

Intergenerational Transmission of Pro-social Values: Socially Responsible Investment Among Parents and Adult Children

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ABSTRACT

Novel evidence on the transmission of pro-social values from parents to individuals is provided by the finding of a positive correlation between parental and individuals subsequent investments in socially responsible mutual funds. Although captured parental–individual correlations reflect contemporary relationships, they reveal potentially important insight into the origin of heterogeneity in individuals’ pro-social behavior. Consistent with research on socialization, the results imply an influence from both parents, stronger for mothers, and reinforced for parents agreeing in pro-social values, i.e. for individuals’ with both parents investing in socially responsible mutual funds. Parental resources during individuals’ adolescent (financial and parental life experience) are further found to significantly explain individuals’ adult pro-social investment behavior. The results are robust towards conditioning upon a number of alternative explanations.

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The rising interest in socially responsible investment practices around the world (see e.g. Renneboog et al., 2008) indicates a growing attention towards integrating social, environmental and ethical consideration in investment decisions. Although mounting evidence in economic research indicates that individuals', in general, are driven by concern for others in their decision making, less is known about heterogeneity between individuals in these social preferences (see e.g. Meier, 2006).¹ To understand why some investors care about non-return characteristics of investments and others do not, causes for this heterogeneity needs to be examined. Many values, attitudes, and preferences are potentially formed through socialization efforts by parents, transmitting these over generations (e.g. Grusec and Hastings, 2007). While research, for example Dohmen et al. (2012), have documented parental-child correlations in measures of risk and trust attitudes, central for financial decision making, less is known about the parental transmission of pro-social values potentially affecting individuals investment behavior.²

In the current paper we provide empirical evidence indicating that an individual's propensity to invest in socially responsible mutual funds is significantly positively correlated with having parents owning these in the previous period. Our results indicate that ownership among both mothers and fathers matter, although stronger for mothers, and that having two parents owning (rather than one) reinforce the impact upon individuals' likelihood to invest in a socially responsible manner. Parental resources (economic and life experience) during individuals' adolescent are further found have an impact upon the strength of the parental-individual correlations. Individuals growing up with parents with greater economic resources and parental life experience during the individual's adolescent are found, all else equal, to have a stronger correlation in their ownership of socially responsible mutual funds with that of their parents.

The results are interesting, especially since they are obtained while controlling for differences in risk and return between conventional and socially responsible mutual funds. Given that previous research indicate that individuals may either have a profit- or value-driven motive (or both) for investments in socially responsible financial instruments³, conditioning on differences in risk and return mainly favors an interpretation of results as capturing individuals' behavior driven by pro-social values.⁴ Although our results capture one-year lagged individual-parental

¹ Actually, economic research usually treats individuals' attitude and value endowments as given or derived from a black box (Dohmen et al., 2012). Recent research on cultural transmission (e.g. Bisin and Verdier, 2000) does, however, endogenize these by assuming either a parental or other role model transmission of attitudes.

² Intergenerational transmission between parents and children of attitudes, personality, and other personality traits has been suggested as explanation to observed correlations between behavior and outcomes across generations by, for example, Bowles and Gintis (2002), Osborne (2005), and Heckman et al. (2006).

³ Research on socially responsible investments indicates that individuals' motives may either be profit-driven (based upon expectations of a superior risk-return trade-off for socially responsible mutual funds) or value-driven (that individuals derive utility from doing "good"), or both (e.g. Fama and French, 2007; Nilsson, 2008; Riedl and Smeets, 2011; Bauer and Smeets, 2012; Riedl and Smeets, 2013).

⁴ That individuals' choice of socially responsible mutual funds mainly is driven by social concern is further supported by recent research. Bauer and Smeets (2012) and Riedl and Smeets (2011; 2013), using administrative investor data linked to internet based experiments, find that investors with stronger pro-social preferences are more likely to hold socially responsible funds and that expectations about returns and risks on socially responsible mutual funds are unrelated to socially responsible investments.

relationships in ownership of socially responsible mutual funds, they potentially reveal important insights into the origin of heterogeneity in individuals' pro-social behavior. That both parent's matter, and mothers more, is consistent with research on socialization, indicating a similar importance of parents in the socialization process (e.g. Grusec and Hastings, 2007). The result further complements the findings in Dohmen et al. (2012), who find evidence indicating that mothers are more important also in transmission of trust attitudes.

