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# Intergenerational transmission of risk attitudes – A revealed preference approach



Sarah Necker a,b,\*, Andrea Voskort c

- <sup>a</sup> University of Freiburg, Platz der Alten Synagoge, 79085 Freiburg, Germany
- <sup>b</sup> Walter Eucken Institute, Goethestr. 10, 79100 Freiburg, Germany
- <sup>c</sup> BaFin (Federal Financial Supervisory Authority), 53117 Bonn, Germany

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#### ABSTRACT

This study investigates whether children and parents show a similar willingness to take risk in their choice of occupation. Using data from the German Socio-Economic Panel, we calculate the occupational variation in earnings unexplained by human capital differences to obtain a measure of occupational risk. We find that fathers' earnings risk is significantly positively related to sons' earnings risk. The same link is found when unemployment risk is considered. However, a conclusion indicated by previous studies based on self-reports of individuals' risk attitude as well as our findings is that intergenerational transmission is weak in terms of effect size.

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#### 1. Introduction

The source of risk attitudes, in particular the role of intergenerational transmission, has received increasing attention from economists in recent years. Previous studies agree that parents' risk attitudes are positively related to those of their children (Charles and Hurst, 2003; Kimball et al., 2009; Hryshko et al., 2011; Arrondel, 2012; Dohmen et al., 2012). The evidence is based on individuals' self-assessment, i.e., parents and children reporting similar risk attitudes in surveys. However, evidence showing that parents and children exhibit the same willingness to take risk in real life situations is rare. Shore (2011) provides evidence for intergenerational transmission of income volatility. The lively debate regarding the appropriate measurement of risk attitudes suggests that it is important to study whether intergenerational transmission can also be established in a *revealed preference approach*. The present study is the first to investigate whether children and parents show a similar willingness to take risk in their choice of occupation.<sup>1</sup>

The validity of the measurement is a key requirement in the empirical analysis of risk attitudes. Every method of quantification has merits and drawbacks. While survey data offer an easy way to learn about individuals' attitudes, responses suffer from a number of biases (e.g., Bertrand and Mullainathan, 2001). Studies analyzing whether individuals' self-reported risk attitudes are consistent with experimental risk behavior yield contradictory results (e.g., Dohmen et al.,

<sup>\*</sup> Corresponding author.

E-mail addresses: sarah.necker@vwl.uni-freiburg.de (S. Necker), andrea.voskort@bafin.de (A. Voskort).

<sup>&</sup>lt;sup>1</sup> Our interest lies in whether intergenerational transmission takes place at all and not via which channel it occurs. The "nature versus nurture"-question has been analyzed using data on twins or adopted children, as described in Section 2. The SOEP currently does not provide a sufficient number of observations to conduct the analysis of this paper.

2011; Anderson and Mellor, 2009). Economists have long insisted that only actual choices represent actors' true interests and allow inferences on people's preferences (e.g., Samuelson, 1938, 1948). Constraints on individuals' decisions are taken into account and assumptions that people really mean what they say are unnecessary. However, revealed preferences may also present a biased approximation of normative preferences if decision-making errors are of importance (e.g., Beshears et al., 2008).

As any other measure, revealed risk attitudes might be subject to noise. Comparing results from studies based on different measures allows us to assess the sensitivity of the effect to the use of different approaches. A confirmation of previous studies' results would give confidence regarding the relevance of intergenerational transmission for the formation of risk preferences.

The idea behind our approach is as follows. Theory predicts that workers opt for the occupation that will maximize their expected utility (Becker, 1962). According to the theory of compensating wage differentials, individuals are compensated for onerous working conditions such as bearing occupational risk (Rosen, 1986). Occupations vary, for example, by unemployment or earnings risk. An individual's risk attitude determines the wage premium demanded for accepting those risks. Individuals with higher risk aversion will demand a higher wage premium to compensate for risk. Assuming that individuals sort into jobs accordingly, their job choice reveals information regarding their risk attitude (controlling for other relevant factors).

This sorting effect allows us to investigate whether intergenerational transmission of risk preferences is indeed reflected by children's and parents' occupation being similarly risky. We use the cross-sectional variation in income that is not explained by human capital differences (as proposed by McGoldrick, 1995) as our main measure of occupational risk. Employing data from the 1990 to 2009 waves of the German Socio-Economic Panel (SOEP), we calculate the earnings risk of an occupation at the 3-digit-level of the International Standard Classification of Occupations (ISCO) for West German men. The resulting values are assigned to fathers and sons, whose information we are able to merge.

The analysis shows that different generations of a family indeed exhibit similar risk behavior in the choice of occupation. We observe a significantly positive relationship between fathers' and sons' earnings risk. Taking into account a(n albeit crude) measure of ability when calculating earnings risk does not change the intergenerational link. The same result is obtained if earnings volatility per individual, i.e., over time irrespective of the occupation pursued, or unemployment risk are employed as a measure of occupational risk. In line with the literature on occupational sorting (Bonin et al., 2007) and on intergenerational earnings mobility (e.g., Dahl and Leire, 2008), the link is stronger for older children. With more experience in the labor market, individuals seem to increasingly sort into occupations related to an occupational risk that is similar to the one chosen by their parents.

The magnitude of the effect strongly resembles the one found in studies using self-reported risk attitudes, i.e., an association of 0.1–0.2. While it is possible that the link is underestimated due to attenuation bias in all studies (due to the limitations which apply to every quantification of risk attitudes), all studies indicate that intergenerational transmission of risk attitudes is rather weak. Ours and other studies suggest that intergenerational transmission takes place predominantly when parents or children have an extreme risk attitude. Results from a fixed-effects estimation indicate that the link found in our study can even be overestimated if individuals have further knowledge of returns to their skills. According to Cohen (1988), a correlation of 0.1–0.3 is small in terms of effect size. In the literature on intergenerational earnings mobility, a correlation of this magnitude is taken as weak transmission. We conclude that studies of intergenerational transmission can only explain a small fraction of the origin of risk attitudes.

The remainder is organized as follows. In Section 2, we review the literature on intergenerational transmission of risk attitudes. The approach to measure risk attitudes by occupational choices is described in Section 3. The procedure and results of the empirical analysis are reported in Section 4, followed by a discussion of our results in Section 5. Section 6 concludes.

#### 2. Literature review

Bisin and Verdier (2005) emphasize that the "preferences, beliefs, and norms that govern human behavior are formed partly as the result of genetic evolution, and partly they are transmitted through generations and acquired by learning and other forms of social interactions." Following this idea, several studies investigate intergenerational transmission of risk preferences.

Based on data from the US Panel Study of Income Dynamics (PSID), Charles and Hurst (2003) find that children reporting "high" risk tolerance are 12%-points more likely to have parents whose risk tolerance is also "high." Similarity, however, is only established at the tails; the risk attitude of children with a medium risk tolerance is not related to that of their parents. Kimball et al. (2009), using the same data, account for measurement error in responses and find an intergenerational correlation of 0.14 for fathers and 0.23 for mothers. Hryshko et al. (2011) take into account parents' schooling. They also only find a significant link between parents and children that have an extreme risk attitude. Parents who are "very risk tolerant" are 14%-points less likely to have children who are "very risk averse."

<sup>&</sup>lt;sup>2</sup> In this and other subsequently cited studies, the magnitude of the effect varies to some extent with the specification and variable employed as a measure of risk attitude.

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