

# Mama's Boys and Nature's Girls: Explaining Differences in Risk Attitudes Between Women and Men

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## Abstract

Extensive research shows that men report greater enjoyment and excitement from taking risks than do women. What remains to be answered is why women seem to exhibit risk attitudes that are less aggressive than men. In this paper, we apply aspects of power-control theory (PCT) as a theoretical foundation for explaining generalized risk-taking attitudes among women and men. We investigate the role of socialization from mothers in shaping the risk attitudes of their children. Using data from the NLSY, mothers were found to have little influence on the risk attitudes on daughters, although mothers' SES may impart a profound influence on sons' risk tolerances. It was also noted that children's personality trait profiles were positively associated with their risk attitudes although the effects for boys differed from those of girls.

**Index terms**— risk attitudes, gender, power control theory, socialization.

## 1 I. Introduction

Individuals tend to be driven by two goals when addressing their personal financial situation (Wakita, Fitzsimmons, & Liao, 2000). First, individuals are motivated to maintain or improve their level of living. Second, individuals strive to maintain or increase their financial security. Increasing net worth and income through investing is an obvious method for meeting both goals (Finke & Huston, 2003). The pursuit of increased income, wealth, and overall financial well-being generally entails making financial decisions under risk or uncertainty (Chaulk, Johnson, & Bulcroft, 2003). Much of the academic literature shows that women tend to be less risk tolerant than men ?? Yao & Hanna, 2005). That is, men report greater enjoyment from taking risks and they describe preferences for engaging in behavior that is exciting. Such differences, as described by Neelakantan (2010), may help explain the divergence in wealth accumulation by women and men over the lifespan. Because women tend to shy away from risk taking they may position their portfolio choices in assets that Authors ?, ?, ?, ¥ : Kansas State University. Authors ? : Kansas State University. E-mail : provide low risk-adjusted returns, and as such, accumulate less wealth over their lifetimes. This descriptive observation of behavioral outcomes is generally well known. What still remains to be answered is why women seem to generally exhibit risk attitudes that are less aggressive than men.

One reason for this gap in the literature is that the global study of personal risk taking has been driven primarily by questions directed at understanding individual differences in risk attitudes, as proxied by risk tolerance and its inverse, risk aversion. Specifically, nearly all studies that have been designed to investigate aspects of risk taking, including those that examine the determinants of risk attitudes, have been framed in a descriptive manner. That is, researchers have spent the past 20 or more years searching for and describing the demographic, socioeconomic, and psychosocial factors associated with a person's willingness to engage in behaviors that entail potential gains and losses (Grable, 2008). Research showing gender, socioeconomic, and age differences in risk attitudes, for example, have helped to establish baseline measures of risk tolerance that are widely used by practitioners and educators, as well as by those looking at issues from an academic perspective.

Interestingly though, very little empirical work exists to help explain individual differences in risk attitudes. Consider again gender differences in risk tolerance. Nearly every published study over the past quarter century that has dealt with an examination of how women and men conceptualize risks, both financial and otherwise, has shown women to be less risk tolerant than men. There have been generalized attempts to couch such differences in theory but with little success. In the end, the debate has come down to one of physiological versus socialization accounts of risk differences, with groups of researchers falling back on these preconceived notions to account for risk differences.

Those who champion a physiological explanation of gender differences in risk attitudes do so by concluding that socialization conceptualizations show few statistically significant patterns of being linked with the formation of risk attitudes. Consider a noteworthy study by Miller and Stark (2002). They were interested in explaining why women tend to be more risk aversion, and using gender-focused attitudinal measures of socialization, concluded that these factors were not associated with a person's propensity to take risk. Almost by default, Miller and Stark, and others as well (e.g., Cross, Copping, & Campbell, 2011; Nolen-Hoeksema & Hilt, 2006), concluded gender differences in risk tolerance are more closely associated with biological differences rather than be driven primarily by socialization forces.

