, North Central, West, North) and an indicator variable for living in a city at age 14. The only variables of this list with a statistically significant coefficient at conventional testing levels are the "age at which attitudes are reported" and the "living in the North" indicator. In column (1) the first variable has a coefficient of 0.168 and a standard error of 0.067, while the second variable presents a coefficient of -0.444 with a standard error of 0.254.
- The only religion dummies with a statistically significant coefficient are those for the Baptist and the Protestant denominations. In column (1) the estimated coefficient and standard errors are respectively -0.650 (0.268) and -0.546 (0.270).
- Column 4 reports the 2SLS estimates where the mother's attitudes index in 1979 and 1987 are employed as instruments for her 2004 attitudes. In this specification the absolute value of the t-statistic of the regression based form of the Hausman test is 1.07. Column 5 reports the reduced form equation for the mother's attitudes index.

(less) traditional views have children who have more (less) traditional views. As the coefficient is 0.167 and the mean of the mother's index is approximately 19 the contribution for the average individual is around 3.2. Also, an one standard deviation increase in the mother's attitude value (3.01 points) leads to an increase of 0.5 points in the child's index.⁶

The only variables with statistically significant coefficients and larger absolute effects than that generated by an one standard deviation change in maternal attitudes, were those associated with gender and some of the religious categories. There is evidence that children raised in the Baptist and the Protestant religions report more traditional views than those raised in a non-religious context.⁷

Consider the other variables which have a statistically significant effect on an individual's attitude. The education levels of both parents are statistically significant and positive. This may result from the higher labor market participation rates of well educated parents, which develop positive views towards labor market involvement in their children, or from a greater disposition of well educated parents to transmit less traditional views. The negative coefficient for siblings implies that individuals living in larger families have more traditional views. Mothers in these families might bear a larger burden of household chores and spend fewer hours engaged in market

⁶Using the two point scale index the coefficient on the mother's index is 0.195 with a standard error of 0.027, and an one standard deviation increase in the mother's index (1.41 points) leads to an 0.27 points increase in that of the child. Using the aggregate variable obtained from the factor decomposition, the coefficient on the mother's factor is 0.183 with a standard error of 0.029, and an one standard deviation increase in this measure for the mother (0.92 points) is associated with an increase of 0.168 points in that of the child. Thus the conclusion that attitudes are transferred from mothers to children is invariant to the measure employed.

⁷The changes in the child's attitudes index for a standard deviation increase in the remaining variables with a statistically significant coefficient is -0.46 for the number of siblings, 0.34 for the mother's years of education, 0.15 for that of the father and -0.36 for mother's age when the child was born.

activities.⁸

One notable statistically insignificant coefficient is that for the variable which indicates that the individual's mother worked when the individual was aged 14 years. While one might expect a negative effect on traditional attitudes from this variable it appears that any such effect is captured through the other included variables. Removing the mother's attitudes index increases the coefficient on the mother's work decision from 0.227 to 0.516 and it becomes statistically significant at conventional levels.⁹ This suggests that the effect of the mother's work behavior is incorporated in her attitude.

Columns 2 and 3 report the results when the model is estimated separately by gender. The attitudes coefficients are similar across gender and a formal test does not reject their equality. The remaining coefficients are also similar by gender with the exception of the variables capturing the presence of an adult male in the household when the respondent was 14 years old and the level of education of that adult male, which have stronger effects on the son's attitudes. The first effect indicates that sons raised in single parent households with a female head have more positive views towards working women. The second effect reinforces the role of education in forming less traditional attitudes.

Overall these results indicate that the mother's attitude, expressed in 2004 when she was aged between 40 and 47 years, has statistically significant implications for the

⁸We do not include the individual's educational attainment or work experience as possible explanatory variables due to a possible endogeneity problem. In fact, as the respondents are young the vast majority (80.64%) are still enrolled at school or college.

⁹The statistical significance of the other coefficients remains unchanged when the attitudes are excluded from the regression and their change in magnitude is small.

contemporaneous views expressed by children when they are in their teens or early twenties. The relationship indicates that similar views are passed from one generation to the next. While a positive correlation in the attitudes of a woman and those of her children is expected, it is interesting that the result holds even after background factors are accounted for.

The estimates in Columns 1 to 3 would be inconsistent if a mother's views were endogenous. Accordingly, Column 4 displays the 2SLS estimates of the child's index model when the 2004 attitudes of the mother are instrumented using her attitudes in 1979 when most of the females in the sample were childless and those in 1987 when the children are very young. The resulting coefficient for the 2004 mother's attitudes index slightly increases to 0.221 with a standard error of 0.064.¹⁰ However, as the regression form of the Hausman test cannot reject the null hypothesis that a mother's attitudes are exogenous to those of her children, we focus on Columns 1 to 3.¹¹

The results in Table 4 are consistent with those in Thornton et al (1983) who, using a different group of questions for a different and smaller sample, find that a mother's contemporaneous view of gender roles in 1980 has a statistically significant and positive impact on that of her 18 year old child. They also conclude that other family characteristics, such as the education level of the parents, affect these attitudes. Table 4 also indicates that the transfer of attitudes occurs above the effect of any background family variables. This supports the conjecture in Fernández (2007a), Tabellini (2007) and Guiso et al (2006) that children inherit social norms and cultural beliefs from their parents.

¹⁰Column 5 in Table 4 reports the reduced form equation for the mother's attitudes index.

¹¹The absolute value of the t-statistic of the Hausman test is 1.07.

4 Gender Role Attitudes and The Labor Market

We now explore whether this link between the attitudes of the mother and her child manifests itself in the labor market participation of the children during their adulthood. As the children in the CYNLSY79 are too young to investigate the economic long run effects of their attitudes we return to the original NLSY79 sample. We examine the relationship between gender role attitudes collected in 1979 and economic decisions in 2004.

Tables 5A and 5B cross tabulate the individual's 1979 attitudes index with some of their socioeconomic variables in 2004 and information on the individual's mother collected in 1979.¹² Table 5A reports the data on individuals who are married in 2004 while Table 5B summarizes the data for the unmarried in 2004.¹³

The upper panel of Table 5A summarizes the data for female respondents. The woman's educational level in 2004 is generally positively correlated with her 1979 attitude level. A positive relationship also exists between a woman's attitude value and her parent's education level in 2004. The 1979 education level of the respondent's mother is also positively correlated with the attitude value. The table also reveals a large reduction in the fertility levels of the younger generation. Nevertheless, there appears to be a positive relationship between the traditional attitudes of a woman and; a) the number of her own children; and b) the number of her mother's children. The table also reports the proportion of the respondents and their partners which are employed in 2004 and the proportion of respondents' mothers working when the respondent was aged 14 years and in 1978, the two periods for which information on

¹²The NLSY79 does not contain information on the mother's gender role attitudes.

¹³The NLSY79 contains some characteristics of the respondent's partner but does not include information on her/his attitudes or family background.

