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The Fatherhood Wage Premium in the Main US Regions, 1982-1998

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Abstract: Research on the fatherhood wage premium has found the premium to differ by race, occupation, marital status and the degree of specialization in the division of labor. This paper attempts to see if two additional aspects may be added: whether the premium varies between different regions and whether there is a difference between urban and rural areas. Using the National Longitudinal Survey of Youth for the years 1982 to 1998 and a fixed effects model approach, the main findings in this paper suggest that there is a regional element and an urban element to the fatherhood wage premium.

Key words: Fatherhood, Wages, Division of Labor, Regional Differences

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Introduction

Research on the wage differential between mothers and fathers shows that the opposite effects of children on wages for mother and fathers exacerbates the gender wage gap. There is abundant research on the motherhood wage penalty (see for example England & Budig, 2001 or Anderson et. al., 2003). The research on the motherhood wage penalty shows that decreases in human capital may explain parts, but not all, of the penalty (Budig & England, 2001). For men, human capital increases associated with marriage may explain the marriage premium (Gray, 1997; Blackburn & Korenman, 1994). Becker's theory on the division of labor in households is often used as an explanation for why marriage makes men more productive (Becker, 1991). It may also be used as an explanation for why married men receive a premium for fatherhood.

Fatherhood, in contrast to motherhood, is generally rewarded with a wage premium. Factors such as marital status (Glauber, 2008; Killewald, 2012), occupation (Glauber, 2005) and race (Glauber, 2008) affect the magnitude of the premium. Specialization in the division of labor in households, a traditional division of labor, has been found to impact the size of the fatherhood wage premium and is one of the most cited theories behind the premium (for an early example, see Lundberg and Rose, 2000). Another explanation for the premium is the belief that fathers should be the "good provider" and may therefore be expected to increase their productivity after having a child (Kaufman & Uhlenberg, 2000; Killewald 2012).

A stronger belief in traditional gender-roles may also mean a stronger belief in a traditional division of labor and a preference for the role of the "good provider". Belief in traditional gender roles is to some extent correlated with an increase in work effort by fathers (Glauber & Gozjolko, 2011). How common a strong belief in a traditional division is across the United States may differ by region and by type of area. Rural areas of the United States and the Southern states are generally thought to be areas with a population that hold more traditional beliefs. Their religious belief or political affiliations may be more conservative than the beliefs of individuals in different parts of the country. Previous research has considered the fatherhood wage premium in many contexts, but regional- or urban/rural differences in the fatherhood wage premium have not been explicitly considered. It may therefore be of interest to see if the effect of children on men's wages looks different in different parts of the United States and

whether fatherhood has a greater influence on wages in the regions that are more colored by traditionalism or conservatism.

Using the National Longitudinal Survey of Youth (NLSY79) in the time period from 1982 to 1998 and two different econometric models, the aim is to try to answer the following questions:

- Are there regional fatherhood wage premiums? Urban or rural fatherhood wage premiums?
- If regional or urban/rural fatherhood wages can be established, do they differ between regions? Between urban and rural areas?
- To what degree does the specialization theory explain the fatherhood wage premium? Is it more applicable in areas that are more traditional such as the South or rural areas?

Theory

The explanations for the fatherhood wage premium are related to the explanations for why men receive a premium for marriage and women receive a penalty for motherhood. The theories for the marriage premium may be applied to wage differentials due to parenthood and, in this case, more specifically fatherhood.

There are three main hypotheses for the wage differential between married and never-married men. The positive effect of marriage on men's wages may be due to positive selection into marriage, increased productivity due to men specializing in labor market production when married, or employer discrimination in favor of married men (Korenman & Neumark, 1991). Marriage, even if there is little or no specialization in the division of labor, may lead to more opportunities to invest in human capital (Nakosteen & Zimmer, 1987). Findings by Kenny (1983), suggest that the accumulation of human capital for men is more rapid during marriage. He reasons that the cost of investment is lower during marriage either because men are able to borrow means from their spouse so that they may invest more in market production or because married men work more hours than unmarried men an it is therefore less costly to invest (Ibid.). Becker (1991:41-42) argues that married men have higher (market) wages than married women because married women spend more of their time and effort investing in household related human, for example related to childbearing and childrearing. Married men, on the other hand, spend more of their time and energy on market investments. For unmarried men and unmarried women, Becker continues, the anticipation of marriage leads unmarried men to invest more in human capital related to paid labor and unmarried women to invest more in human capital related to unpaid labor (Ibid).

Positive Selection into Marriage

Marital status is often included in earnings' equations as an explanatory variable for wage. Married men earn more than unmarried men (Korenman & Neumark, 1991). However, Nakosteen and Zimmer (1987) suggest that unobservables in earnings' equations may be correlated with both earnings and marital status. Individuals may have unobserved characteristics that influence both the probability of marriage and the wage level (Korenman & Neumark, 1991).

If skills that are of great value in the labor market are also of great value in the marriage market there may be positive selection into marriage (Korenman & Neumark, 1991). Keeley (1977) argues that men that expect to marry invest more in human capital (he uses on-the-job training in his example) in order to increase their gains to marriage. In his model for age at marriage, higher wages decreases age at marriage and higher education increases the age at marriage (Ibid.). Those that plan to have children are also expected to marry at earlier ages (Ibid.). Higher demand for children should lead to lower age at marriage and higher cost of children should lead to higher age at marriage if having children is conditional on marriage. The expectation of marriage and the investments made in anticipation of marriage might be an explanation for why married men have higher earnings than unmarried men. Married men may also possess unobserved characteristics that are valuable in both the labor market and the marriage market.

Higher complementarity between spouses may lead to larger gains to marriage (Becker, 1973). Assortative mating may lead to optimal sorting in a marriage market (Ibid.). Marriages between higher wage men with lower wage women, which may also lead to larger gains to marriage, might be an exception to the rule (Ibid.).

The causation between marriage and earnings might run from higher earnings to a higher probability of marriage instead of from marriage to higher wages (Korenman & Neumark, 1991).

Specialization in the division of labor

If there is greater specialization in the division of labor between spouses, and if men specialize in market production, men gain a wage premium for marriage because they are able to invest more in human capital and are able to afford more effort into market work. A traditional division of labor thereby leads to larger wage premiums for men. According to Becker, a traditional division of labor between married men and married women occurs not because men and women are intrinsically different but because, based on their experiences and investments in human capital, married men tend to specialize in paid labor and married women in unpaid labor (Becker, 1991:30). If married men have a comparative advantage in paid labor, due to higher investment in labor market related human capital, then to maximize the commodity output of the household, married women specialize in unpaid work (Ibid: 32). If a household is to be

efficient, no more than one member of a family spends their time in both paid and unpaid labor (Ibid:33-34). So, to reiterate, if married men have a comparative advantage in market labor, then married women either specialize in household activities or spend time and effort in both market work and household work while married men restrict their time and effort to the market sector (Ibid). Though Becker's theorems on the division of labor do not include a sexual division of labor, he argues that concerning childcare, women are more "biologically committed" (Ibid: 37). That women are "biologically committed" to raising children may account for why a sexual division appears.

Years married should, if the specialization theory holds, be positively correlated with human capital since marriage should enable men to spend more time and effort on accumulating human capital since they do not need to work as much in household labor (Blackburn & Korenman, 1994). Kenny (1983), as aforementioned, suggested that marriage allows men to accumulate human capital faster than if they were unmarried.

In addition, Becker (1985) theorized that the lower wages of women compared to the wages of men would persist despite married women participating more and more in the labor market if women still bore the brunt of housework and childrearing. Since housework and children demand a lot of energy compared to leisure, women would be disadvantaged in the paid labor market because they would have less energy left to afford (Ibid.). He further hypothesized that the effect of increases in human capital is positively correlated with effort spent on each hour of work, and therefore the return to investments in human capital for women (who would have less energy to spend at work) would be smaller than for men (who would have more energy to spend at work). This may potentially explain why women have lower wages than men and why married men have higher wages than unmarried men if married men are able decrease the energy they spend on housework.

Employer Favoritism

Employers may discriminate in favor of married men. While marriage may be seen as an indicator of absenteeism and higher turnover for women, for men it may be seen as a proxy for stability or commitment to the job (Hill, 1979). Marriage has been used as a proxy for labor force attachment, work history and training for men and women (Ibid.).

As mentioned above, married men invest more in human capital. Married men, for instance, participate more in on-the-job training than unmarried men.

Married men may receive higher wages because they are more productive. It is, however, difficult to measure productivity (Hill, 1979) or it may be costly to measure individual productivity (Stiglitz, 1975). Statistical discrimination may be an explanation for the marriage premium if employers assume that married men are more productive than unmarried men. If a group, on average perform less well than another group, employers may discriminate against this group based on the expectation that membership in this group is associated with, for example, lower productivity. Employers may also favor married men over unmarried men because they assume that married men have a greater financial responsibility (Hill, 1979). Married men with a greater financial responsibility may, on the other hand push for higher wages (Hill, 1979). Causation may be difficult to establish without information from employers.

The Fatherhood Wage Premium

In many ways, explanations for why men receive a wage premium when becoming fathers are built on the same principles as the marriage premium. Increased specialization in response to having children may allow men to invest more in market production. Employers may prefer fathers to non-fathers because they believe that parenthood carries a greater financial responsibility for fathers that leads them to be more productivity or to be more committed to the job. The fatherhood wage premium may be seen as a sort of extension of the marriage premium. Regarding selection into fatherhood, however, researchers have found suggestions for negative selection into fatherhood (Lundberg & Rose, 2000).

For women, the penalty received when becoming mothers may be the closest comparison to the marriage premium for men. To use the three main theories about the marriage premium, but with the reverse effect: women's wages may decreases as a response to motherhood because of negative selection into motherhood, higher specialization in the division of labor with mothers reducing work hours in paid labor and/or employer discrimination against mothers (Budig & England, 2001). Men, on the other hand, are expected to gain a wage premium in response to fatherhood. Becker (1985) argues that the value of women's time in the home increases after the birth of a child.