Until recently, those who opposed the physiological explanation of gender differences in risk attitudes were challenged to document the role of environmental factors in shaping a person's willingness to take risks. There have been few theoretically based explanations of gender differences in risk tolerance based strictly on socialization theory, although gender orientation and gender role socialization have been proffered as explanations. Instead, researchers have most often documented gender differences, acknowledged that differences might be physiological, but then concluded that it is equally likely that socialization-type variables are apt to play just as an important role in shaping attitudes. These papers typically end with an encouragement for future authors to incorporate additional socialization measures in their studies to help support the socialization argument.

Those facing this explanatory problem are not constrained to just a few academic disciplines. Researchers in nearly every field of social science have noted a tendency among women to exhibit less risk tolerance (Arch, 1993; Yao & Hanna, 2005). In some fields, such as religiosity and society, there has been a move toward explaining such differences as purely physiological (Miller & Stark, 2002). Yet, in other disciplines, new theory has been developed that explains gender differences as a form of socialization. Hagan, Gillis, and Simpson (1985/1990), working in the sociology field on juvenile delinquency issues, developed power-control theory (PCT) as a tool to move beyond purely descriptive observations of gender differences in adolescent delinquency to explaining disparities. Since that time PCT has been used in a wide variety of contexts. For example, Collett and Lizardo (2009) borrowed from PCT to show that the biological explanation for differences in religiosity, as noted by Miller and Stark, may not be as robust as previously thought. Their work showed that PCT might be applicable beyond providing a framework for purely sociological questions.

In this paper, we apply aspects of PCT as a theoretical foundation for explaining generalized risktaking attitudes among women and men. Physiological manifestations of gender differences in risk attitudes are also tested. In the following section we outline the basic concepts and tenets of PCT. This is followed by a review of the role psychosocial and physiological characteristics play in explaining risk attitudes.

## 2 II. Theoretical Background a) Power Control Theory

Traditional socialization and gender-role theory posits that women and men receive disparate cues from family, friends, and society in relation to how they should act in society. Gender training begins, within this theoretical conceptualization, at the earliest of ages and continues throughout the lifespan. Interestingly, the empirical evidence and broad generalizability of socialization and gender-role theory has been somewhat fragmented. PCT is a socialization theory but different in its focus. A key concept within PCT is that gender differences are shaped at the household level through family structure. Specifically, households can be categorized along a patriarchal/egalitarian spectrum. Originally, PCT was used to classify households based on comparing the relative power of husbands and wives within a household. Families in which a mother's role is primarily involved in managing the home or in situations where the mother's education and occupational status is lower than her husband were classified as unbalanced and patriarchal. Within this context, child socialization is assumed to be delegated to mothers, with girls being socialized to take few risks and to adopt conservative social norms (Leiber & Wacker, 1997).

Several concerns have been raised in the literature regarding the core assumptions of PCT. A primary issue involves households where only one parent—usually a mother—is concerned with the day-to-day activities of the household. By definition, single mother households are considered to be "balanced" and more egalitarian in nature, resulting in relaxed gender-role socialization for children raised in these households. The empirical evidence supporting this assumption has been mixed. As a result, recent tests of the theory have tended to focus more broadly on the role of the mother in shaping the attitudes and behaviors of her children through her power in the household, regardless of marital status, rather than simply on the relationship of power between a husband and wife (Leiber & Wacker, 1997).

In terms of the patriarchal/egalitarian continuum, power and control can be proxied by a mother's socioeconomic status (SES). Mothers who exhibit higher occupational prestige and high attained education can be classified as being more egalitarian or balanced. On the other hand, mothers with low occupational

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prestige and low education levels represent what is defined as being patriarchal or unbalanced in PCT. In the context of this study, daughters raised in households that are more patriarchal in focus are predicted to be less risk tolerant (more risk averse). This stems from the tendency of

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Year mothers in patriarchal (i.e., unbalanced) households to dominate their children (particularly girls). Such domination on the part of mothers may be associated with the mother's belief that she must exert control over her children's actions to fit a model of traditional gender norms. If PCT works in explaining the origins of risk attitudes, there should be risk-tolerance differences associated with a mother's SES. Children from households that are more egalitarian (i.e., the mother has high educational achievement and occupational prestige) should be more risk tolerant than children raised in patriarchal (unbalanced) households.