Table 5A: Socio-Economic Characteristics Tabulated by Attitudes
(married in 2004)

Females

Attitudes Index distribution	ATT79R	EDUCR	EDUCP	MOEDUCR	CHILDR	MOCHILDR	WORK04R	WORK04P	MOWORK14R	MOWORK78R	Observations
<=15 (19%)	13.30	13.06	13.21	10.57	2.24	3.67	0.71	0.92	0.44	0.55	250
16-17 (42%)	16.59	13.38	13.54	11.52	2.23	3.09	0.72	0.93	0.53	0.65	312
18 (57%)	18	13.86	13.80	11.52	2.10	3.23	0.77	0.94	0.52	0.65	194
19-20 (80%)	19.42	14.05	13.93	11.83	2.02	3.27	0.77	0.95	0.61	0.68	310
>=21 (100%)	22.01	14.78	14.52	12.33	1.85	2.83	0.78	0.96	0.63	0.77	271

Males

Attitudes Index distribution	ATT79R	EDUCR	EDUCP	MOEDUCR	CHILDR	MOCHILDR	WORK04R	WORK04P	MOWORK14R	MOWORK78R	Observations
<=13 (18%)	11.66	12.40	12.77	10.83	2.08	3.46	0.88	0.70	0.34	0.43	208
14-16 (48%)	15.23	13.48	13.56	11.34	2.08	3.44	0.92	0.72	0.48	0.60	349
17 (61%)	17	13.75	14.18	11.74	2.18	3.16	0.92	0.78	0.60	0.65	147
18 (80%)	18	14.01	14.21	12.50	1.99	2.86	0.95	0.79	0.63	0.73	211
>=19 (100%)	20.24	14.61	14.69	12.78	2.05	2.80	0.93	0.81	0.58	0.73	232

*Each cell reports the mean value of the variable of interest at the corresponding attitudes range.

Variable Definition

ATT79R: Attitudes index of the respondent constructed from the responses in 1979

AGER: age of the respondent in 2004

AGEP: age of the respondent's partner in 2004

EDUCR: years of education of the respondent as reported in 2004

EDUCP: years of education of the respondent's partner as reported in 2004

MOEDUCR: years of education of the respondent's mother as reported in 1979

CHILDR: number of children of the respondent as reported in 2004

MOCHILDR: number of siblings (including the respondent) as reported in 1979 (respondent's mother fertility rate)

WORK04R: employment rate of the respondents in 2004

WORK04P: employment rate of the respondents' partners in 2003

MOWORK14R: employment rate of the respondents' mothers when the respondents were age 14

MOWORK78R: employment rate of the respondents' mothers in 1978

Table 5B: Socio-Economic Characteristics Tabulated by Attitudes
(Not married in 2004)

Females

Attitudes Index distribution	ATT79R	EDUCR	MOEDUCR	PCHILDR	MOCHILDR	WORK04R	MOWORK14R	MOWORK78R	Observations
<=15 (26%)	13.26	11.84	9.90	0.80	4	0.68	0.42	0.51	198
16-17 (46%)	16.55	12.43	11.01	0.81	3.90	0.69	0.45	0.57	148
18 (61%)	18	13.07	11.25	0.75	3.54	0.75	0.49	0.68	110
19-20 (84%)	19.43	13.54	11.66	0.65	3.30	0.83	0.63	0.69	176
>=21 (100%)	21.93	14.10	12.12	0.67	3.17	0.83	0.63	0.77	124

Males

Attitudes Index distribution	ATT79R	EDUCR	MOEDUCR	PCHILDR	MOCHILDR	WORK04R	MOWORK14R	MOWORK78R	Observations
<=13 (20%)	11.75	11.69	10.10	0.68	3.93	0.80	0.39	0.46	127
14-16 (50%)	15.18	12.13	11.02	0.58	3.43	0.72	0.54	0.62	193
17 (66%)	17	12.53	11.23	0.60	3.48	0.81	0.53	0.67	98
18 (82%)	18	13.33	11.98	0.52	3.22	0.81	0.60	0.71	99
>=19 (100%)	20.09	13.35	12.35	0.49	2.99	0.88	0.65	0.65	116

*Each cell reports the mean value of the variable of interest at the corresponding attitudes range.

PCHILDR: percentage of respondents with children in 2004

the mother's work behavior is available in the survey. There is a negative relationship between the respondent's traditional attitudes, expressed in 1979, and her probability of working in 2004. Moreover, the magnitude of the change in the probability is large as we move from the lowest (.71) to the highest (.78) categories. The respondents' partners' employment rate shows a similar trend but given the relatively high participation rates of males the change from the lowest to the highest group is less dramatic. Finally, there is a positive relationship between the respondent's index and the labor force participation of her mother.

The lower panel of Table 5A corresponds to the male respondents. For both respondents and their partners the average level of education increases by two years as one goes from the lowest attitude group to the highest. The mother's education level shows a similar pattern to that of their son's partners. For males there appears to be no relationship between attitudes and their number of children. This contrasts with the number of their own siblings which is decreasing with the level of attitudes. The participation rate of males in 2004 is invariant to their attitude expressed in 1979. For mothers, however, there is a drastic increase in employment rates, similar to that for the mothers of the female respondents, as we move from the lowest attitude group to the highest. A similar pattern appears in the employment rate of the respondents' spouses. The wives of men with a value of the index in the upper tail of the attitudes distribution in 1979 (i.e. above the 80th percentile) have an employment probability 11 percentage points higher in 2004 than wives whose husband's attitudes index is at the bottom 20 percent of the 1979 attitudes distribution. For the mothers of these males the corresponding differences are 24 percentage points when the respondents are aged 14 years and 30 percentage points in 1978, noting that the magnitude of the

differences between mothers and spouses are not directly comparable due to the large increase in the female participation rate across the two generations.

Table 5B reports the corresponding data for the unmarried individuals in 2004. As we focus below on the impact of cultural transmission on female’s work behavior we use only observations for females from Table 5B in the empirical work that follows. An examination of Tables 5A and 5B indicates that the relationships that exist in the married sample between attitudes and socioeconomic characteristics also hold for the non married sample when relevant. This group also displays a positive relationship between traditional attitudes and the probability of having a child.

While a number of features in Table 5 are interesting, the most notable is the correlation between the female respondent’s attitudes in 1979 and her 2004 work decision. Equally interesting is the correlation between the attitudes of male respondents and the work decisions of their future spouses. To further investigate these relationships we estimate the following models:

$$Work04_i = \alpha_0 + \alpha_1 Att79_i + \alpha_2 X_i + \varepsilon_i \quad (1)$$

where $Work04_i$ is alternatively an indicator that the individual i , or in the case of males the spouse of individual i , is employed in 2004, $Att79_i$ is the individual’s 1979 attitudes index and X_i is a vector of potential explanatory variables.¹⁴ We use the 1979 attitudes as this measures what has been transferred to the individual from her/his parents. Subsequent measures of attitudes, once the individual has begun work and started a family, would reflect her/his own market and family experiences.

¹⁴The variable $Work04_i$ takes the value 1 if the individual responded to be employed in the week of the survey.

We change the components in X_i depending on the question we are asking. First we investigate whether the 1979 data can explain an individual's, or his wife's, probability of working in 2004. Alternatively we explore whether the 1979 characteristics have any statistical relevance for the 2004 employment decision after we include a set of factors capturing the individual's family and economic environment in 2004.