The Good Provider

An additional theory behind the fatherhood wage premium is fathers as the "good provider". The theory behind why fathers may be seen as the breadwinners or the member of a family that is in charge of finances, stems from sociological theories about identity. The identity that a man takes on when becoming a father may influence both how he behaves and how his surroundings expect him to behave (Stryker, 1968). Stryker (1968) uses the birth of a first child as an example of an event that may be studied to see how identities change and how parents respond. Stryker (1968) writes about salience in different identities and the hierarchy among these different identities. A man may be a father first (of highest saliency) and his response to fatherhood may influence his behavior in the labor market. If an individual responds to fatherhood by taking on the role or identity as the "good provider" he might increase the time and effort he spends in the labor market. If he, however, takes on the identity of "the egalitarian" he might decrease his time and effort spent in paid labor and change his focus to the household. The egalitarian response is to try to find a more equal division of labor in the household. The approach of the "good provider" or its alternative, ties back to Becker's (1991) theory about specialization in the division of labor. This approach also ties back to statistical discrimination or employer favoritism, since the surrounding, or rather specifically the workplace, may assume that when a man becomes a father he takes on the role as the "good provider" and would thereby become more productive.

In sum, the most cited explanations for the marriage premium are also applicable to the fatherhood wage premium. Positive selection into marriage may lead to a positive selection into fatherhood if the most productive married men also are the men most likely to have children. Increased specialization in the division of labor as a response to parenthood may lead to a fatherhood wage premium if it allows men to invest more in human capital, for example by working more hours as a response to having children. Lastly, employers may discriminate in favor of father if men are expected to increase their productivity or commitment to their job when they have children. Employer discrimination in favor of fathers may lead to a fatherhood wage premium. In addition, identity theory is a competing or complementary theory for why fathers may receive a premium. Here a response to parenthood that leads men to become the "good provider" may explain why men become more productive in response to having children.

Previous Research

Researchers have found support for the fatherhood wage premium in various contexts. Differences in the premium have been found for race, marital status, occupation and degree of specialization in the division of labor.

On the Fatherhood Wage Premium

Using the Panel Survey of Income Dynamics (PSID) and a sample including only married couples, Lundberg and Rose (2000) find that men receive an increase in earnings of 7% when having children. Their results show that if there is a traditional division of labor in the household, the premium increases to 9% (Ibid.). They also look at the effect of fatherhood on work hours and find a similar result: Only men with wives who do not work continuously, meaning those with gaps in their employment, work more hours per year following the birth of a child (Ibid.). This finding may be an indication of the specialization theory at work. There is a change in the time and effort one spouse allocates to paid work and the time and effort he or she allocates to unpaid work (Ibid.). The shifts in allocation are interdependent in a household, meaning that the response of one spouse leads to an opposite response of the other. This is also the case with the marriage premium for men; Gray (1997) finds that the marriage premium increases for men in "traditional" households. Lundberg and Rose's (2000) study also finds evidence for negative selection into fatherhood: Men who have children have earnings' profiles that have a lower wage growth than men who do not have children. After becoming a father, however, their wages grow at a faster rate, compared to non-fathers, until their child is around ten years old (Ibid.).

In a later article by Lundberg and Rose (2002), again using PSID and married men and women for the years 1968 to 1992, they find that fathers alter their labor supply more, in terms of hours worked, if they have a son compared to if they have a daughter. In a fixed effects model, wages increase by 4.2 % following the birth of a child (Ibid.). In a different fixed effects model, they find that men increase their work hours by 38 hours per year following the birth of a child (Ibid.). Their findings also point to a non-linear effect of children on labor supply and wages since the effects for one child or two children are statistically significant while the effect for three children is not (Ibid.).

Glauber (2005; 2008) uses the National Longitudinal Survey of Youth (referred to as NLSY79 for short) from the year 1979 and on in her analyses. The results from Glauber's 2005 paper on occupations and the fatherhood wage premium, lead her to conclude that

men in "female" occupations (occupations where there is a larger percentage women than men) gain a premium ranging from 8% for one child to 24% for three children. In contrast to previous analyses (for example those by Lundberg and Rose mentioned above), this article considers demand-side factors like employer discrimination and job characteristics, and not supply-side factors such as the degree of specialization in the division of labor (Ibid.). In the comparison model, without controlling for occupation, the fatherhood wage premium is only statistically significant for men with two children (4% higher than men with no children) and men with three or more children (6%)(Ibid.). When job characteristics are added to the main statistical model, the fatherhood premium decreases for men with one child but the magnitude and statistical significance are not affected for men with two children or three children or more children (Ibid.).

Glauber (2008) finds, in another paper, that White and Hispanic men receive a larger premium than Black men. Her results show that Black men receive a wage premium of 7% when becoming a father while White and Hispanic men receive a premium of 9%. The effects of children on wages are conditional on marriage since unmarried men do not receive a fatherhood wage premium (Ibid.). This is reiterated by Killewald (2012) in a study using the NLSY79 to analyze whether marital status, residence of children and biological versus stepchildren have an effect on the fatherhood wage premium. She finds that unmarried fathers do not receive a premium and married men only receive a premium if they reside with their children. While White or Hispanic men's labor supply is conditional on the labor supply of their wife, Black men's is not (Glauber, 2008). White men work more hours if their wife does not work and Black men work less hours if their wife does not work. For Hispanic men there is no change (Ibid.). Glauber (2008) interpret her finding for Hispanic men as being consistent with the specialization or labor supply theories. The findings for White men are ambiguous since only around a quarter of the fatherhood wage premium can be attributed to specialization. For Black men the specialization theory does not apply and Glauber (2008) theorizes that employer preferences may play a role in the effect of children on wages for Black men. Killewald (2012) interpret her results as an indication that identity theory and the role of the provider may be the force behind the fatherhood wage premium since only married, residential fathers, gain a premium. The premium may be caused by differences in human capital or job placements. The human capital factor may be an increase in work hours as a response to fatherhood or a decrease in the paid work hours by wives as a response to motherhood (Ibid.). Killewald (2012) finds no evidence for

employer discrimination when including employer-specific variable to her fixed effects model.

In a 2011 paper, Glauber and Gozjolko look into whether men who hold more traditional gender role beliefs also work more. They use the NLSY79 and the attitudes or values about gender roles that are reported in some years of the survey. The authors looked at the beliefs held prior to fatherhood. They find, using a fixed effects model with individuals as their own controls, that White men work 58 more hours per year if they had children compared to men without children (Ibid.). For men who expressed a stronger belief in traditional gender roles, the figure was 105 more hours per year and for men who expressed a more egalitarian belief, the figure was 48 more hours per year (Ibid). White men worked fewer hours if their wives worked part-time or full-time. Regarding the labor supply for Black men it does not seem to be correlated with the labor supply of their wives (Ibid.). This result is similar to results found by Glauber in her 2008 paper on fatherhood premium and race.

The belief in more traditional gender roles may be manifested in assuming the identity of the "good provider" when becoming a father. In regards to identity theory and the "good provider" role as a response to fatherhood, Kaufman and Uhlenberg (2000) use the National Survey of Families and Households, and specifically the wave between 1992 and 1993, to investigate whether fatherhood increases men's work effort. They compare two cohorts, one with an older generation and one with a younger generation, and look at whether traditional and modern attitudes towards fatherhood lead to different levels of work effort. They find that younger fathers are somewhat more egalitarian (or modern) and that fathers who hold more egalitarian beliefs toward parenthood also work fewer hours than fathers who are the "good provider" (Ibid.). The "good providers" also work more hours in response to parenthood (Ibid.). More traditional fathers increased their work effort by 11% as opposed to non-fathers and more egalitarian fathers decreased their work effort by 9% as opposed to non-fathers (Ibid.)

The decreased specialization in the division of labor observed by for example Blackburn and Korenman (1994), Gray (1997) and Lundberg and Rose (2002) may be an indication of a shift in the reaction to fatherhood from the provider to the egalitarian. A more egalitarian division of labor does not, on the other hand, have to lead to a competition between unpaid and paid labor for fathers (Kaufman & Uhlenberg, 2000).

The "family identity" and the "work identity" need not be the same (Ibid.). In her research on fathers in Europe, Koslowski (2000) finds that fathers might assume both roles and argues that a more appropriate distinction would be between involved and uninvolved fathers. Koslowski (2000) finds that fathers that are involved, both as providers and as caregivers, have better outcomes in the labor markers than uninvolved fathers. There may be cultural differences between Europe and the United States, however. Both Kaufman and Uhlenberg (2000) and Killewald (2012) mention a beginning of a shift in the US, where an increasing number of fathers want to identify with the "egalitarian". Furthermore, laboratory research by Correll and others (2007) indicates that being a good father and being a good employee is seen as a "package deal". In their experiment fathers were given substantially higher wages and were seen as more committed to their job compared to men with no children (Ibid.). Bielby and Bielby (1988) find, when testing Becker's (1985) theory about the wage differential between married men and married women and work effort or energy, that women are more likely than men to report high work effort. Though the data they use are of self-reported effort, their study brings questions to the validity of Becker's (1985) theory or to whether his theory does reflects practice. Correll and others 2007 paper on how parenthood is perceived might not be consistent with Bielby and Bielby's (1988) findings on how much effort men and women report.

Lastly, there is some research on the effect of children on wages that questions the existence or validity of the fatherhood wage premium. An example is an article by Loughran and Zissimopolous (2009) that brings attention to the timing of children and marriage in the effects on wage. They argue that a reverse correlation may be in effect; wage increases may influence the decision by men to have children (Ibid.). Men may decide to get married or have children as a response to a promotion, a raise or profitable job change instead of wages being affected by change in fatherhood status. Loughran and Zissimopolous (2009) argue that the estimates for the fatherhood wage premium find using the NLSY79 and fixed effects models are likely to be biased because of unobserved heterogeneity that is correlated with time of marriage or birth. Lundberg and Rose (2002), in addition, also suggest the reverse correlation.