Proponents of PCT, as an explanatory theory of risk attitude development, do not dismiss the possibility that risk attitudes are potentially trait related. Rather, PCT supporters argue that the family dynamic, as an environmental force, probably plays a much more important role in shaping risk attitudes. This is particularly true for girls, although the theory is not precisely clear why the effect is greater for girls. Collett and Lizardo (2009, p. 216) summarized the theory this way: "The core of the theory is an assumption about the link between socially structured power relations outside of the household and variations in the social control of sons and daughters within the household." Girls raised in a patriarchal home are predicted in PCT to act more passively and take on risk avoidance preferences. Boys, on the other hand, are predicted to exhibit risk-taking attitudes. The outcome for girls stems from two phenomenon. First, parents in patriarchal households tend to encourage risk taking among their sons, while sheltering their daughters from real and assumed risks. Second, mothers in homes where there are socioeconomic power imbalances tend to exert control over their daughters, passing along gender norms that suggest risk aversion is a positive character attribute.

As suggested above, recent restatements of PCT have focused almost entirely on the mother's role as the primary agent of socialization. It has long been known that a mother's SES plays a key role in shaping family behavior (Green, 1970). Recent research suggests that the agency effect of the mother is greatest for girls. McCarthy, Hagan, and Woodward (1999) noted that girls raised in homes where the mother's SES was dominant were more willing to take risks, and that the level of risk attitudes for girls raised this way came close to matching that of boys brought up in the same type of household. McCarthy and his associates suggested that mothers with high SES may act to actually lower their sons' preference for risk. Based on key concepts of PCT, we anticipated test results to match the following hypotheses: H 1 : Children of high socioeconomic mothers will exhibit risk attitudes that are greater than other children; H 2 : Mothers' SES will have a more pronounced effect on the risk attitudes of girls than boys; and H 3 : Mothers' SES, compared to the physiological traits of children, will be more directly related to the risk attitudes of children.

### 4 b) Predisposing Personal Factors and Risk Attitudes

Even among the most ardent supporters of PCT, as well as socialization theorists, there is tacit acknowledgment that risk attitudes may be shaped by factors associated with an individual (Collett & Lizardo, 2009). In 1993, for example, Irwin presented a model of risk-taking attitudes and behaviors. Irwin concluded that there are a number of predisposing factors that influence risk-taking attitudes among adolescents. A later research study conducted by Grable & Joo (2004) adapted and simplified Irwin's risk-taking behavior model by testing only predisposing factors as determinants of risk-tolerance attitude. They noted that

### 5 III. Methodology a) Data

Pooled data from the National Longitudinal Survey of Youth 1979 cohort (NLSY) and the NLSY Child Survey were used to test the conceptual framework and associated hypotheses. Sponsored by the U.S. Department of Labor, the NLSY is a multi-purpose panel survey that originally included a nationally representative sample of 12,686 men and women who were all 14 to 21 years of age on December 31, 1978. The survey originally included substantial oversamples of African-American, Hispanic, economically disadvantaged white, and military youth, although in later surveys the latter two oversamples have been largely deleted from the main sample. The remaining sample, however, retains its national representation.

From 1978 through 1993 participants were interviewed annually. Beginning in 1994 a biennial interview mode has been used. Starting in 1986, the children of NLSY female respondents were interviewed and assessed every two years. Since 1988, children age 10 and over have completed personal interviews about a wide range of their schooling, family, peer-related and other attitudes and behaviors. As of the 2008 interview round, the NLSY women had attained the ages of 43 to 51. The children of these female respondents are estimated to represent over 90 percent of all the children ever to be born to this cohort of women. Starting in 1994, children who had reached the age of 15 by the end of the survey year were no longer assessed. Instead these respondents completed personal interviews akin to those given to their mothers during late adolescence and into adulthood. A total of 11,466 children have been identified as having been born to the original 6,283 NLSY female respondents. In this analysis, data from 3,088 males and 3,139 females was used. Missing data were replaced in the analysis using

