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Intergenerational transfer of time and risk preferences

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ABSTRACT

There is a growing interest in individual time and risk preferences. Little is known about how these preferences are formed. It is hypothesised that parents may transmit their preferences to their offspring. This paper examines the correlation in offspring and parental time and risk preferences using data from an annual household survey in Australia (the HILDA survey). Both time and risk preferences are examined and we explored whether the correlation in time and risk preferences varies across the distribution of preferences and across the across the four parent–child dyads (mother/daughter, mother/son, father/daughter, father/son). The results show that there is a significant relationship between parents and their young adult offspring risk and time preference measures. The correlation varies across the distribution of time preferences. The correlation was largest for longer planning horizons. Risk averse parents are more likely to have risk averse children. Except for the father/daughter dyad risk seeking parents are more likely to have risk seeking offspring. Some gender differences were found. The association in parental and offspring time preference was larger for mothers than fathers. Daughters are more likely to be influenced by their mother's risk preferences, however, sons are equally influenced by both parents. The results of this study suggest that the transmission in preferences is more nuanced than previously thought and parental gender may be important.

1. Introduction

Time and risk preferences are key parameters in economic models determining consumption and savings over the lifecycle. They play an important role in an individual's decision to invest in education, pensions, health, etc. Risk and time preference were originally thought of as fixed parameters. Empirical evidence suggests that time and risk preferences vary considerably between individuals (Barsky, Kimball, Juster, & Shapiro, 1997; Frederick, Loewenstein, & O'Donoghue, 2002). This has also been shown within the psychology literature with respect to related concepts such as time perspective, delay of gratification, risk taking propensity and attitudes to risk taking. These empirical findings suggest that the notion of risk and time preference as fixed parameters needs to be revised. This has led to increased interest by economists in how risk and time preferences are formed and how they evolve over the lifecycle.

Little is known about how preferences are formed. Individuals may be born with innate time and risk preferences and/or preferences may be learned. There is some evidence that preferences are determined by the genetic makeup of the

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individual. For example, Carpenter, Garcia, and Lum (2011) show that certain genotypes are associated with time and risk preferences. However, evidence shows that preferences vary over the lifecycle which suggests that preferences may be endogenous (Camerer & Loewenstein, 2004). Becker and Mulligan (1997) develop a model of endogenous time preferences to understand how parents may influence their offspring's time preferences other than through genetics. In this model individuals can invest resources to make future consumption seem less remote. They do this because they are aware that heavy discounting of the future is undesirable. Resources include time and effort spend appreciating future consumption but also the purchase of precommitment devices such as Christmas Clubs. In this model parents can influence offspring time preference by investing resources in teaching their children to better plan for the future. This framework can be extended to risk preferences in that individuals can invest resources to become more risk averse. Parents can influence their offspring risk preferences by investing resources in teaching them to be more risk averse.

In this paper we are interested in the transmission of preference parameters from parents to their offspring. It is acknowledged that this may occur through both genetic inheritance and learning. There is limited empirical evidence of intergenerational transfer of time and risk preferences. Four previous studies have examined correlations in time preference between parents and their offspring all using relatively small sample sizes and using a range of different measures of time preference including future orientation, saving residuals and rate of time preference. Webley and Nyhus (2006) used data from three waves of the DNB household survey to examine whether parents and children's' future orientation is correlated (n = 308 children aged 16–21). Future orientation could be argued to be related to the concept of time preference. A significant correlation of 0.28 was found between father and children future orientation and 0.31 was found between mother and children's future orientation. Knowles and Postlewaite (2005) investigated correlations in time preference (saving residuals) between parents and their children using data from the Panel Study of Income Dynamics (PSID) ($n\sim$1300 aged 1–25). They find a significant correlation in saving residuals which ranges from 0.11 to 0.22 depending upon the model specification. Reynolds, Leraas, Collins, and Melanko (2009) estimated correlations in time preference rates between mothers and their offspring in a small sample (n = 30 children aged 12–13). They found a correlation of 0.29 in time preference rates but the correlation was not statistically significant. Kosse and Pfeiffer (2012) examined correlation between time preference rates in mothers and delay of gratification in pre-school children (n = 213 preschool children). A significant correlation was found in case of a short term (6-month) time preference rate (ranging from 5.2 percentage points to 6.8 percentage points depending upon the model specification) but longer term (12 months) time preference rate did not have a significant effect on child's impatience.

A similar number of studies have examined correlations in risk preferences between parents and their offspring. Dohmen, Falk, Huffman, and Sunde (2012) investigated the intergenerational transmission of risk preferences measured using a general question regarding willingness to take risk from the German Socio-Economic Panel (n = 3595 children aged 17–54). The results show that risk preferences of parents and their children are significantly correlated (0.149 for mothers and 0.153 for fathers). Hryshko, Luengo-Prado, and Sorensen (2011) and Charles and Hurst (2003), using similar analyses and similar data (PSID), found that risk preferences, measured using a gamble with different levels of lifetime income, were correlated but at the more extreme end of the distribution only (n = 583 children). Hrysko et al. show that risk seeking parents are 13% less likely to have children that are risk averse. This result is very similar to that found in Charles and Hurst (2003), however they also find a significant correlation for risk aversion between parents and offspring ranging from 0.123 to 0.154 depending upon the controls included in the model. Allowing for measurement error, Kimball, Sahm, and Shapiro (2009), also using the PSID find significant correlations in risk preference of 0.23 between mothers and their children and 0.14 between fathers and their children. Arrondel (2013) is the only study that considered both risk and time preferences. Risk and time preferences were measured using a score based on a series of questions on risk taking behaviour (e.g. whether the individual gambles) and time preference (e.g. whether sacrifice today in order to live longer). Using French data, statistically significant raw correlations of approximately 0.25 for both measures (n = 440 children who were on average aged less than 34 and parents who were on average 59 years old). However, once controls were included in the analysis the correlations were no longer symmetric. The elasticity in parent and offspring risk preference is 0.277 and was 0.122 in parent and offspring time preference.

The empirical studies show a modest correlation in time and risk preferences between parents and their offspring. However, all studies apart from Webley and Nyhus (2006) are cross sectional analyses and several studies have small sample sizes. This paper investigates the correlation in parental and offspring time and risk preferences using data on a larger sample with proxies of time and risk preference across several waves. The availability of panel data allows us to control for unobserved heterogeneity, i.e. both unobserved time invariant genetic factors and unobserved time varying factors impacting on the correlation in parental preferences. The availability of a larger sample and the availability of data on all members of the household also allows us to examine the correlation in parental and offspring preferences across the four parent–child dyads (mother/daughter, mother/son, father/daughter, and father/son). Gender may have a powerful and persuasive relationship within the family. This includes distinctness in terms of the characteristics of the relationship such as the content and style of interactions. Research has shown that fathers are more likely to be involved with male offspring and mothers with female offspring (Harris & Morgan, 1991; Younis & Smollar, 1985) and that affective intensity is strongest across same gender lines (Steinberg, 1987). The extent of interaction and the intensity of the relationship is likely to have an influence on the transmission of preferences. It is therefore important to explore whether the correlation in time and risk preferences varies across the four parent–child dyads (mother/daughter, mother/son, father/daughter, and father/son). It is hypothesised that the transmission of preferences is strongest along the same gender lines. This is to our knowledge the first study to examine the correlation in time and risk preferences across the four parent–child dyads. We also explore whether the correlation varies across the distribution of preferences. For example, it may be the case that risk preferences are correlated at the extreme