On the Belief in Traditional Gender Roles for Different Groups

The importance of the father as the financially responsible for a household may differ depending on factors such as religion, political beliefs and tradition. Religious affiliation

may influence the division of labor, especially if the affiliation is one that is based on more traditional or conservative beliefs. Conservative Protestantism is an example of a Christian denomination where their beliefs incline women to work in housework (unpaid labor) and by extension that men should be the financial provider (Ellison & Bartkowski, 2002). Ellison and Bartkowski (2002) conclude that women that are more conservative Protestants work more hours in unpaid work than less conservative Protestants regardless of their labor force status and if their housework/child care would count as a "second shift". In determining whether Southerners are more traditional in their gender-role beliefs than non-Southerners, Carter and Borch (2005) find that after controlling for religion, Southerners are more traditional than non-Southerners. Their alternative explanation for the more traditional beliefs is that Southerners tend to be more politically conservative (Ibid.). Previous research indicates that there is some distinction in how Southern men feel about traditional division of labor and how non-Southern men regard it (Hurlbert, 1989). Hurlbert (1989) finds that men in the South are more likely to be conservative (yet also more likely to identify as democrat), religious and believe in the traditional division of labor between spouses. Though Hurlbert (1989) did not find statistically significant results showing that Southern men believe that women should not work, she did find evidence in favor of the theory that Southern men are more likely to believe that women should take care of the household. In another study (using the same survey) Rice and Coates (1995) find that Southerners are more likely to believe that women should be in unpaid work but not that mothers that work are inferior to stay-at-home moms. Southerners are only slightly more traditional in their views on working wives and mothers than residents of the Midwest or West and Northeasterners are only slightly more liberal than the others (Ibid.).

Regardless of areas of residence and beliefs (religious or otherwise), women's participation in the labor force increased substantially in the United States during the 20th century. Yet the division of labor for housework has not changed as much (Berardo et. al.,1987). Women still perform most of the housework despite participating more and more in paid labor (Ibid). According to Becker (1985) the responsibility for caring for the household may be an explanation for why women are paid less than men even if their human capital accumulations are similar. The time and effort that women have to spend on housework might lead to less energy available for work. Men, on the other hand, may have more energy left to spend on work if they do not spend as much time and effort at home in their free time (Ibid.). He argues that men gain a larger return to

investment on human capital accumulation if they are able to spend more energy per hour on work. If effort is important to wages, which logically it is, then married men with wives who work full-time and married men with children, still gain a premium based on potential (or expected potential) increased productivity.

Hypotheses

Based on the theories of the marriage premium and on previous research on the fatherhood wage premium, in addition to the research on regional differences in gender role beliefs, the hypotheses are as follows:

For regional differences in the fatherhood wage premium:

Hypothesis 1: The effect of children on men's wages differs between the four major[1] US regions.

Hypothesis 2: A traditional division of labor explains more of the fatherhood wage premium in the more traditional Southern region compared to the others.

For urban/rural differences in the fatherhood wage premium:

Hypothesis 3: The effect of children on men's wages differs between rural and urban areas.

Hypothesis 4: A more traditional division of labor explains more of the fatherhood wage premium in rural areas than in urban areas.

As outlined in the Theory and Previous Research section of this chapter, the fatherhood wage premium is larger for men in households with a higher degree of specialization in the division of labor. The degree of specialization may also explain some of the variation in work effort of fathers. The expectation is that men in the more traditional regions are more inclined to take on the "good provider" role and increase their time and effort in the labor market as a response to fatherhood. Men in less traditional areas, conversely, are expected to be more egalitarian in their response to fatherhood. Specialization is therefore expected to explain a larger part of an eventual fatherhood wage premium in traditional areas while other factors, such as employer favoritism and selection into fatherhood, should explain a larger part of the fatherhood wage premium in less traditional areas.

[1] North East, North Central, South and West

Data and Methods

Data

The data used in this paper is a modified sample of the National Longitudinal Survey of Youth that began in 1979 (the NLSY79 for short). The National Longitudinal Survey of Youth is a database sponsored by the Bureau of Labor Statistics that include labor market outcomes and other information on men and women born between 1957 and 1964 (http://www.bls.gov/nls). Beginning in 1979, 6,403 men and 6,283 women (a representative sample of the US population in that age group) were interviewed yearly until 1994 and biannually since.

The Sample

The modified sample includes only men (6,403 individuals in the original sample) and observations from the 1982 to 1998 time period. In 1982 most of the men interviewed were 18 years old or older, with the exception of 517 men (8.07 % of the observations) born in 1964. The observations for individuals at 17 years old in 1982 are dropped from the sample. Non-interview observations are dropped but individuals are kept in the sample if there is more than one year of interview. Observations where an individual did not report region of residence or urban/rural residence are also dropped since this information is imperative to the analysis. Furthermore, observations where an individual report that he is currently in the military, retired or enrolled in school are dropped. Individuals currently in the military are included in a subsample where there are no observations past 1990. Observations of individuals that are enrolled in school or are retired are dropped because work is not their main activity. One individual that reported no education was also dropped. Observations that do not include hourly wage are not included in the sample. This leaves the sample with 52,237 observations or person-years for 5,240 individuals in the time-period of 1982 to 1998. The average number of years an individual is interviewed is 11.62. Observations where questions are skipped (indicated by a value of -3), for example for marital status, are recoded to missing (denoted by ".") to avoid the inclusion of negative values that may distort estimations.

The Dependent Variable

The dependent variable is the natural logarithm of hourly wage or ln wage. For the years 1982 to 1994, the NLSY79 reports the hourly wage of an individual's current or most recent job. In the years following, hourly wages are reported for up to five most recent or current jobs. The hourly wage measure used in this sample is for an individual's primary job in 1996 and 1998. If an individual works more than one job, only the hourly wage for the first job is included in this modified sample. NLSY79 uses self-reported hourly wages in dollars and cents. Extreme values of hourly wages are kept as is in the original sample. In the sample used in this analysis, very low values of hourly wages are recoded at the bottom 1% of the year and very high values are recoded at the bottom 99% of the year. This controls for any eventual outliers that may distort the results in either direction while not reducing the size of the sample. If the hourly wage is logged, the smaller values of the regressors in simple or multivariate regressions may be interpreted as percentage increases in wage. Logged hourly wages make it possible to capture a larger range of workers in the analysis, including low-income earners that work few hours.

Main Independent Variable

The main independent variable is an interaction variable between number of children and region of residence or type of area (urban or rural). Number of children is transformed from a continuous variable, as it is reported in the NLSY79, to a categorical variable where the reference category is no children. Since few individuals have more than three children, the last category in the number of children variable is three or more children. This is consistent with previous research on the fatherhood wage premium. Lundberg and Rose (2000), for example, found that the effect of children on men's wages was nonlinear which lends weight to the use of a categorical versus a continuous variable. In contrast to previous research the "Children" variable in this analysis does not distinguish between biological children and stepchildren or between residential father and non-residential fathers.

Combining number of children with region creates the number of children and region interaction variable. The reference category is men residing in the South with no children because this is the group with the lowest mean wages. Men with no children residing in the South are also the largest group. Categories for men with one child, two children and three or more children for each region are then created, together with

categories for childless men in the North East, North Central and Western region. In total there are 16 different categories with the reference category.

For the number of children and urban/rural variable the process of creating the interaction variable is similar to the creation of the regional variable described in the previous paragraph. The reference category for this variable is childless men residing in rural areas because this is the group with the lowest mean wages. The remaining seven categories capture number of children, rural residence and number of children and urban residence and a category for men with no children in urban areas.

Control Variables

The control variables include demographic factors such as age, marital status and race, and human capital factors such as potential experience, education, occupation and industry. Marital status is reduced from a five category variable in the original sample to a three category variable where never-married is the reference and divorced also include separated and widowed men. The reference group for race is White (or Non-Black, Non-Hispanic) men.

Potential experience is created by subtracting years of education plus five years from age. $Work\ Experience = Age - (years\ of\ education + 5)$. Potential work experience measures give estimates for actual work experience for men that are sufficiently close to be used in wage equations (Mincer & Polachek, 1974).

Education is used as a categorical variable instead of a continuous. The variable includes the categories less than high school (<12 years of education), high school (=12 years of education, the reference category), some college (>12 years of education, <16 years of education), college (=16 years of education) and more than college (>16 years of education).

Both industry and occupation are reduced to fewer categories. The 1980s classifications are used in both cases and the number of categories is reduced to the larger classifications, for example the manufacturing industry and professional/managerial occupations. There are eight categories for occupation and thirteen categories for industry.

The last explanatory variable is wife's work hours. This is a dummy variable indicating whether an individual's wife works less than full-time in a given year. Full-time is defined as 35 hours or more per week and is the reference category.

Descriptive statistics for all the variables mentioned are presented in the appendix. Differences between regions and urban/rural residence are included in addition to the summary statistics for the sample. Observations for all years are pooled. Also included in the table are figures for religious attendance and whether or not individuals believe that women's place are in the home and not in the work force. Questions on gender role beliefs and religion are asked in some years only. The summary statistics reported are from the answers in 1982. The answers to the question about gender roles are interpreted as whether or not an individual believes in a traditional division of labor.

Method

The NLSY79 data is a longitudinal panel with observations for individuals over several years. The years used in this case are 1982 to 1998. Because individuals were not re-interviewed in all years (interviewed yearly until 1994 when the schedule was changed to every other year and not all individuals are available in all years) the panel is unbalanced. Panel data may be used in various ways. In this paper wage equations are estimated using the natural logarithm of the hourly wage as the outcome variable and children interacted with regions or urban/rural area as the main explanatory variable. The effects of children (and region or urban/rural) on wages are estimated using ordinary least square regression models.

First the effects of fatherhood on wages are estimated using a pooled cross-sectional OLS model where all observations for all years are used and are not grouped by individual. This kind of model is useful because it is able to include a larger sample of individuals as the different observations per year are treated as separate individuals. The estimates may however be biased since this kind of model is not able to control for any correlation between the error term, or the unobservables, and the outcome variable and/or regressors. In order to control for the bias, a fixed effects regression model may be run.