We first examine if the individual's characteristics in 1979 have an impact on their 2004 employment decision. Table 6 reports the results for females recalling that all female respondents are used irrespective of their marital status. Tables 6 to 9 have the following format. The column headed OLS contains the results from a linear probability model while PROBIT denotes the estimates from probit MLE. The second (2SLS) and fourth (CML) columns represent the same specifications but account for the potential endogeneity of attitudes. 2SLS employs instrumental variables and CML, which denotes the conditional maximum likelihood procedure of Rivers and Vuong (1988), accounts for the endogeneity through the inclusion of the reduced form residual as a control function in (1). The OLS and 2SLS estimates are less reliant on distributional assumptions and the adjustment for endogeneity only requires the orthogonality of the instruments to the work equation error ε . This robustness is associated with a potential efficiency loss and thus we also report the probit estimates. The consistency of these estimates, and the adjustment for endogeneity employed in the CML, are reliant on the normality assumption for both ε and the reduced form equation error.

In estimating (1) we include the years of education of the respondent's mother and father, the number of siblings, an indicator for the presence of an adult male in the house at the age of 14 years and his employment situation, indicator variables

Table 6: The effect of Gender Role Attitudes on Female Work Decision

Dependent variable:	work decision in 2004			
	(1) (OLS)	(2) (2SLS)	(3) (PROBIT)	(4) (CML)
ATTITUDES79	0.005 (0.004) *	0.063 (0.031) **	0.019 (0.011) *	0.177 (0.067) ***
AGE	0.285 (0.199)	0.202 (0.218)	0.891 (0.634)	0.559 (0.631)
AGE2	-0.003 (0.002)	-0.002 (0.003)	-0.010 (0.007)	-0.006 (0.007)
WHITE	0.107 (0.065)	0.112 (0.070)	0.309 (0.199)	0.288 (0.192)
BLACK	0.091 (0.072)	0.074 (0.078)	0.261 (0.216)	0.183 (0.216)
IMIGRANT	0.068 (0.062)	0.055 (0.067)	0.221 (0.205)	0.160 (0.197)
CITY14	-0.031 (0.025)	-0.029 (0.027)	-0.099 (0.082)	-0.081 (0.078)
SOUTH14	-0.043 (0.025) *	-0.024 (0.028)	-0.134 (0.078) *	-0.066 (0.082)
SIBLINGS	-0.007 (0.005)	-0.003 (0.006)	-0.019 (0.015)	-0.006 (0.016)
MOPRESENT14	-0.048 (0.105)	0.017 (0.118)	-0.147 (0.329)	0.053 (0.325)
MOPRESENT78	0.065 (0.074)	0.063 (0.080)	0.185 (0.225)	0.158 (0.216)
MOEDUC	0.009 (0.005) *	-0.002 (0.008)	0.027 (0.015) *	-0.005 (0.021)
FAPRESENT14	0.025 (0.054)	0.031 (0.058)	0.078 (0.168)	0.084 (0.160)
FAWORK14	0.007 (0.046)	0.008 (0.050)	0.024 (0.146)	0.022 (0.139)
FAEDUC	-0.001 (0.003)	-0.003 (0.004)	-0.002 (0.011)	-0.009 (0.011)
PUBLIC	0.007 (0.044)	0.027 (0.049)	0.023 (0.143)	0.074 (0.137)
RELIGION	YES	YES	YES	YES
λ				-0.503 (0.252) **
CONSTANT	-5.152 (4.376)	-4.922 (4.651)	-19.72 (13.76)	-15.09 (13.41)
OBSERVATIONS	1800	1800	1800	1800
R ²	0.03		0.02	

- See Table 10 for variable definition. Standard errors in parentheses, * significant at 10%; ** significant at 5%; *** significant at 1%. The omitted race is OTHER.
- The religion dummies are statistically insignificant in all specifications.
- (1): Linear Probability Model. The absolute value of the t-statistic of the regression based form of the Hausman test is 2.02; (2): Two-Stage Least Squares. The Sargan test for the validity of the overidentifying restriction has the value $NR^2=0.54$; the R^2 is obtained from regressing the residuals of the estimated model in column 1 on all the exogenous variables, including the instruments; (3): Probit Model; (4): Conditional MLE procedure (Rivers and Vuong (1988)), standard errors account for the generated residuals included in the second step of the estimation procedure.

Table 7: The effect of Gender Role Attitudes on Female Work Decision (additional controls X04)

Dependent variable:	work decision in 2004			
	(1) (OLS)	(2) (2SLS)	(3) (PROBIT)	(4) (CML)
ATTITUDES79	0.003 (0.003)	0.057 (0.032) *	0.012 (0.012)	0.173 (0.077) **
EDUC	0.021 (0.005) ***	0.013 (0.007) *	0.077 (0.016) ***	0.044 (0.026) *
NE	0.034 (0.040)	0.029 (0.042)	0.131 (0.139)	0.103 (0.133)
NC	0.073 (0.037) **	0.089 (0.040) **	0.280 (0.127) **	0.297 (0.120) **
W	-0.048 (0.039)	-0.056 (0.041)	-0.153 (0.131)	-0.161 (0.124)
CITY04	0.011 (0.023)	0.006 (0.025)	0.031 (0.079)	0.011 (0.075)
AGEP	0.064 (0.025) **	0.051 (0.028) *	0.201 (0.082) **	0.140 (0.088)
AGE2P	-0.001 (0.000) **	-0.001 (0.000) *	-0.002 (0.001) **	-0.001 (0.001)
EDUCP	-0.004 (0.006)	-0.005 (0.006)	-0.014 (0.020)	-0.015 (0.019)
INCOME P	-0.002 (0.000) ***	-0.002 (0.000) ***	-0.006 (0.001) ***	-0.005 (0.001) ***
HOURSP	-0.001 (0.001)	-0.001 (0.001)	-0.001 (0.003)	-0.001 (0.003)
CHILD6	-0.081 (0.033) **	-0.087 (0.036) **	-0.254 (0.110) **	-0.247 (0.106) **
CHILD	-0.021 (0.008) **	-0.012 (0.010)	-0.069 (0.027) **	-0.036 (0.032)
MARRIED04	-1.345 (0.589) **	-1.100 (0.644) *	-4.197 (1.911) **	-2.986 (1.997)
RELIGIONR	YES	YES	YES	YES
RELIGIONP	YES	YES	YES	YES
X79	YES	YES	YES	YES
λ				-0.497 (0.278) *
CONSTANT	-4.281 (4.197)	-3.915 (4.480) *	-16.67 (14.35)	-13.63 (13.79)
OBSERVATIONS	1800	1800	1800	1800
R ²	0.08		0.09	

- See Table 10 for variable definition. Standard errors in parentheses, * significant at 10%; ** significant at 5%; *** significant at 1%.
- X79 indicates that all the explanatory variables included in the empirical model in Table 6 are also included here. ReligionR refers to dummies capturing the religion in which the respondent raised, while ReligionP refers to dummies capturing the religion in which the partner raised. None of the religion dummies have a statistically significant effect.
- (1): Linear Probability Model. The absolute value of the t-statistic of the Hausman test is 1.813; (2): Two-Stage Least Squares. The Sargan test for the validity of the overidentifying restrictions has the value $NR^2=0.9$; (3): Probit Model; (4): Conditional MLE procedure (Rivers and Vuong (1988)), standard errors account for the generated residuals included in the second step of the estimation procedure.