## 7 E) INDIVIDUAL CHILD CHARACTERISTICS

estimated means and intercepts. A child's risk attitude was hypothesized to be comprised of the following three items: (a) enjoys taking risks, (b) enjoys new and exciting experiences even if they are frightening, and (c) feels life without danger is dull. Each item was scored as follows: 1 = strongly disagree; 2 = disagree; 3 = agree; 4 = strongly agree. An exploratory factor analysis was conducted to test the underlying validity of the measure. A principal components factor analysis, using varimax rotation, showed that the three items explained the one factor latent variable. The KMO sampling adequacy was estimated to be .66, while Bartlett's sphericity was significant at the  $p < .001$  level. Scores from each item were summed into a risk-attitude scale. Scores on the measure ranged from 3 to 12, with higher scores representing elevated risk tolerance (low risk aversion). The mean and standard deviation for the variable was 7.06 and 1.59, respectively. The final risk attitude measure was then used as the outcome variable in an OLS regression.

### 6 c) Parent's SES

As postulated in PCT, a mother's SES was predicted to influence the risk attitudes of her children.

Traditionally, SES has been measured using one or a combination of the following: (a) income, (b) education, and (c) occupational prestige. Because of the highly interrelated nature of these characteristics, many researchers choose one variable as a proxy for SES. Income and education are typical choices for measuring SES. The downside to using one of these two measures is, either individually or jointly, the loss of the social status provided through a person's occupation. In order to account for occupational prestige, a slightly different, but more established, measurement procedure was employed in this study. A two-factor measure of social status, based on Barratt's (2011) Simplified Measure of Social Status (BSMSS), was calculated for each mother. This measure of SES was, itself, based on the work of Hollingshead (1975).

The education level for each mother as of 2008 was recoded. Within the NLSY education is measured in years, ranging from 1 to 20. Education was recoded into one of seven categories, with each category receiving an index score. Higher scores correspond to increased attained education. The categories and scoring for education are shown in Table 1. Beginning in 2004, all occupations and industries in the NLSY were coded with the Census 4digit, NAICS-based codes. The industry and occupational codes are quite extensive. Basically, each job typically performed in the United States has a code associated with the activity. Codes range from 10 to 9990; however, the coding is not intuitive or ranked in terms of status. Because of this, since the 1940s, sociologists have provided guidelines for converting Census Bureau occupational codes into ordinal prestige scores. The approach employed here follows standard coding procedures. Table 2 shows how each occupational code was recoded to match the occupational prestige rankings used by Barratt (2011).

The final SES measure for mothers that was incorporated into the analyses was created by adding together each mother's educational and occupational prestige score. Scores ranged from 8 to 66, with a mean and standard deviation of 40.35 and 15.98, respectively. Mothers with the highest SES were denoted with high scores on the summated variable.

A similar SES measure was created for fathers. The range of SES scores was 7 to 66. The mean father SES was 33. Respondents who answered yes were then asked to answer question 2. Those who responded negatively were then asked question 3.

2. Suppose the chances were 50-50 that it would double your (family) income, and 50-50 that it would cut it in half. Would you still take the new job?

Those who answered no to question 2 were asked the following question : Suppose the chances were 50-50 that it would double your (family) income and 50-50 that it would cut it by 20 percent. Would you then take the new job? Risk scores were calculated by classifying those who answered no to questions 1 and 3 as having very low risk tolerance (or high risk aversion). Respondents who answered no to questions 1 and yes to 3 were classified as having low risk tolerance. Those who answered yes to questions 1 and no to 2 were categorized as exhibiting moderate risk tolerance. Finally, respondents who answered yes to questions 1 and yes to 2 were considered to have high risk tolerance. Given the ordinal nature of the variable, four dichotomously coded risk measures were created, so that respondents were categorized as (a) very low risk tolerant, (b) low risk tolerant, (c) moderate risk tolerant, or (d) high risk tolerant. The first three categories were used in the regression analysis, with high risk tolerant as the omitted category.