The fixed effects regression model uses individuals as their own controls and assumes that any correlation between the unobservables (the error term) and the dependent and

independent variables are fixed for each individual. In a wage regression ability, for example, may influence both the outcome variable (wage) and an independent variable (e.g. education). It is, however, difficult to find appropriate measures for ability. To control for any bias that omitting a variable like ability from the equation may create, a fixed effects model is created where each individual act as their own control. It is assumed that the ability of an individual is fixed and cannot change throughout time. Other factors that may be unobserved but that are correlated with both the dependent and independent variables are also assumed to be controlled for if one attempts a fixed effects approach.

The estimates obtained from the pooled cross-sectional model may be compared to the estimates obtained from the fixed effects model. If any potential fatherhood wage premium is smaller in a fixed effects model, it points to a positive selection into fatherhood. If the premium, or the coefficients of the children and region variable, decreases greatly when human capital controls are added to the model this also points to a positive selection into fatherhood. In research on the marriage premium, positive selection into marriage result in smaller coefficients for marital status in a fixed effects model compared to a pooled cross-sectional regression model since men with higher levels of unobserved characteristics (for example ability) are more likely to marry and have higher wages. This is analogous to the fatherhood wage premium. Previous research (see Lundberg & Rose, 2000) on the fatherhood wage premium has, however, pointed to a negative selection into fatherhood, which may be indicated by larger coefficients in a fixed effects model versus a pooled cross-sectional model. Unobserved characteristics lead to lower wage profiles for fathers than for non-fathers and the premium then increases when the unobserved ability is controlled for.

Pooled Cross-Sectional Regression Model

Region:

$$\ln wage_i = \alpha + \sum_{k=1}^{K} \beta_1 children_i * region_i + \beta_2 X_i + u_i$$

Where the dependent variable is the natural logarithm of hourly wage ($\ln wage_i$), the main independent variable is an interaction variable with number of children and region and X_i is a vector containing socio-demographic factors such as race, age, marital status and urban residence, as well as human capital factors such as education, experience

(and its square) and variables indicating industry and occupation. Dummy variables for year, where the reference year is 1982, are also added to control for any variation in hourly wage due some exogenous event that affected wages in that year.

First a regression is run on the simple model with only $children * region_i$ as the explanatory variable. Then a regression on the full model is run, adding the vector for the control variables. The difference between the estimates of $children * region_i$ on the outcome variable for the model with no control variables and the estimates $children * region_i$ on the outcome variable for the model that include the control variable is important. It may be used to see whether there is any selection into fatherhood, i.e. if men with higher levels of human capital are more likely to be fathers.

Urban/Rural:

$$\ln wage_i = \alpha + \sum_{k=1}^{K} \beta_1 children_i * urban_i + \beta_2 X_i + u_i$$

There are two main differences between the regional regression model and the urban/rural regression model beyond the testing of two distinct hypotheses. The main explanatory variable differs, so in the urban/rural model the interaction is between urban residence and number of children. In addition, included in the vector X_i is region in place of urban residence since urban residence is a part of the main regressor.

Fixed Effects Regression Model

The fixed effects regression models that are specified below are the main regressions models in the statistical analysis. The first model, on regions, is used to attempt to answer the question of whether men in more traditional areas – mainly the Southern region – gain larger premiums for becoming fathers. The second model, on urban/rural residence, attempts to answer a similar question on how type of residential area modifies the effect of children on wages.

The regional model and the urban/rural model maintain their distinctions from the pooled cross-sectional model in this fixed effects regression model. This means that children are interacted with region in the first equation shown below and with urban or rural residence the in the second equation below. In the vector of control variables the

regional model include a control for urban residence and the urban/rural model this is replaced by a control variable indicating region of residence. The equations for each version are as follows:

Region

$$\ln wage_{it} = \alpha + \sum_{k=1}^{K} \beta_1 children_{it} * region_{it} + \beta_2 X_{it} + v_i + \mu_{it}$$

and Urban/rural

$$\ln wage_{it} = \alpha + \sum_{k=1}^{K} \beta_1 children_{it} * urban_{it} + \beta_2 X_{it} + v_i + \mu_{it}$$

In contrast to the pooled cross-sectional regression model, the fixed effects model allows for unobserved characteristics in the error term to be correlated with the independent variables but assumes that these unobservables only affect the variation within one group or, in this case, one individual. By using a fixed effects model, one attempts to account for any omitted variable bias that the previous cross-sectional model may contain. The error term is divided into two parts: $v_i + \mu_{it}$ where v_i is a time-invariant individual error term and μ_{it} is the part that is allowed to change over the years. Unobserved characteristics are assumed to be unique for individuals and are also assumed to be uncorrelated with the other individuals. A disadvantage of using a fixed effects model is that time-invariant variables cannot be used as an independent variable since these do not change through time. This also means that only individuals that change status, from non-father to father, throughout the years of the sample are included in the regressions. Since time-invariant factors cannot be included in the regression, race is not included in the vector X_{it}.

To attempt to investigate the third and fourth hypotheses, the fixed effects models are extended to include a dummy variable indicating if the wife of an individual works less than full-time (dummy=1). The addition of this variable is intended to show whether a

higher degree of specialization in the division of labor in a household may explain part of any potential fatherhood wage premium.

The equations for these extended models are:

Region:

$$\ln wage_{it} = \alpha + \sum_{k=1}^{K} \beta_1 children_{it} * region_{it} + + \beta_2 wife\_PT_{it} + \beta_3 X_{it} + v_i + \mu_{it}$$

and Urban/Rural:

$$\ln wage_{it} = \alpha + \sum_{k=1}^{K} \beta_1 children_{it} * urban_{it} + \beta_2 wife\_PT_{it} + \beta_3 X_{it} + v_i + \mu_{it}$$

The covariates included in the X_{it} vector for the equations above are the same as those included in the equations for the fixed effects regression without a dummy variable for wife's part-time work.

Methodical Approach

This section describes the statistical approach to the hypotheses testing. The steps to investigate whether there is a fatherhood wage premium that varies between regions are outlined first. The same approach is used when investigating whether there is a fatherhood wage premium that differs between urban and rural areas. Then, the empirical approach for the second and fourth hypotheses is outlined. The second and fourth hypotheses concern the role of specialization in the effect of the fatherhood wage premium.

To attempt to see whether there are any regional differences in the fatherhood wage premium, Hypothesis 1, the regression models are estimated in four steps: first, a regression is run on the pooled cross-sectional OLS model without including any of the covariates in X_i. Second, a regression is run on the model with the complete specification, i.e. X_i is included in the model. In the tables in the Results section this model is referred to as the "full model". Step number three is to run a regression on the fixed effects model, without any covariates X_{it}, included in the specification. The fourth,

and final, step is to run a regression on the full fixed effects model. The four steps are repeated to test Hypothesis 3: that the fatherhood wage premium differs between men in urban and rural areas.

After each fixed effects regression is run a Hausman test is performed to ensure that a fixed effects model approach is more suitable than a random effects model approach. The Hausman test looks at whether the correlation between the error term, the unobservables, and the independent variables are unique for each individual and that there is no correlation between the unobservables for one individual and the variance in the independent variables for another individual.

In the pooled cross-sectional OLS models, R^2 measures the explanatory power of the models or how much of the variation in ln wage that can be explained by the independent variables. The adjusted R^2 is also included in the tables. This measure may be used as an indication of whether the explanatory variables are "good" or "bad" control variables. A variable may be included in the model even if it the R^2 indicate that it is a "bad" control variable if the variable is crucial to the model or if previous research and/or theory indicate that it is important for the model. In the fixed effects models three different R^2 are reported: within, between and overall. The within R^2 is the R^2 that is most interesting in this analysis since it explains how much of the variation the ln wage within an individual (or panel) that is explained by the independent variables. The between R^2 shows how much of the variation between the ln wage for the individuals that is explained by the independent variables. This measure may also be of interest since the differences between regions and between urban and rural are of important to the analysis. The differences between fathers and non-fathers are also crucial. The last R^2 is the overall R^2 and it shows a combination of the other two.

By comparing the estimates obtained from the pooled cross-sectional OLS model (the estimation that includes the covariates as explanatory variables) with the estimates from the fixed effects model (with covariates), one may be able to detect whether there is any omitted variable bias in the OLS model and the direction of this bias. Any bias discovered may indicate either negative selection into fatherhood or positive selection into fatherhood, or no indication of selection. If the coefficients for children x region (or children x urban) are smaller in the fixed effects model, there is positive selection into fatherhood. If the coefficients are larger there is negative selection into fatherhood. The explanation for positive selection is that men with higher levels of unobservable

characteristics that are positively correlated human capital factors and with wage are also more likely to have children. The explanation for negative selection is, therefore, that men with higher levels of unobservable characteristics that are negative correlated with human capital and wage are more likely to become fathers. Marital status is also included in the model and it is possible that a positive selection into marriage also explains the selection into fatherhood if married men with higher levels of unobservable characteristics that are positive correlated with wage are also more likely to be fathers.

To test the second and fourth hypotheses, (2) that specialization in the division of labor of households increases the fatherhood wage premium in the more traditional Southern region and (4) that specialization in the division of labor increases the fatherhood wage premium in the more traditional rural areas, regressions are only run using the full fixed effects model with a dummy variable indicating that an individual's wife works less than full time. The estimates obtained in these regressions are compared with the estimates obtained in the full fixed effects models used to test Hypothesis 1 and 3. If the coefficients for effect of children on wages are smaller when the dummy variable is included it can be argued that specialization explain some of the fatherhood wage premium.

Results

Results from the regression models outlined in the previous chapter are presented below. Mean wages for the sample as a whole and for subsamples (region, urban/rural) are presented in the appendix. The averages calculated may not be used as anything other than an indication of a premium since human capital factors are not controlled for.