Table 8: The effect of Husband's Gender Role Attitudes on Wives' Work Decision

Dependent variable:	wife's work decision in 2003			
	(1) (OLS)	(2) (2SLS)	(3) (PROBIT)	(4) (CML)
ATTITUDES79H	0.009 (0.005) **	0.065 (0.030) **	0.033 (0.016) **	0.203 (0.066) ***
AGEH	-0.548 (0.249) **	-0.523 (0.266) **	-1.959 (0.861) **	-1.643 (0.841) *
AGE2H	0.006 (0.003) **	0.006 (0.003) **	0.023 (0.010) **	0.019 (0.010) *
WHITEH	0.021 (0.065)	0.042 (0.071)	0.055 (0.217)	0.119 (0.205)
BLACKH	0.120 (0.086)	0.122 (0.092)	0.442 (0.302)	0.398 (0.285)
IMIGRANTH	-0.044 (0.085)	-0.019 (0.092)	-0.126 (0.280)	-0.028 (0.269)
CITY14H	-0.007 (0.031)	-0.006 (0.033)	-0.024 (0.103)	-0.019 (0.097)
SOUTH14H	-0.040 (0.033)	-0.023 (0.036)	-0.133 (0.110)	-0.064 (0.109)
SIBLINGSH	-0.010 (0.007)	-0.006 (0.007)	-0.033 (0.023)	-0.019 (0.023)
MOPRESENT14H	-0.112 (0.140)	-0.131 (0.149)	-0.460 (0.554)	-0.454 (0.509)
MOPRESENT78H	-0.024 (0.127)	0.018 (0.138)	-0.129 (0.463)	0.026 (0.435)
MOEDUCH	0.005 (0.007)	-0.002 (0.008)	0.019 (0.022)	-0.007 (0.024)
FAPRESENT14H	0.086 (0.083)	0.149 (0.094)	0.360 (0.306)	0.508 (0.316)
FAWORK14H	-0.106 (0.071)	-0.112 (0.076)	-0.425 (0.267)	-0.387 (0.250)
FAEDUCH	-0.000 (0.005)	-0.008 (0.007)	-0.001 (0.016)	-0.026 (0.018)
PUBLICH	0.070 (0.055)	0.066 (0.058)	0.228 (0.180)	0.185 (0.172)
RELIGIONH	YES	YES	YES	YES
λ				-0.538 (0.257) **
CONSTANT	12.36 (5.411) *	11.26 (5.806)	42.27 (18.68) *	33.34 (18.51)
OBSERVATIONS	1054	1054	1054	1054
R ²	0.03		0.07	

- See Table 10 for variable definition. Standard errors in parentheses, * significant at 10%; ** significant at 5%; *** significant at 1%.
- The 2SLS and CML estimation provide negative and statistically significant coefficients on the variables indicating that the husband was raised in the Jewish, Presbyterian or Episcopalian religions.
- (1): Linear Probability Model. The absolute value of the t-statistic of the regression based form of the Hausman test is 1.974; (2): Two-Stage Least Squares. The Sargan test for the validity of the overidentifying restrictions has the value $NR^2=2.530$; (3): Probit Model; (4): Conditional MLE procedure (Rivers and Vuong (1988)), standard errors account for the generated residuals included in the second step of the estimation procedure.

Table 9: The effect of Husband's Gender Role Attitudes on Wives' Work Decision (additional controls X04)

Dependent variable:	wife's work decision in 2003			
	(1) (OLS)	(2) (2SLS)	(3) (PROBIT)	(4) (CML)
ATTITUDES79H	0.009 (0.004) **	0.053 (0.029) *	0.039 (0.017) **	0.199 (0.087) **
EDUCW	0.024 (0.006) ***	0.016 (0.009) *	0.091 (0.024) ***	0.051 (0.036)
NE	0.082 (0.053)	0.111 (0.059) *	0.254 (0.194)	0.339 (0.186) *
NC	0.090 (0.047) **	0.117 (0.053) **	0.287 (0.171) *	0.360 (0.163) **
W	0.055 (0.051)	0.066 (0.054)	0.171 (0.186)	0.196 (0.177)
CITY04	0.051 (0.027) **	0.059 (0.029) **	0.206 (0.101) **	0.218 (0.096) **
AGEW	0.088 (0.021) ***	0.088 (0.022) ***	0.317 (0.090) ***	0.288 (0.092) ***
AGE2W	-0.001 (0.000) ***	-0.001 (0.000) ***	-0.004 (0.001) ***	-0.003 (0.001) ***
EDUCH	-0.010 (0.006)	-0.014 (0.007) *	-0.039 (0.024)	-0.051 (0.023) *
INCOMEH	-0.001 (0.000) ***	-0.001 (0.000) ***	-0.005 (0.001) ***	-0.004 (0.001) ***
HOURLSH	0.002 (0.001) **	0.002 (0.001) **	0.007 (0.003) **	0.006 (0.003)
CHILD6	-0.141 (0.033) ***	-0.141 (0.035) ***	-0.489 (0.121) ***	-0.435 (0.130) ***
CHILD	-0.025 (0.010) **	-0.027 (0.011) **	-0.080 (0.039) **	-0.080 (0.037) **
RELIGIONH	YES	YES	YES	YES
RELIGIONW	YES	YES	YES	YES
X79H	YES	YES	YES	YES
λ				-0.445 (0.242)
CONSTANT	13.93 (5.157) ***	13.09 (5.425) **	52.22 (20.02) ***	43.76 (20.47)
OBSERVATIONS	1054	1054	1054	1054
R ²	0.15		0.14	

- See Table 10 for variable definition. Standard errors in parentheses, * significant at 10%; ** significant at 5%; *** significant at 1%.
- X79 indicates that all the explanatory variables included in the empirical model in Table 8 are also included here. The variables indicating that the wife was raised in a religion such as the Roman Catholic, Baptist, Methodist and Other religions have a positive and statistically significant coefficient in the 2SLS, PROBIT and CML estimation.
- (1): Linear Probability Model. The absolute value of the t-statistic of the Hausman test is 1.452; (2): Two-Stage Least Squares. The Sargan test for the validity of the overidentifying restrictions has the value $NR^2=3.267$; (3): Probit Model; (4): Conditional MLE procedure (Rivers and Vuong (1988)), standard errors account for the generated residuals included in the second step of the estimation procedure.