## 7 e) Individual Child Characteristics

As discussed in the review of literature, there are a number of predisposing factors that are known to influence risk choices and attitudes. Several of these variables for the children respondents were included as covariates in the analysis. Sex was coded as males 1 and females 2. The sample was nearly evenly split between males and females. Income was measured by asking how much each respondent received from wages, salaries, commissions, or tips from all job before deductions for taxes or anything else. The mean response was \$14,265 (SD = \$17,899). Race was measured in the NLSY by classifying respondents as Hispanic, Black, or Non-Black, Non-Hispanic. The Hispanic and Black variables were included in the analysis with Non-Black, Non-Hispanic being the omitted category. Approximately 22% of respondents indicated being Hispanic. Thirty-five percent reported being Black. Forty-three percent reported being Non-Black, Non-Hispanic. The marital status of respondents was coded as 1 if married, otherwise 0. Approximately 14% of child respondents indicated being married. This low percentage is

not surprising. The average age of the children was 23.16 years ( $SD = 4.86$  years). [Note: age was excluded from the analysis because of its high correlation ( $r = .86$ ) with education.] Education was measured by asking the highest grade completed by a respondent. Answers could range from none to eighth year in college. On average, respondents indicated completing 12<sup>th</sup> grade. Household size was assessed by asking the number of people living in a respondent's household. The mean response was 3.48 persons ( $SD = 1.57$ ). The first hypothesis stated : Children of high socioeconomic mothers will exhibit risk attitudes that are greater than other children. Support for the hypothesis was noted. Hypothesis 3, which stated that mothers' SES, compared to the physiological traits of children, will be more directly related to the risk attitudes of children, was not accepted. The effect of a child's personality on risk attitudes was nearly six times the effect of mother's SES (.38 from the 2nd column in Table 6). In order to address Hypotheses 2, 5, and 7, the conceptual framework was tested using (a) data from daughters only and (b) data from sons only. Figure ?? shows the results from the daughter's only test, whereas Figure ?? shows the son's only specified model.

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## 9 IV. Results

## 10 V. Discussion

Gaining a better understanding of attitudinal differences-particularly in the domain of risk taking-between women and men is critical for several reasons, particularly within the context of household financial decision making. First, portfolio decisions play an important role in helping individuals improve their level of living while also increasing financial security. Yao and Hanna (2005) argued that individuals and households that exhibit risk-aversion attitudes may have difficulty in meeting their financial goals. This might help explain why women, in general, accumulate less wealth over their lifespan than men (Jianakoplos & Bernasek, 1998). Second, providing insights into why women and men differ in relation to risk-taking attitudes can add to the ongoing discussion related to the physiological versus socialization debate or what is known as the question of nature versus nurture (Bajtelsmit & Bernasek, 1996 Year decisions (Brehmer, 1994) with respect to the way women and men are encouraged to earn, save, and spend for daily financial wants and needs. Finally, studies designed to evaluate gender differences in risktaking attitudes provides a mechanism to test and develop theory that can be used to explain such differences.

In terms of this paper's primary purpose, this study provides only partial support for PCT as a tool for explaining gender differences in risk-taking attitudes. Mother's SES had a positive association with risk attitudes when daughters and sons were included in the same model. However, counter to PCT, when daughters were tested separately, mother's SES was not significantly associated with risk attitude. Nor was a mother's psychosocial profile. On the other hand, and again contrary to PCT, mother's SES and psychosocial profile was significantly associated with the risk attitudes of sons.

The conclusions from this study add to the existing body of literature in a number of ways. First, results suggest that the shaping of risk attitudes is likely not an either-or choice between physiology and socialization. Instead, the role of physiology may be greater for women than it is for men. On the other hand, the role of a son's mother in shaping risk attitudes through socialization processes appears quite strong. Is it possible that what drives the risk attitude of women is different than that of men? The results from this study suggest that this is the case.

In summary, this study demonstrates the affect mothers have in shaping the risk attitudes of their children. Daughters tend to develop risk attitudes independently but sons may be strongly influenced through the socialization process of their mothers. The children may be largely unaware of their own predispositions. Financial service professionals are encouraged to review a client's family history to better understand their client's risk attitudes. Policy makers also need to consider family composition and particularly mothers' status in formulating policy intending to influence saving behaviors. Finally, as the results from this study suggest, researchers have yet another variable to consider when examining risk tolerance issues. a) Limitations and Future Directions While the findings from this research are noteworthy, it is important to take note of limitations associated with this study. For instance, although the data were nationally representative of the U.S. population, there is a potential problem associated with missing data. In order to run a variance-covariance matrix within a structural equation model, it was necessary to estimate some missing variable means and intercepts. Further replications of the research, using different datasets and structural equation approaches, may result in results that differ from those reported here. Additionally, given the way data were collected from children, information about a father's education, occupation, and psychosocial profile were limited. It is recommended that future studies consider testing the role of a father's SES on a child's risk attitude. The inclusion of father data will provide a more complete picture of PCT as a tool to help explain gender differences in risk taking. Finally, additional research is needed to gain a more full understanding of the factors associated with gender differences in risk attitudes. The development of a theoretical framework to explain such gender differences is very much needed. This paper helps