The following section presents the results from the regression estimations of the models used in an attempt to test the first and second hypothesis: the hypotheses regarding region of residence and the fatherhood wage premium (presented in the last section of the Theory chapter above). Estimates concerning the first hypothesis, whether there is a difference in the fatherhood wage premium between the regions, are presented in Table 1 and Table 2. Estimates concerning the second hypothesis, whether specialization explains more of the fatherhood wage premium in the traditional Southern region compared to the others, are presented in Table 3.

The next section shows the results from the regression models used to investigate the third and fourth hypotheses: the hypotheses regarding urban/rural residence and the fatherhood wage premium (see Theory chapter above). Estimates of the fatherhood wage premium in urban or rural areas are presented in Table 4 and Table 5 below. Estimates of the fatherhood wage premium when accounting for specialization in the division of labor are shown in Table 6. Regressions are run using STATA and the modified sample presented in the Data and Methods chapter above. Pooled cross-sectional OLS models and fixed effects models are both used. A Hausman test is performed after each fixed effects regression to ensure if a fixed effects approach is more suitable than a random effects approach.

Results – Regional Differences in the Fatherhood Wage Premium

Table 1: The Effect of Children and Region on Men's Wages - Pooled Cross-Sectional Ordinary Least Square Model

	Model 1	(Simple model)	Model 2	(Full model)[a]
Variables	Coefficient	SE	Coefficient	SE
Region x Children				
South x 0 (reference)	Ref Cat		Ref Cat	
1	0.206**	0.011	0.034**	0.009
2	0.323**	0.012	0.047**	0.01
3	0.226**	0.016	-0.040**	0.013
North East x 0	0.169**	0.009	0.123**	0.007
1	0.387**	0.017	0.155**	0.013
2	0.615**	0.018	0.263**	0.014
3	0.480**	0.026	0.156**	0.021
North Central x 0	0.047**	0.009	0.003	0.007
1	0.295**	0.014	0.060**	0.012
2	0.448**	0.014	0.103**	0.012
3	0.398**	0.018	0.057**	0.014
West x 0	0.174**	0.009	0.121**	0.007
1	0.333**	0.016	0.145**	0.013
2	0.507**	0.016	0.196**	0.013
3	0.459**	0.019	0.174**	0.015
Constant	6.548**	0.005	5.249**	0.043
R^2	0.0778		0.4674	
Adjusted R^2	0.0775		0.4668	
N (person-years)	N=48952		N=48597	

[a] controls included in the full model are marital status, race, age, education, experience and its square, occupation, industry, urban residence and dummy variables indicating year. Ref Cat indicates the reference category (South, no children) SE is the standard error.

* p<0.05 ** p<0.01

Table 1: Pooled OLS Regression Model, Region. Regressions run in STATA with a modified sample of the NLSY79 from 1982-1998 (www.bls.gov/nls/nlsy79.htm)

The table above, Table 1, shows the results from the pooled cross-sectional OLS model where the main independent variable is the interaction between children and region and the outcome variable is ln wage. The first model, Model 1, is the simple regression model with only children x region as an independent variable. The second model is the multivariate model where control variables are added to children x region. The coefficients in either model show the difference between, for example men in the South with one child and childless men residing in the South (the reference category). In Model 1, this means that fatherhood is positively correlated with wages in all regions. The coefficients for childless men in the North East, North Central and West show that men in these regions have higher wages than childless men in the South. There is a wage penalty associated with residing in the South. The averages wages for the subsample of Southern men presented in the appendix confirm that the wages are, on average, lower in the South.

While all coefficients for children x region in Model 1 are statistically significant at the 99% level, the variable does not explain much of the variation in ln wage. R^2 shows that 7.78% of the variation in ln wage is due to the interaction variable.

In Model 2, control variables are added to the model. By adding the covariates to the specification, it changes the results in two important ways: One, the explanatory power of the model increases from 7.78% to 46.74% and two, the coefficients for children x region decreases in magnitude for all categories as well as changes the direction of the effect for one category. After controlling for demographic and human capital factors, as well as year and urban residence, there seems to be a positive, and statistically significant, correlation between fatherhood and wages in all regions. This premium varies, however, by number of children. In this pooled cross-sectional OLS model, the estimated fatherhood wage premium seems to be higher for two children than for one child and for three or more children. For men with three or more children residing in the South there seems to be a negative correlation between children and wages - a fatherhood wage penalty of 4%.

The null hypothesis that there is no difference between the effects of children on wages of the four different regions may be rejected. The estimates obtained in the model above, however, may be biased. To allow for unobservables in the error term to be correlated with both the independent variable and wage, a fixed effects model is estimated. The results from the fixed effects models are presented below.

Table 2: The Effect of Children and Region on Men's Wages – Fixed Effects Model

	Model 3 (N=	(Simple model)	Model 4	(Full model)[b]
Variables	Coefficient	SE	Coefficient	SE
Region x Children				
South x 0 (reference)	Ref Cat		Ref Cat	
1	0.219**	0.01	0.016	0.009
2	0.408**	0.012	0.028**	0.01
3	0.488**	0.017	-0.027	0.014
North East x 0	-0.072**	0.021	0.054**	0.017
1	0.214**	0.025	0.089**	0.02
2	0.469**	0.026	0.164**	0.021
3	0.515**	0.033	0.120**	0.027
North Central x 0	-0.065**	0.02	-0.045**	0.016
1	0.214**	0.022	-0.014	0.018
2	0.397**	0.022	-0.010	0.018
3	0.541**	0.026	-0.022	0.021
West x 0	0.065**	0.02	0.056**	0.017
1	0.283**	0.024	0.078**	0.019
2	0.49**	0.025	0.095**	0.02
3	0.657**	0.028	0.106**	0.023
Constant	6.598**	0.01	5.420**	0.170
Within R^2	0.1082		0.4310	
Between R^2	0.0315		0.3782	
Overall R^2	0.0558		0.3835	
N (unique individuals in parentheses)	48952 (5196)		48597 (5196)	

[b] controls included in the full model are marital status, age, education, experience and its square, occupation, industry, urban residence and dummy variables indicating year. Ref Cat indicates the reference category (South, no children) SE is the standard error.

* p<0.05 ** p<0.01

Table 2: Fixed Effects Model, Region. Regressions run in STATA using a modified sample of the NLSY79 from 1982 to 1998 (www.bls.gov/nls/nlsy79.htm)

Firstly, a Hausman test performed in STATA after running the fixed effects regression and a random effects regression with the same combination of variables shows that a fixed effects model is more appropriate.

The main interest lie in comparing the magnitude and directions of the coefficients for children x region in the full model, Model 4, to the full model for the pooled OLS model (Model 2) presented in the previous table, Table 1. When changing from a pooled cross-sectional model to a fixed effects model, the coefficients of the effect of children x region on wages decreases in size. Some categories also lose a statistically significant difference to the reference category – non-fathers in the South. The diminished effect of fatherhood on wages in the different regions may be an indication of positive selection into fatherhood: fathers have higher levels of unobservables that are positively correlated with the outcome variable, than non-fathers and this partly explains their comparatively higher wages. Men with higher levels of unobserved characteristics that have a positive effect on wages are more likely to be fathers.

The independent variables explain 43.1% of the variation within individuals and 37.8% between individuals. The model explains 38.3% of the overall variation in the natural logarithm of hourly wage.

When switching from pooled OLS to the fixed effects model, the effect of fatherhood on wages for men in the North-Central region becomes statistically insignificant. This means that the effect of children on wages for fathers in the North-Central is not statistically different from the reference group, men with no children living in the South. The wage effect for men with one child in the South is also not significantly different from men in the same region with no children.

For men in the Northeastern and Western regions as well as for men with two children in the Southern region, there seem to be positive selection into fatherhood since the effect of children on wages in these regions are statistically significant and lower than the estimates for the same groups in the pooled OLS model. There is also positive selection into marriage as comparisons (not shown) of the coefficients for the effects of marital status indicate. Previous research has shown that positive selection to some extent explains the marriage premium for men. For the fatherhood wage premium, in contrast, an indication of negative selection into fatherhood has been found previously.

The fatherhood wage premiums within each region may be seen as the difference between the effect for non-fathers and fathers within the region. The coefficient for non-fathers in each region may be the regional effect on wages. In the results in Table 2 above, it seems like there is a wage penalty for living in the North-Central region compared to the others. The effect on ln wage for men with no children in the North-Central region is 4.5% lower than for men with no children in the South. For men in both the Northeastern and the Western region there is a regional wage premium: 5.4% for North East and 5.6% for West, compared to the reference category (South).

The difference between the regional effect, or the effect on wages indicated by men with no children in each area, and the effects of children on wages within the same region, may be an estimation of the fatherhood wage premium (or penalty) for the region. The fatherhood wage premium in the Northeast is by this definition between 3.5% and 11.0% depending on number of children. It ranges from 3.5% for one child, 6.6% for three or more children, to 11.0% for two children. In the West, conversely, the fatherhood wage premium ranges from 2.2% for one child, 3.9% for two children, to 5% for three or more children. All the effects of children on wages in the North East and West are statistically significant at the 99% level. In North Central, on the other hand, no estimate is statistically significant from zero and in the South only the estimate for men with two children, 2.8%, is statistically significant.

Results – Specialization and Regional Fatherhood Wage Premium

Table 3: The Effect of Children, Region and Specialization on Men's Wages – Fixed Effects Model

	Model 4[c] (Full FE model)		Model 5 (Full model)[d]	
Variables	Coefficient	SE	Coefficient	SE
Region x Children				
South x 0 (reference)	Ref Cat		Ref Cat	
1	0.016	0.009	0.038**	0.012
2	0.028**	0.01	0.051**	0.014
3	-0.027	0.014	-0.016	0.021
North East x 0	0.054**	0.017	0.077*	0.031
1	0.089**	0.02	0.081*	0.031
2	0.164**	0.021	0.165**	0.033
3	0.120**	0.027	0.105*	0.041
North Central x 0	-0.045**	0.016	-0.058*	0.028
1	-0.014	0.018	-0.043	0.028
2	-0.010	0.018	-0.043	0.029
3	-0.022	0.021	-0.075	0.032
West x 0	0.056**	0.017	-0.004	0.03
1	0.078**	0.019	0.03	0.031
2	0.095**	0.02	0.056	0.032
3	0.106**	0.023	0.084**	0.036
Wife works part-time			0.030**	0.006
Constant	5.420**	0.170	6.294**	0.311
Within R^2	0.4310		0.3866	
Between R^2	0.3782		0.2128	
Overall R^2	0.3835		0.2604	
N (unique individuals in parentheses)	48597 (5196)		19732 (3695)	

[c] This is the results from the full fixed effects model, see model 4 in Table 2.