Table 10: Variable definition

The Intergenerational Transmission of Gender Role Attitudes (Table 4)

MOATTITUDES04: mother's attitudes index, constructed from the responses to gender role statements in 2004
 SON: indicator variable taking value 1 if the respondent is a boy
 OLDSIBING: indicator variable taking value 1 if the respondent is the oldest sibling
 MALESIBLINGS: percentage of male siblings
 SIBLINGS: number of siblings
 MOAGEBIRTH: mother's age when the respondent was born
 MOIMIGRANT: indicator variable taking value 1 if the mother was not born in the US
 MOEDUC: highest level of education completed by the mother
 MOWORK14: indicator variable taking value 1 if the mother worked when the respondent was age 14
 MALEPRESENT14: indicator variable taking value 1 if there was an adult male present in the household when the respondent was age 14
 MALEEDUC14: highest level of education completed by the adult male who was present in the household when the respondent was age 14
 MALEWORK14: indicator variable taking value 1 if the adult male present in the household was working when the respondent was age 14
 RELIGIONCHILD: indicates that a set of dummies for the religion in which the child raised is included in the empirical model. The different religious denominations are: Jewish, Baptist, Lutheran, Methodist, Presbyterian, Episcopalian, Mormon, Protestant, Roman Catholic, Other religions and the excluded category is non religious.

The Effect of Gender Role Attitudes on the Work Decision (Tables 6, 8 and A1)*

WORK04: indicator variable taking value 1 if the respondent is employed during the week of the 2004 survey
 ATTITUDES79: respondent's attitudes index, constructed from the responses to gender role statements in 1979
 AGE: age of the respondent in 2004
 AGE2: squared of age
 WHITE: indicator variable taking value 1 if the respondent is white
 BLACK: indicator variable taking value 1 if the respondent is black
 OTHER: indicator variable taking value 1 if the respondent is non-black and non-white
 IMIGRANT: indicator variable taking value 1 if the respondent was not born in the US
 CITY14: indicator variable taking value 1 if the respondent lived in a city at age 14
 SOUTH14: indicator variable taking value 1 if the respondent lived in a region located in the South of the US at age 14
 SIBLINGS: respondent's number of siblings
 MOWORK14: indicator variable taking value 1 if the respondent's mother worked when she/he was 14 years old
 MOWORK78: indicator variable taking value 1 if the respondent's mother worked in 1978
 MOEDUC: highest level of education completed by the respondent's mother
 MOPRESENT14: indicator variable taking value 1 if the respondent's mother was living in the house when she/he was age 14
 MOPRESENT78: indicator variable taking value 1 if the respondent's mother was living in 1978
 FAPRESENT14: indicator variable taking value 1 if the respondent's father was living in the house when she/he was age 14
 FAWORK14: indicator variable taking value 1 if the respondent's father was working when she/he was age 14
 FAEDUC: highest level of education completed by the respondent's father
 PUBLIC: indicator variable taking value 1 if the respondent attended a public school
 RELIGION: indicates that a set of dummies for the religion in which the respondent raised is included in the empirical model. The different religious denominations are: Jewish, Baptist, Lutheran, Methodist, Presbyterian, Episcopalian, Protestant, Roman Catholic, Other religions and the excluded category is non religious.
 λ : OLS-residuals from regressing the attitudes index on all the exogenous variables in the model (including the instruments)

*An H added at the end of a variable's name indicates that this variable refers to the husband (i.e. ATTITUDES79H: husband's attitudes index in 1979), while a W indicates that it refers to the wife (i.e. WORK04W: takes value 1 if the wife is employed).

Table 10 (cont'd): Variable definition

The Effect of Gender Role Attitudes on the Work Decision (Tables 7, 9 and A1)

EDUC: highest level of education completed by the respondent

NE: indicator variable taking value 1 if the respondent lives in a North-Eastern region in 2004

NC: indicator variable taking value 1 if the respondent lives in a North-Central region in 2004

W: indicator variable taking value 1 if the respondent lives in a Western region in 2004

S: indicator variable taking value 1 if the respondent lives in a Southern region in 2004

CITY04: indicator variable taking value 1 if the respondent lives in a city in 2004

INCOME_P: total income from wages and salaries received by the respondent's partner in 2003

HOURS_P: average weekly number of hours worked by the respondent's partner in 2003

CHILD6: indicator variable taking value 1 if the respondent has a child younger than 7 y.o. in 2004

CHILD: respondent's total number of children in 2004

MARRIED04: indicator variable taking value 1 if the respondent is married in 2004

*A P added at the end of a variable indicates that it refers to the partner of the respondent (i.e. educ_P: partner's highest level of education completed).

Table 11: Descriptive Statistics

<u>Females (1800 Observations)</u>			<u>Wives (1054 Observations)</u>		
	Mean	S.D.		Mean	S.D.
WORK04	0.751	0.432	WORK04W	0.772	0.420
ATTITUDES79	17.97	3.011	ATTITUDES79H	16.42	2.963
AGE	43.36	2.173	AGEH	43.29	2.206
WITHE	0.849	0.358	WHITEH	0.893	0.310
BLACK	0.122	0.328	BLACKH	0.064	0.244
OTHER	0.028	0.166	OTHERH	0.013	0.115
IMIGRANT	0.030	0.170	IMIGRANTH	0.026	0.158
CITY14	0.775	0.418	CITY14H	0.621	0.485
SOUTH14	0.323	0.468	SOUTH14H	0.285	0.451
SIBLINGS	3.288	2.217	SIBLINGSH	3.062	2.082
FAPRESENT14	0.869	0.337	FAPRESENT14H	0.910	0.287
FAWORK14	0.817	0.387	FAWORK14H	0.874	0.332
MOPRESENT14	0.988	0.107	MOPRESENT14H	0.991	0.100
MOWORK14	0.536	0.499	MOWORK14H	0.527	0.500
MOPRESENT78	0.976	0.153	MOPRESENT78	0.989	0.106
MOWORK78	0.641	0.480	MOWORK78	0.620	0.486
MOEDUC	11.57	2.722	MOEDUCH	11.92	2.522
FAEDUC	11.44	3.982	FAEDUCH	12.12	3.705
PUBLIC	0.940	0.238	PUBLICH	0.936	0.244
ROMAN CATHOLIC	0.327	0.470	ROMCAN CATHOLICH	0.331	0.471
PROTESTANT	0.042	0.200	PROTESTANTH	0.050	0.219
BAPTIST	0.231	0.421	BAPTISTH	0.180	0.385
EPISCOPALIAN	0.016	0.126	EPISCOPALIANH	0.025	0.155
LUTHERAN	0.075	0.263	LUTHERANH	0.109	0.312
METHODIST	0.105	0.307	METHODISTH	0.090	0.287
PRESBYTERIAN	0.043	0.204	PRESBYTERIANH	0.042	0.200
JEWISH	0.013	0.115	JEWISHH	0.017	0.130
OTHER RELIGION	0.106	0.308	OTHER RELIGIONH	0.108	0.311
EDUC	13.65	2.611	EDUCW	13.96	2.435
NE	0.162	0.368	NE	0.153	0.360
NC	0.295	0.456	NC	0.343	0.475
W	0.172	0.377	W	0.155	0.362
CITY04	0.688	0.463	CITY04	0.621	0.485
AGEP	44.81	5.149	AGEW	40.90	4.853
EDUCP	13.99	2.600	EDUCH	13.99	2.641
INCOMEP	60.75	60.43	INCOMEH	64.68	59.17
HOURSP	42.57	14.60	HOURSH	43.37	16.03
CHIL6	0.119	0.324	CHIL6	0.250	0.433
CHILD	1.904	1.360	CHILD	2.038	1.279
MARRIED04	0.605	0.489			

describing the geographical environment at age 14, an indicator variable for whether the respondent was not born in the US, race indicators and a variable capturing the type of school attended. Unfortunately, the NLSY79 does not contain reliable measures of parental income or wealth although the included educational and family composition variables should capture the relevant economic considerations. Previous studies have examined the effect of religion on individual economic decisions (see, for example, Algan and Cahuc 2004 and Guiso, Sapienza and Zingales 2003) and we include a set of religion dummy variables for the denomination in which the respondent was raised.