Interestingly, our results also indicate that parental similarities in social values are of importance for the strength of the parental effect upon individuals' pro-social behavior. Having two parents owning socially responsible mutual funds, rather than one, reinforces the impact upon individuals' likelihood to invest in a socially responsible manner. This is interesting and potentially associated with an assortative mating mechanism (see, for example, Dohmen et al., 2012). Assortative mating imply, in the current context, that if one parent has pro-social preferences then the other parent is also likely to have pro-social preferences, i.e. parents match upon similarities in pro-social preference (among other dimensions) to avoid distortions in the transmission of these values towards the child (assuming parents have a preference for children with similar social preferences as their own). The finding, that the effect of having two parents investing in a socially responsible manner strengthens the impact on the individuals likelihood to invest, thus, provide evidence consistent with that assortative mating reinforces the transmission of pro-social values.

In terms of heterogeneous parental impact, our results further indicate that parental resources during the individuals' adolescent are of importance for the transmission of pro-social values. This is consistent with research on socialization, indicating that family resources, processes and relationships are better predictors of successful socialization than family structure itself (Patterson and Hastings, 2007). Parental ownership of socially responsible mutual funds for parents observed with a relatively higher total income during the individuals' adolescent are, all else equal, found to be more strongly correlated with subsequent ownership among individuals. This tentatively indicates that parental financial resources during individuals' youth matter for the transference of pro-social values. That our results further indicate that the correlation in parent-individual ownership of socially responsible funds strengthens with higher parental age during individuals' adolescents emphasizes the importance of parental life experience. Comparing the effects on individuals with two (compared to one) parent employed, i.e. with restrictions in parent-child time, do, however, reveal no significant differences in individuals pro-social investment behavior.

The analysis is performed using a large sample of Swedish household investors (including over 140,000 individuals) based upon detailed data, derived from administrative records. The data pertain to two full cohorts of individuals (those born in 1963 and in 1973), as well as to their parents, observed annually over the period 2000-2007.⁵ The data, obtained from Statistics

⁵ The choice of the cohorts was made to increase the likelihood that individuals have parents alive during our observational period.

Sweden (SCB), include detailed information about individuals' financial holdings (e.g. mutual fund holdings), taxable income and other wealth (e.g. bank holdings and real estate) derived from the Swedish tax authorities, as well as a large number of individual socio-economic characteristics.⁶ In addition, parental variables, e.g. income, pertaining to the individuals' adolescent are also included in the data.

Alternative mechanisms (apart from a transmission of pro-social values) may potentially explain the observed parental-individual correlations in holdings of socially responsible mutual funds. To ensure that effects mainly reflect a transmission of pro-social values, we control for a number of competing explanations. A main alternative driver is similarities in individuals and parents risk preferences (see Dohmen et al., 2012). To broadly control for this we condition the analysis on a measure capturing differences in risk between conventional and socially responsible mutual funds. Including funds' past returns further capture possible similarities in parental and individuals' beliefs about mutual fund returns, potentially driven by contemporary parental-individual sharing of information.⁷

The parental-individual correlations in ownership of socially responsible mutual funds may also be driven by an inheritance of other individual characteristics, such as cognitive abilities. A number of studies (e.g. Black et al., 2009; Björklund et al., 2010; Grönqvist et al., 2010; Anger, 2012), find evidence indicating that cognitive ability is highly correlated between parents and children. Since cognitive ability strongly predict education, and education is a potentially important institution in the socialization process (see e.g. Grusec and Hastings, 2007), this may generate similarities in parents and child formation of pro-social preferences driven by similar educational influences, rather than by a parent-child transmission of pro-social values. To control for this possible explanation of our results, a number of controls have been included. These include individuals' educational attainment and income (both highly correlated with cognitive ability), as well as measures of parental income during the individuals adolescent.

To condition the analysis on similarities in parental and individuals' choice of socially responsible mutual funds driven by a common community influence, locational variables indicating individuals' geographic location, as well as community specific fixed effects are added. These controls are important since research have found evidence of community social interaction effects (e.g. Duflo and Saez, 2000; Hong et al., 2004; Brown et al., 2008; Kaustia and Knüpfer, 2012) and that the social capital within ones birth community may have a long lasting effect upon individuals' (and parents) financial behavior (e.g. Guiso et al., 2004). To avoid capturing correlations in the parental and individuals' choice of socially responsible mutual funds driven by an exposure to the same media flow, the parental ownership is lagged one period, while annual time-specific fixed effects are added to capture broad changes in this exposure over time.