[d] controls included in the full model are marital status, age, education, experience and its square, occupation, industry, urban residence and dummy variables indicating year. Ref Cat indicates the reference category (South, no children) SE is the standard error.

* p<0.05 ** p<0.01

Table 3: Fixed Effects Model, Region - Specialization. Regressions run in STATA using a modified sample of the NLSY79 from 1982-1998 (www.bls.gov/nls/nlsy79.htm)

In Table 3 above, the difference between the fixed effects model regression estimates of the fatherhood wage premium from Table 2 and the estimates from a new specification of the model is shown. In the new specification independent variables also include a dummy variable for a measure of the degree of specialization in a household: Wife works part-time. Including this variable in the model reduces its explanatory power. The independent variables explain 38.7% of the within variation in ln wage, 21.3% of the variation between and an explanatory power of 26%. At least in part, an explanation for the reduced explanatory power may be a substantial decrease in the number of observations (from 48,597 observations in Model 4 to 19,732 in Model 5). The number of observations where spouse's work hour are reported is low and since only individuals that report a number for this measure can be included in the model, all those with missing observations for wife's work hours in all years interviewed are excluded.

The added effect of wife's part-time work on men's wages leads to an ambiguous overall effect in the effect of children on wages. Most estimates of children x region decrease in magnitude when the dummy variable for wife's part-time work is added. In one case, the direction of the effect changes. The regional effect of West on wages (or the effect of having no children and residing in the Western region) becomes negative, although the coefficient is not statistically significant. The only statistically significant fatherhood wage premium in the Western region becomes the effect for three or more children (which decreases from 10.6% to 8.4%). The coefficients for one child and two children for West become statistically insignificant. For the Southern region, the effect of having one child becomes statistically significant (3.8%) and the effect of having two children increases (from 2.8% to 5.1%). In the North-Central region, the penalty for residing in the region increases (from -4.5% to -5.8%). Lastly, the effect of the wife's part-time work on the effect of children on wages in the North East is the most puzzling. For men with no children the effect increases (from 5.4% to 7.7%), as does the effect for men with two children, if infinitesimally (from 16.4% to 16.5%). The effect of one child on men's wages and the three or more children on men's wages decrease (from 8.9% to 8.1% and from 12.0% to 10.5% respectively).

For the estimates where the coefficients are lower in the model with the dummy variable for wife's part-time work, it seems that specialization may explain a part of the premium. The fatherhood wage premiums concerned are for one child and three or more children in the Northeastern region and for all the premiums in the Western

region where the estimates decrease or are no longer statistically significant. Some of the effect of children x region on wages may be explained by wife's part-time work.

In contrast, for the estimate where the coefficients are higher when the dummy variable for specialization is included, it seems that specialization does not explain the fatherhood wage premium. The only examples for this are for the Southern region. If the regression for Model 4 is run including only the sample that is included in Model 5 (not shown), the premium for one child and the premium for two children in the South decrease in size (from 3.9% to 3.8% for one child and from 5.9% to 5.1% for two children). This indicates that for the subsample of men that report the weekly work hours of their wife and where this number changes throughout the years, specialization may explain part of the effect of children on wages.

Results: Urban/Rural Differences in the Fatherhood Wage Premium

Table 4: The Effect of Children and Urban/Rural Area on Men's Wages - Pooled Cross-Sectional Ordinary Least Square Model

	Model 6	(Simple model)	Model 7	(Full Model)[e]
Variables	Coefficient	SE	Coefficient	SE
Urban x Children				
Rural x 0	Ref cat		Ref cat	
1	0.231**	0.015	0.042**	0.012
2	0.374**	0.015	0.047**	0.012
3	0.292**	0.02	-0.033*	0.016
Urban x 0	0.165**	0.009	0.098**	0.007
1	0.374**	0.011	0.134**	0.009
2	0.536**	0.011	0.189**	0.009
3	0.460**	0.013	0.131**	0.011
Constant	6.491**	0.008	5.317**	0.047
R^2	0.0704		0.4670	
Adjusted R^2	0.0703		0.4664	
N (person-years)	N=48952		N=48597	

[e] controls included in the full model are marital status, age, education, experience and its square, occupation, industry, region of residence and dummy variables indicating year. Ref Cat indicates the reference category (rural, no children) SE is the standard error.
* p<0.05 ** p<0.01

Table 4: Pooled OLS Regression Model, Urban/Rural. Regressions run using STATA on a modified sample of the NLSY79 from 1982-1998 (www.bls.gov/nls/nlsy79.htm)

Table 4 shows the results from the pooled cross-sectional model with the interaction between children and urban or rural area as the main explanatory variable and the natural logarithm of hourly wage as the outcome variable. Model 6 contains only the children x urban variable as its explanatory variable and Model 7 includes a vector of covariates. The reference category in the explanatory variable is men with no children residing in a rural area. The estimates for the effects of children on wages for the rural area show the differences within the rural area automatically since non-fathers in the same area is the reference group. For the effects of children on wages in the urban area, however, the difference between the coefficients for fathers and the coefficient for non-fathers may be seen as the effect of children on wages within the urban areas. Childless

men in urban areas may serve as an indicator of a wage premium for residing in an urban area compared to residing in a rural area.

As aforementioned in the text below Table 2 with the results from the similar regression models for regions, the differences between Model 6 and Model 7 are important for two reasons: One, Model 7 has a higher explanatory power than Model 6, which indicate that the latter (Model 6) suffered from omitted variable bias and two, the decrease in the coefficients for number of children x urban may indicate that the bias was positive. The explanatory power increases from an R^2 of just over 7% in Model 6 (7.04%) to 46.7% in Model 7.

The effects of children on men's wages are positive in all instances but one: Men with three or more children in rural areas receive a wage penalty of 3.3%. Men in rural areas with one child have 4.2% higher wages than men with no children and men in rural areas with two children have 4.7% higher wages. Residing in an urban area is associated with at least a 9.8% higher wage. If 9.8% is used as the base for the effect of children on wages in urban areas since this is the effect for men with no children, the effect of fatherhood on wages is between 3.6% and 9.1%. Having one child is associated with a 3.6% premium, having two children is associated with a 9.1% increase and having three or more children is associated with a 3.3% increase. All estimates are statistically significant at the 99% level.

Since, as aforementioned in the section with the results from the regional models, the estimates in these pooled cross-sectional models may be biased due to a correlation between the error term (unobservables) and both the dependent and the independent variables, a fixed effects model is constructed. The results from the fixed effects models for urban/rural area are presented below.

Table 5: The Effect of Children and Urban/Rural Area on Men's Wages – Fixed Effects Model

	Model 8	(Simple Model)	Model 9	(Full model)[f]
Variables	Coefficient	SE	Coefficient	SE
Urban x Children				
Rural x 0 (reference)	Ref cat		Ref cat	
1	0.243**	0.014	0.017	0.011
2	0.435**	0.014	0.006	0.012
3	0.572**	0.02	-0.008	0.017
Urban x 0	-0.008	0.011	0.036**	0.009
1	0.235**	0.012	0.062**	0.01
2	0.439**	0.013	0.093**	0.011
3	0.546**	0.015	0.061**	0.013
Constant	6.590**	0.009	5.491**	0.170
Within R^2	0.1061		0.4307	
Between R^2	0.0283		0.3770	
Overall R^2	0.0535		0.3826	
N (unique individuals in parentheses)	48952 (5196)		48597 (5196)	

[f] controls included in the full model are marital status, age, education, experience and its square, occupation, industry, region of residence and dummy variables indicating year. Ref Cat indicates the reference category (rural, no children) SE is the standard error.
* p<0.05 ** p<0.01

Table 5: Fixed Effects Model, Urban/Rural. Regressions run in STATA using a modified sample of the NLSY79 from 1982-1998 (www.bls.gov/nls/nlsy79.htm)

Firstly, a Hausman test performed in STATA after running the fixed effects regression and a random effects regression with the same combination of variables shows that a fixed effects model is more appropriate.

Compared to the estimates for the effect of children in rural or urban areas on wages in the full pooled OLS model (Model 7) presented in Table 5 above, the estimates in the full fixed affects model, Model 8, are smaller. In the case of the rural area, the estimates are also no longer statistically significant. Since they are no longer statistically significant, the effects of children on wages in rural areas are not statistically significantly different from the effect of having no children in the same type of area.

The fixed effects model has an overall explanatory power of 38.3%. The independent variables explain 43.1% of the variance of wages within individuals and 37.8% of the variance in wages between individuals.

For men residing in urban areas, there is a wage premium of 3.6% solely for residing in that type an area compared with living in a rural area. The effects of children on wages are statistically significant and positive, meaning that there is a fatherhood wage premium for men in urban areas. The premium for having three children is the lowest (2.5% if the base is non-fathers in the same type of area). The second highest premium is for men with one child (2.6%) and the highest is for men with two children (5.7%). The nonlinear fatherhood wage premium is comparable to the fatherhood wage premium found in the regional fixed effects model presented above.

Since the estimates for the effects of children x urban on wages are smaller in the fixed effects model compared with the pooled OLS model, there is positive selection into fatherhood. Men with higher levels of unobservables that lead to higher wages are more likely to have children. This was also implied in the regional model.