Column 1 of Table 6 indicates that the female's background in 1979 has almost no role in explaining if she will be employed 25 years later. Only a statistically significant role, at the 10% level of significance, is found for the mother's years of education, the living in the South indicator and the 1979 attitudes index. Surprisingly the religion variables are statistically insignificant. However, this does not exclude the existence of a religion effect but reflects that is possibly operating through the attitudes index. The probit estimates in column 3 give the same substantive conclusions.

The small size and low statistical significance of the coefficient on the attitudes variable may reflect its endogeneity. This is not due to simultaneity, which is implausible since attitudes are measured in 1979 and the work variable is observed in 2004, but to two other mechanisms. First, unobserved characteristics which influence attitudes might be positively correlated with the work decision. This would suggest that the coefficient on the control function which measures this correlation is positive. Alternatively, the endogeneity may arise from the measurement of attitudes. That is, the construction of the index employs some responses to statements which

are not directly related to labor force participation. If a component of the attitude is irrelevant for the work decision this will downward bias its coefficient, similar to measurement error, and produce a negative coefficient on the control function in the CML estimates. The t-test for whether the coefficient of the control function, denoted λ in the tables, is equal to zero is a test of exogeneity.

Accounting for this endogeneity requires instruments. The NLSY79 contains information on the mother's market participation when the respondent was 14 years old and also in 1978, which we use to construct two indicator variables to use as instruments. We expect these will capture the component of cultural transmission that responds to economic incentives. The mother's work behavior should identify the variation in the respondent's attitudes index which is attributable to the economic environment to which the child was exposed. We give the instrumental variable estimate a local average treatment effect interpretation (Imbens and Angrist 1994) in that it reflects the change in the respondent's, or his wife's, work decision due to the change in attitudes resulting from the labor market behavior of the respondent's mother while she/he was young.

For these instruments to be valid we require that they influence an individual's attitude towards gender roles and that, conditional on the attitudes and the included relevant controls that characterize the economic and family background of the respondent, they do not have any additional direct effect on the work decision of her daughter or daughter in law in 2004. One might argue that a mother's work behavior during an individual's youth affects the subsequent work decision of her daughter twenty five years later through mechanisms other than cultural transmission and those related to the included economic and family background variables. The presence of common

unobserved skills, for example, would distort our identification strategy. However, given the profound transformation of the labor market such skills in the 1970's may be differently valued in the 2000's labor market. The shift toward a service and skill-intensive economy, for instance, has changed the occupational distribution of women. In addition, while one may argue that such a correlation exists for mothers and daughters, a similar correlation for mothers and daughters in law seems far less plausible. Moreover, the evidence for the younger cohort in Table 4 indicates that conditional on the mother's contemporaneous attitudes towards working women the work behavior of the mother did not affect the attitudes of her children. This evidence suggests that our identifying assumption is reasonable. We supplement this argument with formal tests of the overidentifying restriction below.

The reduced form estimates, containing the exogenous variables in the work equation plus the instruments, for the attitudes equation are in Table A1 noting that the four sets of estimates reported there correspond to the two empirical models for each of the two samples we consider. Table A1 indicates that for each of the specifications the instruments appear informative. For female respondents the dummy variable denoting that the mother worked in 1978 is statistically significant and has a large effect while the indicator for the work decision of the mother when the respondent aged 14 years has also a sizeable coefficient but it is not statistically significant. This reflects the strong correlation between the work behavior of the mother over these two periods. For male respondents the two variables capturing the behavior of the mother are statistically significant.

The results from accounting for the endogeneity of attitudes reveal a statistically significant role for attitudes. The estimated coefficient on the attitudes index has

Table A1: Reduced Form Equation for Gender Role Attitudes in 1979

Females		Husbands	
Dependent variable:	ATTITUDES79	Dependent variable:	ATTITUDES79H
MOWORK14	0.139 (0.179)	MOWORK14H	0.536 (0.232) **
MOWORK78	0.669 (0.187) ***	MOWORK78H	0.523 (0.236) **
AGE	1.326 (1.335)	AGEH	-0.570 (1.657)
AGE2	-0.015 (0.015)	AGE2H	0.008 (0.019)
WHITE	-0.143 (0.439)	WHITEH	-0.366 (0.435)
BLACK	0.286 (0.485)	BLACKH	-0.092 (0.571)
IMIGRANT	0.199 (0.418)	IMIGRANTH	-0.530 (0.567)
CITY14	-0.032 (0.169)	CITY14H	-0.037 (0.204)
SOUTH14	-0.356 (0.165) **	SOUTH14H	-0.305 (0.219) **
SIBLINGS	-0.057 (0.034) *	SIBLINGSH	-0.020 (0.046)
MOPRESENT14	-1.154 (0.705)	MOPRESENT14H	0.074 (0.935)
MOPRESENT78	-0.366 (0.508)	MOPRESENT78H	-1.220 (0.852)
MOEDUC	0.157 (0.033) ***	MOEDUCH	0.116 (0.045) **
FAPRESENT14	-0.026 (0.360)	FAPRESENT14H	-0.991 (0.549) *
FAWORK14	-0.019 (0.311)	FAWORK14H	0.070 (0.472)
FAEDUC	0.047 (0.023) **	FAEDUCH	0.146 (0.031) ***
PUBLIC	-0.403 (0.297)	PUBLICH	-0.010 (0.364)
RELIGION	YES	RELIGIONH	YES
CONSTANT	-12.32 (28.98)	CONSTANT	-24.22 (36.01)
OBSERVATIONS	1800	OBSERVATIONS	1054
R ²	0.10	R ²	0.12

- See Table 10 for variable definition. Standard errors in parentheses, * significant at 10%; ** significant at 5%; *** significant at 1%. The omitted religious category is nonrel, and the omitted race category is other.
- The dummy variables indicating that a female was raised in the Jewish, Methodist or Episcopalian religion have a positive and statistically significant coefficient on her attitudes, while for male respondents only the Jewish and Episcopalian religion have a positive and statistically significant coefficient.