⁶ Individual characteristics are collected from the LISA database, Statistics Sweden.

⁷ That past returns broadly capture expectations is motivated by evidence in, for example, Sirri and Tufano (1998), Barber et al. (2000), Bergstresser and Poterba (2002) and Sapp and Tiwari (2004), indicating that individual investors often use past returns as indicative of future

The study is, to the authors' knowledge, the first to study intergenerational correlation in the choice of socially responsible mutual funds. Our results are interesting and contribute to the understanding of why some individuals integrate social concern in their investment decisions. The results are of interest not only for the financial industry, but also for the literature profiling socially responsible individual investors, e.g. Nilsson (2008), Glac (2009), Junkus and Berry (2010), Hellström et al. (2014a), and for the more general literature studying correlations in values, attitudes, and behavioral outcomes between parents and children, e.g. Dohmen et al. (2012) (risk and trust attitudes); Black et al. (2009), Björklund et al. (2010), Grönqvist et al. (2010), and Anger (2012) (cognitive and non-cognitive skills); Björklund and Salvanes (2011), Black and Devereux (2010) and Holmlund et al. (2011) (income and schooling). The findings further contribute, at a more general level, to the literature on social (or other-regarding) preferences. While this literature document ample evidence upon the impact of social preferences on economic behavior (Camerer, 2003), less is known about the origin of social concern (e.g. Meier, 2006).

The rest of the paper is organized as follows. In Section I, we discuss the parental influence on individuals' pro-social behavior from a socialization perspective. In Section II the data, summary statistics, and empirical model are presented. Section III contains our empirical analysis, as well as robustness testing of our results. Section IV concludes.

1. Parental influence on individuals pro-social behavior

An individual's attitudes, values, and preferences are formed from child- to adulthood through a socialization process. The process involves acquiring the ability to adaptively function in a larger social context, including the acceptance of societal values, standards, and customs. Key agents in this process are family members, peers, educational institutions, as well as media. The role of parents is central and many consider parents as the primary agents of socialization (see e.g. Collins et al, 2000). This follows since parents constitute members of the first social group an individual comes in contact with and since many individual characteristics are set in early ages.⁸

Research in sociology and psychology has studied the impact of family structure on the outcome of socialization (see e.g. Patterson and Hastings, 2007). Connected to differences in family structures are also differences in access to economic, social, and community resources. For example, two parents together (compared with one) generally have access to greater economic resources, more extensive social support networks, as well as provide important support and encouragement for one another. A consistent finding in this literature is that family resources, processes and relationships are better predictors of successful socialization than the family structure itself (Patterson and Hastings, 2007). While the parental role in the

⁸ Carneiro and Heckman (2003), Heckman and Masterov (2004), and Cunha et al. (2006) do, for example, indicate that an individual's cognitive and non-cognitive abilities are shaped in early age and that parents play an important role in the production of these.

transmission of values, attitudes, and preferences, in general, is heterogeneous, we focus in the current paper upon identification of a number of distinct aspects of the parental transmission process of pro-social values related to individuals' socialization process.⁹

First, we investigate whether both mothers and fathers are of importance in the transmission of pro-social preferences. Given that mothers have been found to be of more importance than fathers in transmission of trust (e.g. Dohmen et al., 2012), we further focus upon this issue comparing their relative influence. Second, transmission of pro-social values may be stronger with two parents with similar, rather than dissimilar, values. This may be motivated by that the "socialization signal" from two parents may be stronger or less distorted for two agreeing parents. Evidence of this is given in Dohmen et al. (2012), who find that parents who are more similar in terms of risk attitudes are found to have a larger impact on the risk attitudes of the child. The reinforced signal from value agreeing parents is consistent with the positive assortative mating mechanism assumed by Bisin and Verdier (2000) in their seminal model of cultural transmission. This mechanism posits that individuals (here parents) mate based upon similarities in attitudes to minimize the distortion in the socialization process transmitting these to the child. In the analysis we provide evidence upon this issue and examine whether parents with similar pro-social values reinforce the impact upon individuals' pro-social financial behavior.