Results – Specialization and Urban/Rural Fatherhood Wage Premium

Table 6: The Effect of Children, Urban/Rural Area and Specialization on Men's Wages – Fixed Effects Model

	Model 9[g]	(Simple Model)	Model 10	(Full model)[h]
Variables	Coefficient	SE	Coefficient	SE
Urban x Children				
Rural x 0 (reference)	Ref cat		Ref cat	
1	0.017	0.011	-0.006	0.015
2	0.006	0.012	0.000	0.017
3	-0.008	0.017	-0.052	0.023
Urban x 0	0.036**	0.009	-0.013	0.015
1	0.062**	0.01	0.022	0.016
2	0.093**	0.011	0.049**	0.017
3	0.061**	0.013	0.018	0.02
Wife works part-time			0.030**	0.006
Constant	5.491**	0.170	6.391**	0.312
Within R^2	0.4307		0.3861	
Between R^2	0.3770		0.2141	
Overall R^2	0.3826		0.2606	
N (unique individuals in parentheses)	48597 (5196)		19732 (3695)	

[g] This is the results from the full fixed effects model, see model 9 in Table 5.

[h] controls included in the full model are marital status, age, education, experience and its square, occupation, industry, region of residence and dummy variables indicating year. Ref Cat indicates the reference category (rural, no children) SE is the standard error.

* p<0.05 ** p<0.01

Table 6: Fixed Effects Model, Urban/Rural - Specialization. Regressions run in STATA using a modified sample of the NLSY79 from 1982-1998 (www.bls.gov/nls/nlsy79.htm)

By including a dummy variable for wife's part-time work, the explanatory power of the fixed effects model is reduced from explaining 43.1% of the within variance to 38.6% and the overall explanatory power decreases to 26.1% from 38.3%. As explained above (in the text below Table 3) the number of observations decreases when this dummy variable is included because the variable with number of hours per week an individual's

spouse works contain a lot of missing answers. A fixed effects regression does not include observations of individuals if there is no observable change in a variable.

Unlike in the fixed effects model that includes the wife works part-time dummy variable for region, the inclusion of this variable in the regression for urban/rural area has a straightforward effect. By including the dummy variable, all estimates for the effect of children x urban on wages decreases. In most cases, the coefficients of the effect are no longer statistically significant. It seems like the fatherhood wage premiums found for children in the urban area may be explained, at least in part, by specialization in the division of labor. If only the subsample with non-missing values on wife's part-time/full-time work is included in the full fixed effects model (results not shown), Model 9, the effect of the inclusion is similar for the fatherhood wage premiums in the urban area. The estimates for children x urban differ between that model and the estimates for Model 9, however, in that there is a statistically significant wage penalty for having three or more children and residing in a rural area and in that there is only a statistically significant wage premium for having two children in the urban area.

Summary of Results

Included in this chapter were all estimates of the regional or urban effects of fatherhood on wages. In sum, for regions there seems to be a fatherhood wage premium in all regions except for North-Central. There is also evidence for a fatherhood wage premium for men residing in urban areas.

The results from the fixed effects model for the effects of children and region on wages are presented in Table 2 above. The estimates for each interaction between children and region seem to establish that there are regional differences in the fatherhood wage premium. The null hypothesis that the effects for all groups (all combinations of children and region) are equal to the effect for men with no children residing in the South (the reference category) can be rejected. Hypothesis 1, that the effects differ between regions, cannot be rejected.

The estimates of the fatherhood wage premiums presented in Table 3 indicate that the second hypothesis (Hypothesis 2), that specialization explains a larger part of the fatherhood wage premium for men in the South versus other regions, can be rejected. Increased specialization does not explain the fatherhood wage premium for men with

two children in the South (the only statistically different estimate compared to childless men in the South). In fact, the results of the regression model point to the opposite; increased specialization in the division of labor explains more of the fatherhood wage premium in the Western and Northeaster regions than in the South.

For the urban/rural divide, the results in Table 4 are interpreted as establishing a fatherhood wage premium only in the urban area. The estimates for effects of children on wages for men in rural areas are not statistically different from the reference category (men with no children in rural areas). The null hypothesis that there is no difference in the effect of children on wages in urban and rural areas can be rejected. Hypothesis 3, that there is a difference, cannot be rejected since the estimates differ.

The last hypothesis (Hypothesis 4), that specialization explains more of the fatherhood wage premium for men in rural areas than for men in urban areas, can be rejected since there is no evidence for any effect of children on men's wages in rural areas. Increased specialization may thus not explain any part of the fatherhood premium for men in rural areas. Higher specialization in the division of labor may, in contrast, be part of the cause of the wage premium for fathers in urban areas.

To summarize the hypothesis testing: there is evidence for differences in the fatherhood wage premium between regions and between urban/rural areas. Hypotheses 1 and 3 (see Theory or paragraphs above for a brief definition of the hypotheses) can therefore not be rejected. Both Hypothesis 2 and Hypothesis 4, on the other hand, can be rejected since specialization in the division of labor in the more traditional areas (South or rural) does not account for the fatherhood wage premiums. Increase specialization may, however, explain the fatherhood wage premiums in the less traditional areas.

Concluding Discussion

The results found and presented in the previous chapter establish that there is a fatherhood wage premium for men. Yet, the premiums found varies between different regions and urban/rural areas in ways that are contrary to the expectations outlined in the theory. The most striking deviation from the expectations is that there is no premium for fathers in rural areas. Similarly, men in the North Central region do not receive a fatherhood premium. Increased specialization in the division of labor as an explanation for the premium cannot be substantiated for all regions and is only a potential explanation for the fatherhood wage premium in urban areas and the Northeastern and Western regions. This finding is also contrary to what was hypothesized.

The Lack of a Fatherhood Wage Premium for Men in Rural Areas

As shown in the results chapter, men in rural areas do not receive a wage premium when having children. An explanation for why men in more traditional areas, in this case rural areas, do not receive a fatherhood wage premium may be that even though men in these areas are more likely to believe in traditional gender roles and the role of the "good provider", they may not be able to practice what they preach. In the subsample of men in rural areas in the modified sample of the NLSY79 used in this analysis, 44% of the individuals agree with the statement that "woman's place is in the home, not the office or shop". The sample average, for men and women, in 1979 is 23.5% (http://nlsinfo.org/content/cohorts/nlsy79/topical-guide/attitudes). The percentage in this sample is calculated using the 1982 answers and is around 40% in agreement of the statement. As in the study by Glauber and Gozjolko (2011) on traditional men and their labor supply in response to fatherhood, the explanation for why traditional men cannot practice their belief in a traditional division of labor may be that they cannot afford to. Either they cannot increase their work hours after having children or their hourly wages are too low for the household to survive on a one-person income. In their study, only college educated White men could alter their supply of labor in response to childbirth in the way they wanted (Ibid.). As the descriptive statistics in the appendix show, while the majority of the individuals in rural areas are White, they are not, as a group, highly educated.

Another explanation for why men in rural areas do not receive a fatherhood wage premium may be that they are more likely to work in an industry or an occupation

where an increase in productivity due to either specialization or the "good provider" theory would not be easily noticed. Both sector of industry and type of occupation are, however, controlled for in the regression models albeit at a less specific level since the classes of occupations/industry have been merged into a much smaller number of classes. If the difficulty for the employer to notice increases in productivity or work effort may explain the lack of a fatherhood wage premium in rural areas, then men in urban areas must work in occupations or sectors where individual productivity is more noticeable.

Specialization and the Fatherhood Wage Premium in the South

It seems like specialization may explain part of the fatherhood wage premium for men in urban areas and for men in the Northeastern and the Western region. It may, however, not explain the fatherhood wage premium for men in the South. As mentioned in the previous paragraph, Glauber and Gozjolko (2011) find that not all men that believe in a traditional division of labor are able to shift their household supply of labor in response to having children. Black men's labor supply, for instance, is not dependent on their wives' labor supply and as such the specialization theory cannot explain differences in their work effort. The Southern region in this sample consists of the largest percentage of Black men of the entire modified sample (about 40%, see Appendix). If this subsample wants to adhere the their traditional gender role beliefs but cannot then that would explain why specialization are not applicable as an explanation for the fatherhood wage premium in the South.

Limitations

The results presented in this paper should be considered with the acknowledgement of a number of limitations to the methods and the data used. The combined effects of region and number of children or the combined effects of urban area and number of children are difficult to disentangle. The method of including a categorical variable for the interaction between region and children (urban/rural area and children) where the reference category is men with no children in the South (rural areas) make straight-out comparisons between the fatherhood wage premiums difficult. The actual overall effect of region is also not known since the category for men with no children in each region (or area) may make a less favorable group to use as the average effect of the region on wages.

Using wife's work hours as a proxy for specialization is a vague indication at best. If men's work hours do not increase in response to childbirth or his work effort does not increase, then a decrease in the wife's work hours is not an indication for specialization in the division of labor. Information on work hours in housework for the individuals would benefit this and other studies on the fatherhood wage premium. A disadvantage of using the NLSY79 for this kind of analysis is that no such measure is included.

It should also be acknowledged that the estimates of the effects of children on men's wages may still be biased. As mentioned by Loughran and Zissimopolous (2009) the timing of children may be influenced by wages increases.

Conclusion and Further Research

The fatherhood wage premiums found for urban areas and for the different regions with the exception for the North-Central region are around the same size as the premiums found in previous research. The premiums in this analysis ranges from 2.2% to 11% and specialization may to some degree explain the premiums. The results presented in this paper suggest a regional difference in the fatherhood wage premium, which potentially adds a new aspect to how men's wages are affected by fatherhood. The estimates obtained also suggest that men in urban areas receive a fatherhood wage premium while men in rural areas do not.

Further research on why men in rural areas do not receive a fatherhood wage premium may be of interest. As would research on later cohorts to see whether Southern traditionalism persists and on if there is a fatherhood wage premium for some groups of men residing in the South.

References

Anderson, D. J., Binder, M. and Krause, K. (2003). The Motherhood Wage Penalty Revisited: Experience, Heterogeneity, Work Effort, and Work-Schedule Flexibility. Industrial and Labor Relations Review, vol. 56, no. 2: 273-294.

Becker, G. S. (1973). A Theory of Marriage: Part I. The Journal of Political Economy: 813-845.