Table A1 (cont'd): Reduced Form Equation for Gender Role Attitudes in 1979 (additional controls X04)

Females		Husbands	
Dependent variable:	ATTITUDES79	Dependent variable:	ATTITUDES79H
MOWORK14	0.130 (0.177)	MOWORK14H	0.536 (0.229)
MOWORK78	0.629 (0.186) ***	MOWORK78H	0.410 (0.232)
EDUC	0.154 (0.032) ***	EDUCW	0.170 (0.043)
NE	0.125 (0.273)	NE	-0.698 (0.363)
NC	-0.277 (0.250)	NC	-0.636 (0.322)
W	0.116 (0.265)	W	-0.327 (0.355)
CITY04	0.079 (0.157)	CITY04	-0.142 (0.187)
AGEP	0.219 (0.173)	AGEW	0.013 (0.145)
AGE2P	-0.002 (0.002) **	AGE2W	-0.000 (0.002) **
EDUCP	0.017 (0.040) *	EDUCH	0.100 (0.044)
INCOMEP	-0.001 (0.002)	INCOMEH	-0.000 (0.002)
HOURSP	0.002 (0.006)	HOURSH	0.003 (0.006)
CHILD6	0.149 (0.227)	CHILD6	-0.056 (0.228)
CHILD	-0.146 (0.055) **	CHILD	0.073 (0.071)
MARRIED04P	-4.282 (4.037)	RELIGIONH	YES
RELIGIONH	YES	RELIGIONP	YES
RELIGIONP	YES	X79	YES
X79	YES	CONSTANT	22.86 (35.55)
CONSTANT	-5.007 (28.84)	OBSERVATIONS	1054
OBSERVATIONS	1800	R ²	0.16
R ²	0.11		

- See Table 10 for variable definition. Standard errors in parentheses, * significant at 10%; ** significant at 5%; *** significant at 1%.
- In the first column, the variables indicating that a female was raised in the Jewish, Methodist or Episcopalian religious denomination have a positive and statistically significant coefficient on her attitudes, while the variables indicating that her husband was raised in the Protestant, Baptist, Presbyterian or Other religions have a negative and statistically significant one. In the second column, the indicator variable for a male being raised in the Episcopalian religion has a positive and statistically significant coefficient on his attitudes, while the variable for his wife being raised in the Baptist religion has a negative and statistically significant one.

increased to 0.063 in column 2 and 0.177 in the probit specification. The regression form of the Hausman test rejects the exogeneity of attitudes to the work decision and indicates that the adjusted results are the preferred.¹⁵ The test of the overidentifying restriction is 0.054 which indicates that the instruments can be excluded from the main equation.

The 2SLS coefficient indicates that an one standard deviation increase in the index (3.011) now leads to 19 percentage points increase in the probability of working. This suggests a substantial effect from the mother's work behavior operating through the individual's attitude towards the role of women noting that the percentage of women working in this sample is 0.75. CML provides similar results in terms of the presence of the attitudes' effect and the test of the exogeneity, though the magnitude of the effect is slightly smaller (i.e. an one standard deviation increase in the index is associated with 14 percentage points increase in the probability of working).

The estimate on the control function in the CML estimation is negative. This indicates that some component of the attitudes variable is not relevant for the work decision and this reduces the attitudes' coefficient in the unadjusted OLS and probit estimates. By using the indicator variables that characterize the mother's labor market attachment while the respondent is young we are exploiting the variation in attitudes due to the "work related behavior" of the mother and this captures the effect in which we are interested.

A feature of Table 6 is that the variables included to capture possible economic considerations, such as parental education, family composition and father's work decision, appear to have no impact on the work decision. This reflects the difficulty in

¹⁵The absolute value of the t-statistic of the Hausman test is 2.02.

predicting the work behavior in 2004 using variables measured 25 years earlier but highlights the importance of attitudes reported at an early stage.¹⁶

Table 7 extends this specification by adding variables which reflect the individual's environment in 2004. The corresponding reduced form is presented in Table A1. Columns 1 and 3 of Table 7 reveal that the variables characterizing the environment in 2004 are more important than the 1979 characteristics. Of particular relevance are the individual's education level and her family characteristics such as the partner's age and income and the presence of young children. There is no apparent role for the attitudes variable although the endogeneity argument outlined above is also relevant here. Using the same instruments as in Table 6 we re-estimate the model and report the estimates in columns (2) and (4). Although the coefficients on the attitudes variable are now significant at slightly lower levels of statistical significance the similarity of the estimates with the Table 6 estimates is remarkable. While the estimates in the relevant columns in Table 6 are 0.063 and 0.177 they are now 0.057 and 0.173. The 2SLS and CML estimates, and their associated tests reported in the tables, reject the exogeneity of attitudes indicating that the adjusted results are preferred. The test value of 0.90 for the overidentifying restriction also supports the exclusion of the mother's work variables from the main equation. The evidence strongly suggests that the attitudes component determined by the individual's mother's working behavior

¹⁶The same results hold when the model in Table 6 is estimated using the two alternative measures of attitudes discussed in Section 2. The 2SLS estimation produces a coefficient on the two point scale index of 0.125 with a standard error of 0.065, while the coefficient on the aggregate factor is 0.232 with a standard error of 0.114. These coefficients indicate that an one standard deviation increase in any of the two measures of attitudes (i.e. 1.502 for the two point scale index and 0.883 for the aggregate factor) leads to an increase in the probability of working of about 19 percentage points. Also the null hypothesis of exogeneity is rejected when using any of these two measures. CML provides similar results in terms of the presence, magnitude and exogeneity of attitudes. Under these alternative measures the other variables in the model remain statistically insignificant.

is strongly affecting her work decision. Moreover the effect is non trivial in economic terms.

We now focus on the behavior of the male respondents. Fernández et al (2004) argue that "men marry their mothers" and empirically establish this relationship by regressing the labor force participation decision of the son's wife on a dummy indicating that his mother worked. We provide a mechanism for this relationship by reproducing Tables 6 and 7 with the respondent's wife's employment decision as the dependent variable. Thus our sample comprises only married male respondents. We first regress the wife's employment decision against the son's attitude variable and the same series of variables used in Table 6 which characterize the son's environment in 1979. The employment decision for the wife refers to 2003 although it is asked of the husband in 2004.¹⁷ This has no important implications for our investigation. The first set of results is reported in Table 8.

There are very few 1979 variables which explain the wife's 2004 market work decision. However, even for the specification in which attitudes are treated as exogenous there is a statistically significant relationship between the husband's attitudes and his wife's work decision. Controlling for the endogeneity increases the point estimate of the attitudes coefficient. Its magnitude in the wife's equation, 0.065 for 2SLS and 0.203 for CML, is very similar to those for female respondents. Moreover, as with the female respondents, the tests of exogeneity reject that attitudes are exogenous and the estimates for the control function coefficient are negative. Both specifications lead to a non negligible economic effect of attitudes on the spouse working probability. An one standard deviation increase in the husband's attitudes index (2.963) increases the

¹⁷The dependent variable takes the value 1 if the individual responded yes to the question: "Was your wife/partner employed in 2003?".

wife's working probability by 19 and 14 percentage points using the 2SLS and CML estimates respectively.¹⁸

Table 9 augments the specification with variables capturing the family and economic environment of the couple in 2004. Several of these, such as the wife's education level, her age, the presence of children as well as the income level of the husband and his work decision, influences the wife's employment decision. However, there remains statistically significant evidence of a role for the husband's attitudes. While accounting for the endogeneity reduces the statistical significance of this effect, the point estimate is similar to that using only the 1979 explanatory variables and also to that for the female respondents. Note, however, in this specification the exogeneity of attitudes is rejected at lower levels of significance. This probably reflects the endogeneity of many of the other explanatory variables in this specification. Note that for both Tables 8 and 9 the tests for the overidentifying restrictions support the imposed exclusions with values 2.53 and 3.26 respectively. The higher test values for the spouses are interesting as indicate that the economic argument in favor of the restrictions is stronger for this group.