Figure 1: Mama’ s

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Level of School Completed	Score	
Less than 7	th	3
Junior high / Middle school (9 th grade)	grade	6
Partial high school (10	th	9
	or	th
	11	grade)
High school graduate		12
Partial college (at least one year)		15
College education		18
Graduate degree		21

Figure 2: Table 1 :

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Figure 3: Table 2 :

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	Child Sex	Child Race (Black)	Child Race (Hispanic)	Child Education	Child Household Size	Child Income	Child Marital Status (1 = Married)	Mother's Very Low Risk Tolerance	Mother's Low Risk Tolerance	Mother's Moderate Risk Tolerance	Mother's Not SES
Child Sex	1.00										
Child Race (Black)	.07	1.00									
Child Race (Hispanic)	.02	-.33 c	1.00								
Child Education	.09	.04	-.04	1.00							
Child Household Size	.02	-.04	.11 a	-.15	1.00						
Child Income	-.03	-.08	-.03	.48 c	-.09	1.00					
Child Marital Status (1 = Married)	.07	-.04	-.03	.06	.03	.23 c	1.00				
Mother's Very Low Risk Tolerance	.00	.01	-.04	.05	.02	.03	-.07	1.00			
Mother's Low Risk Tolerance	.03	-.18 b	.09	-.02	-.03	.00	-.02	-.42 c	1.00		
Mother's Moderate Risk Tolerance	.05	.02	-.02	-.10	.05	-.03	.15 b	-.49 c	-.14 b	1.00	
Mother's SES	.07	-.05	-.16 b	.15 b	-.12 a	.08	.08	.19 b	-.03	-.16 b	1.00
Father's SES	-.07	-.01	-.10	.08	-.06	-.04	-.04	-.01	-.03	-.01 c	.37 c

Figure 4: Table 3 :

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Notes : a =  $p < .05$ ; b =  $p < .01$ ; c =  $p < .001$  in Global Journal of Human Social Science standardized direct effect of the association is reported

Figure 5: Table 6 (

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Variable	b	Mother SES		Father SES		
		Std. Error	?	b	Std. Error	?
Child Sex	-0.56	0.05	- 0.18***	-0.31	0.19	-0.10
Child Race (Black)	-0.72	0.06	- 0.22***	-0.43	0.21	-0.13*
Child Race (Hispanic)	-0.12	0.07	-0.03	0.22	0.25	0.05
Child Education	-0.07	0.01	- 0.11***	-0.08	0.06	-0.02
Child Household Size	-0.04	0.02	-0.04*	-0.02	0.06	-0.02
Child Income	-	0.00	-.01	-	0.00	-0.01
Child Marital Status (1 = Married)	3.787E -0.38	0.08	- 0.09***	4.089E- -0.65	1.65	-0.02
Mother's Very Low Risk Tolerance	-0.10	0.07	-0.03	-0.11	0.26	-0.04
Mother's Low Risk Tolerance	-0.07	0.10	-0.01	-0.31	0.36	-0.06
Mother's Moderate Risk Tolerance	-0.17	0.09	-0.04	-0.52	0.33	-0.11
Mother's SES	0.01	0.01	0.06**	0.01	0.01	0.04
Constant	9.19	0.20		8.81	0.79	
	F 11,3694 = 88.65, p < .001; R 2 = .10			F 11,305 = 3.95, p = .10; R 2 = .02		

Figure 6: Table 4 :

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Boys

Girls

Figure 7: Table 5 :



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282 establish baseline documentation that can be used by others in the development of new explanatory models and  
283 theories. <sup>1 2 3</sup>

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- however, that data were incomplete for many cases. This was the result of asking children to indicate the level of education held by their fathers.
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