Becker, G. S. (1985). Human Capital, Effort, and the Sexual Division of Labor. Journal of Labor Economics, vol. 3, pp. 33-58.

Becker, G. S. (1991). A Treatise on the Family. Harvard University Press, Cambridge, MA.

Berardo et. al. (1987). A Residue of Tradition: Jobs, Careers and Spouses' Time in Housework. Journal of Marriage and Family, vol. 49: 381-390.

Blackburn, M. and Korenman, S. (1994). The Declining Marital-Status Earnings Differential. The Journal of Population Economics, vol. 7:247-270.

Budig, M. J. and England, P. (2001). The Wage Penalty for Motherhood. American Sociological Review, vol. 66: 204-225.

Carter, J. S. and Borch, C. A. (2005). Assessing the Effects of Urbanism and Regionalism on Gender-Role Attitudes, 1974-1998. Sociological Inquiry, vol. 75, no.4:548-563

Correll, Behard and Paik (2007). Getting a Job: Is There a Motherhood Penalty? American Journal of Sociology, vol. 112, no. 5:1297-1338.

Ellison, C. G. and Bartkowski, J. P. (2002). Conservative Protestantism and the Division of Household Labor Among Married Couples. Journal of Family Issues, vol. 23, no. 8: 950-985.

Glauber, R. (2005). Fathers' ride up the glass escalator: occupational gender composition and the fatherhood wage premium. American Sociological Association. Conference Papers.

Glauber, R. (2008). Race and gender in families and at work: the fatherhood wage premium. Gender and Society, vol. 22, no. 1, pp. 8-30.

Glauber, R. and Gozjolko, K. L. (2011). Do Traditional Fathers Always Work More? Gender Ideology, Race, and Parenthood. Journal of Marriage and Family, vol. 73: 1133-1148.

Gray, J. S. (1997). The Fall in Men's Return to Marriage: Declining Productivity Effects or Changing Selection? The Journal of Human Resources, vol. 32, no. 3: 481-504.

Hill, M. (1979). The Wage Effects of Marital Status and Children. The Journal of Human Resources, vol. 14, no. 4.

Hurlbert, J. S. (1989). The Southern Region: A Test of the Hypothesis of Cultural Distinctiveness. The Sociological Quarterly, vol. 30, no. 2: 245-266.

Kaufman, G. & Uhlenberg, P. (2000). The Influence of Parenthood on the Work Effort of Married Men and Women. Social Forces, vol. 78, no. 3. 931-949.

Keeley, M.C (1977). The Economics of Family Formation. Economic Inquiry, vol. 15: 238-250.

Kenny, L. W. (1983). The Accumulation of Human Capital During Marriage by Males. Economic Inquiry, vol. 21: 223-231.

Killewald, A. (2012). A Reconsideration of the Fatherhood Premium: Marriage, Coresidence, Biology, and Fathers' Wages. American Sociological Review, vol. 3: 96-116.

Korenman, S. and Neumark, D. (1991). Does Marriage Really Make Men More Productive?. The Journal of Human Resources, vol. 26, no. 2: 282-307.

Koslowski, A. S. (2000). Working Fathers in Europe: Earning and Caring. European Sociology Review, vol. 27, no. 2: 230-245.

Loughran, D. S. and Zissimopoulos, J. M. (2009). Why Wait? The Effect of Marriage and Childbearing on the Wages of Men and Women. Journal of Human Resources, vol. 44, no. 2:326-349.

Lundberg, S. and Rose, E. (2000). Parenthood and the earnings of married men and women. Labour Economics, vol. 7, pp. 689-710.

Lundberg, S. and Rose, E. (2002). The Effects Of Sons and Daughters on Men's Labor Supply and Wages. The Review of Economics and Statistics, vol. 84, no. 2:251-268.

Nakosteen, R. A. and Zimmer, M. A. (1987). Marital Status and Earnings of Young Men: A Model with Endogenous Selection. The Journal of Human Resources, vol. 22, no. 2: 248-268.

Rice, T. W. and Coates, D. L (1995). Gender Role Attitudes in the Southern United States. Gender and Society, vol. 6, no.9: 744-756

Stiglitz, J. E. (1975). The Theory of "Screening," Education, and the Distribution of Income. The American Economic Review, vol. 65, no. 3: 283-300.

Stryker, S. (1968). Identity Salience and Role Performance: The Relevance of Symbolic Interaction Theory for Family Research. Journal of Marriage and Family.

Data:

Bureau of Labor Statistics, U.S. Department of Labor. National Longitudinal Survey of Youth 1979 cohort, 1982-1998(rounds 4-18). Produced and distributed by the Center for Human Resource Research, The Ohio State University. Columbus, OH: 2012

Appendix

Descriptive Statistics – Pooled 1982-1998

	All	North East	North Central	South	West	Urban	Rural
Race							
Hispanic	17.31	15.80	4.69	13.03	42.25	20.40	5.85
Black	26.87	24.50	20.11	40.17	11.48	28.91	19.33
White	55.82	59.70	75.19	46.81	46.27	50.70	74.81
Age (in years)	28.38	28.21	28.43	28.35	28.52	28.37	28.39
	(0.02)	(0.05)	(0.04)	(0.04)	(0.05)	(0.02)	(0.05)
Marital Status							
Never Married	42.92	51.54	41.00	40.93	41.18	45.59	33.00
Married	46.00	39.75	49.14	46.33	47.30	43.48	55.35
Separated	3.81	4.05	2.57	4.54	3.69	3.80	3.87
Divorced	7.10	4.64	7.16	7.94	7.65	7.02	7.39
Widowed	0.17	0.02	0.13	0.25	0.18	0.11	0.39
Children							
0	60.82	66.42	58.70	60.26	59.34	62.86	53.26
1	15.88	15.16	15.49	16.79	15.23	15.13	18.66
2	15.18	12.75	16.35	15.55	15.26	14.19	18.85
3+	8.12	5.67	9.46	7.40	10.17	7.83	9.23
Education (in	12.47	12.64	12.67	12.29	12.43	12.59	12.02
years)	(0.01)	(0.02)	(0.02)	(0.02)	(0.02)	(0.01)	(0.02)
No HS Diploma	19.82	18.19	15.88	22.59	20.74	18.86	23.39
High School	48.28	48.13	52.59	47.76	44.23	47.00	53.05
Some College	16.99	16.07	14.74	16.22	22.03	17.82	13.87
College	10.48	12.56	12.14	9.42	8.61	11.49	6.75
College+	4.43	5.05	4.66	4.01	4.38	4.83	2.93
Experience (in	10.91	10.57	10.76	11.06	11.09	10.78	11.36
years)	(0.02)	(0.05)	(0.04)	(0.04)	(0.05)	(0.02)	(0.05)
Work Hours							
<10 h/wk	72.21	7.32	8.37	6.36	6.92	7.17	6.98

10-35 h/wk	20.66	19.74	20.47	20.73	21.60	20.81	20.08
35+ h/wk	72.21	72.94	71.15	72.92	71.48	72.02	72.93
Spouse Work Hours							
<10 h/wk	11.85	13.36	10.93	10.69	13.96	12.12	11.05
Part-Time (<35 h/wk)	19.96	19.57	25.76	16.20	20.34	19.68	20.81
Full-time (≥35 h/wk)	68.19	67.07	63.32	73.01	65.71	68.20	68.13
Specialization*							
Agree	40.38	36.63	38.91	42.77	40.99	39.36	44.15
Disagree	59.62	63.37	61.09	57.23	59.01	60.64	55.85
Attendance**							
No Attendance	30.05	33.65	28.26	27.50	33.82	29.19	33.27
Several Times/year	40.84	43.15	42.02	38.72	41.34	41.30	39.13
Several Times/ Month	29.11	23.20	29.71	33.78	24.84	29.52	27.61
N***	52,449	9,511	12,524	20,059	10,355	41,313	11,136

Table 7: Descriptive Statistics, Pooled 1982-1998. Author's calculations using a modified sample of the NLSY79 (www.bls.gov/nls/nlsy79.htm)

* Agree/disagree to the statement "woman's place is in the home, not office or shop". Observations for 1982.

** Religious attendance. Observations for 1982.

*** Includes individuals with less than two years of observations in the 1982-1998 period. These individuals are not included in the statistic analysis.

Mean Wages, Pooled 1982-1998

In dollars and cents, not adjusted for inflation. Standard deviations in parentheses

	All	Urban	Rural	North East	North Central	South	West
All	1013.853	1041.931	910.263	1114.914	1008.796	919.769	1111.869
	(3.249)	(3.722)	(6.505)	(8.404)	(6.270)	(4.852)	(7.880)
Married	1195.252	1248.997	1038.634	1367.174	1185.792	1081.871	1291.588
	(5.244)	(6.186)	(9.529)	(14.910)	(9.355)	(8.084)	(12.246)
Children	1185.793	1230.377	1054.518	1359.877	1195.891	1068.754	1266.560
	(5.766)	(6.829)	(10.407)	(16.666)	(10.340)	(8.883)	(13.245)
Married with children	1224.096	1277.970	1074.279	1422.699	1226.120	1105.954	1305.551
	(6.310)	(7.523)	(11.168)	(18.958)	(11.106)	(9.785)	(14.275)
Married with children, spouse works full-time	1166.327	1212.467	1042.800	1324.459	1171.159	1072.526	1282.075
	(7.828)	(9.355)	(13.849)	(25.788)	(15.650)	(10.646)	(19.126)
Married with children, spouse works part-time	1357.944	1406.771	1223.351	1489.961	1342.164	1228.184	1493.100
	(16.624)	(19.706)	(30.319)	(42.118)	(25.367)	(31.034)	(41.504)
Married with children, spouse doesn't work	1330.734	1409.813	1078.960	1602.292	1314.449	1171.395	1373.279
	(20.265)	(24.297)	(32.007)	(54.757)	(34.601)	(35.121)	(39.910)

Table 8: Mean Wages. Calculated by author using a modified sample of the NLSY79 (www.bls.gov/nls/nlsy79.htm