Overall our evidence clearly suggests that attitudes towards gender roles are passed from generation to generation and that the transmission of these attitudes has implications for the labor market behavior of younger generations. The evidence here indicates that the component of the attitudes index related to the economic activity of the mother has a substantial effect on the next generation's females' labor market behavior. We find that increasing an individual's attitude in 1979 by one standard deviation has the following effects. For females the probability of employment in 2004

¹⁸As for the case of female respondents we have reproduced the empirical results in Table 8 using the two alternative measures of attitudes and the results are unaffected by the measure employed.

increases from 14 to 19 percentage points depending on the specification. For males, a similar increase in their 1979 attitudes leads to an increase of approximately the same magnitude in the probability that their partner is employed in 2003.

These results support the transfer of some social norm which is affected by the labor market behavior of the individual's mother. The effect of such a norm, for both daughters and daughters in law, is consistent with Fernández (2007a) and Tabellini (2007) who argue that the economic behavior of children partly resembles that of their parents as a result of cultural transmission. Moreover, each would argue that this transmission is based on economic motives.

5 Conclusions

This paper investigates the contribution of cultural transmission to the labor market participation decisions across generations. A number of our empirical results are interesting. First, we find evidence of a strong relationship between a mother's and her children's responses regarding the role of females in the family and the labor market. Moreover, this relationship holds even when we condition on measures of the economic and cultural family background. Second, we find that after accounting for the endogeneity of a woman's attitudes towards her role in the labor market, these attitudes are able to partially explain that woman's market work decision despite the fact that the attitudes are asked 25 years earlier. We also find that the same relationship holds regarding a male's attitudes towards working women and the employment decision of his wife. Our results suggest that the transmission of social norms motivated by an individuals' economic behavior has important implications for the intergenerational correlation in economic outcomes.

References

- [1] Algan, Yann, and Pierre Cahuc. 2004. "Job Protection: The Macho Hypothesis". *IZA Working Paper* #1192
- [2] Bisin, Alberto, and Thierry Verdier. 2000. "Beyond the Melting Pot: Cultural Transmission, Marriage, and the evolution of Ethnic and Religious Traits". *Quarterly Journal of Economics*, 115(3): 955-988.
- [3] Bisin, Alberto, and Thierry Verdier. 2001. "The Economics of Cultural Transmission and the Dynamics of Preferences". *Journal of Economic Theory*, 97: 298-319.
- [4] Bisin, Alberto, Giorgio Topa and Thierry Verdier. 2004. "Religious Inter-marriage and Socialization in the United States". *Journal of Political Economy*, 112(3): 615-664.
- [5] Carroll, Christopher D., Byung-Kun Rhee and Changyong Rhee. 1994. "Are There Cultural Effects on Saving? Some Cross-Sectional Evidence". *Quarterly Journal of Economics*, 109(3): 685-699.
- [6] Carroll, Christopher D., Byung-Kun Rhee and Changyong Rhee. 1998. "Does Cultural Origin Affect Saving Behavior? Evidence from Immigrants". *NBER Working Paper* #6568.
- [7] Charles, Kerwin Kofi, and Erik Hurst. 2003. "The Correlation of Wealth across Generations". *Journal of Political Economy*, 111(6): 1155-1182.
- [8] Farré, Lúcia. 2006. "Gender Role Attitudes, Female Education and Labor Market Participation in the US". *IVIE Working Paper*.
- [9] Fernández, Raquel. 2007a. "Culture as Learning: The Evolution of Female Labor Force Participation over a Century". *NBER Working Paper* # 13373.
- [10] Fernández, Raquel. 2007b. "Women, Work And Culture". *Journal of the European Economic Association*, 4(2-3): 305-332.
- [11] Fernández, Raquel, and Alessandra Fogli. 2007. "Culture: An Empirical Investigation of Beliefs, Work and Fertility". *New York University Working Paper*.
- [12] Fernández, Raquel, Alessandra Fogli and Claudia Olivetti. 2004. "Mothers and Sons: Preference Formation and Female Labor Force Dynamics". *Quarterly Journal of Economics*, 119(4): 1249-1299.

- [13] Fogli, Alessandra, and Laura Veldkamp. 2007. "Nature or Nurture? Learning and Female Labor Force Dynamics". Federal Reserve Bank of Minneapolis, Research Department Staff Report 386.
- [14] Fortin, Nicole. 2005. "Gender Role Attitudes and Labour Market Outcomes of Women Across OECD Countries". *Oxford Reviews of Economic Policy*, 21(3): 416-438.
- [15] Guiso, Luigi, Paola Sapienza and Luigi Zingales. 2003. "People's opium? Religion and economic attitudes". *Journal of Monetary Economics*, 50(1): 225-282.
- [16] Guiso, Luigi, Paola Sapienza and Luigi Zingales. 2005. "Cultural Biases in Economic Exchange". *NBER Working Paper* #11005.
- [17] Guiso, Luigi, Paola Sapienza and Luigi Zingales. 2006. "Does Culture Affect Economic Outcomes?". *Journal of Economic Perspectives*, Spring 2006, 20(2): 23-48.
- [18] Imbens, Guido W., and Joshua D. Angrist. 1994. "Identification and Estimation of Local Average Treatment Effects". *Econometrica*, 62(2): 467-475.
- [19] Mulligan, Casey B. 1997. *Parental Priorities and Economic Inequality*. University of Chicago Press, Chicago.
- [20] Rivers, Douglas, and Quang H. Vuong. 1988. "Limited information estimators and exogeneity tests for simultaneous probit models". *Journal of Econometrics*, 39, 347-66.
- [21] Solon, Gary. 1999. "Intergenerational Mobility in the Labor Market". *Handbook of Labor Economics*, vol 3, edited by Orley Ashenfelter and David Card. Amsterdam: North-Holland, 1999.
- [22] Tabellini, Guido. 2005. "Culture and Institutions: Economic Development in the Regions of Europe". Mimeo, Bocconi University.
- [23] Tabellini, Guido. 2007. "The Scope of Cooperation: norms and incentives". *IGIER Working Paper*.
- [24] Thornton, Arland, Duane F. Alwin and Donald Camburn. 1983. "Causes and Consequences of Sex-Role Attitudes and Attitude Change". *American Sociological Review*, 48(2): 211-227.
- [25] Vella, Francis. 1994. "Gender Roles and Human Capital Investment: The Relationship between Traditional Attitudes and Females Labour Market Performance". *Economica*, 61: 191-211.