Third, as noted above, parental resources are of key concern for successful socialization of children (Patterson and Hastings, 2007). Research indicate that parents with fewer economic resources, compared to those more well off, show poorer socialization practices and less authoritative parenting styles (Magnuson and Duncan, 2002). They have been found to be less confident in their parenting, less warm and engaged with their children, and more verbally and physically punitive than parents with greater economic resources (Patterson and Hastings, 2007). Individual's growing up in socioeconomically disadvantaged families are also less likely to live in homes with access to many books, less likely to have access to music and art, and less likely to visit libraries and museums (Bradley, 2002). Further, they are also less likely to participate in social activities, such as taking music or dance lessons, to participate in clubs, or to play in sports teams (Fields et al., 2001). Related to our study, DeGarmo et al. (1999) find that socioeconomic status among divorced mothers is positively correlated with better parenting practices, in turn predicting children's adaptive and pro-social behavior at school. To what extent parents with pro-social values and relatively more economic resources during individuals' adolescents are more successful in transmitting these values to children is examined in the empirical analysis.

In terms of other parental resources, we investigate to what extent parental life experiences (proxied by the age of the parents during individuals' adolescent) and parent-child time matters

⁹ Apart from the considered aspects, other important elements affecting the socialization process include the quality of the parent-child interaction, the emotional climate and stability of families, as well as availability of social support for parents (Patterson and Hastings, 2007).

for the transmission of pro-social values. Parents with more life experience during the socialization process can, on average, be assumed to be better equipped in socializing children. For example, younger mothers tend to be less verbal, less sensitive, and less responsive to their infants than older mothers (Culp et al., 1988) and are also likely to have less previous experience with children. Further, children of relatively younger mothers have been found to perform more poorly on measures of cognitive competence, e.g. language based assessments, and to score lower on achievement tests (Moore et al, 1997; Luster et al., 2000). Regarding parental-child time, we examine this from the perspective of to what extent parents were employed during individuals' adolescents. In regard to the later, early research in sociology and psychology focused mainly upon whether children would suffer with a father as the primary caregiver, compared with the traditional division of labor involving an employed father and a mother at home. Other researchers worried about that child care outside the family, in families with two employed parents, would be damaging to children. Evidence from this research did, however, dispel these concerns (Patterson and Hastings, 2007). In the empirical analysis we provide evidence upon to what extent parental transmission of pro-social values depends upon both parental life experience and parental employment status during individuals' adolescents.

Apart from the parental influence through socialization, parents may also influence individuals' adult pro-social financial behavior as part of an individual's contemporary social environment. Li (2013), for example, find evidence of within-family sharing of information as a driver for individuals' stock market participation. This is supported by the findings in Hellström et al. (2014b) indicating an influence of parental sharing of recent stock market experiences on individuals' stock market entry, participation and exit. Thus, contemporary sharing of information between parents and individuals, e.g. concerning the existence of socially responsible investment alternatives, may lead to correlations in their pro-social financial behavior. Given our interest in capturing parental transmission of pro-social values through the process of socialization, controlling for contemporary parental-individual information sharing is of key importance.

2. Data, summary statistics and empirical methodology

2.1 Data and sample selection

The data used in this study comes from three different sources. First, individual investors' demographic and socio-economic characteristics for the full cohorts of 1963 and 1973 and their parents are obtained from Statistics Sweden.¹⁰ Second, individual investors' detailed wealth information including financial wealth, real estate and taxable income is obtained from the Swedish tax authorities. Sweden abolished the wealth tax after 2007; hence, this data is

¹⁰ Since 1990, Statistics Sweden collects data on all individuals at the age of 16 and above that are registered in Sweden on December 31st each year. More information on the "Longitudinal integration database for health insurance and labor market studies" (LISA by Swedish acronym) can be found on Statistics Sweden's website www.scb.se.

available up to 2007. Financial wealth is categorized into investments in funds and stocks. In this study, we observe individual investors' mutual fund holdings (number of fund units per International Securities Identification Number [ISIN]) on December 31st each year during the period 1999-2007. Third, data on mutual funds, such as ISIN, fund name and daily net asset values (NAVs) is obtained from the Swedish Investment Fund Association (SIFA). Most of the mutual funds marketed in Sweden are members of SIFA (over 3,400 funds were registered with SIFA as of 2010).

We manually classify individual investors' mutual fund holdings as socially responsible by using information from several different sources. First, mutual funds are categorized as socially responsible according to a list of ethical funds from the Swedish Pension Agency (PPM by Swedish acronym) and Swedbank (one of the largest Swedish banks). Second, we use a list of ethical funds in Sweden during the period 2002-2008 from Folksam (a Swedish insurance company that is one of Sweden's largest investment managers). Apart from this matching, we screen the names of the mutual funds owned by individual investors using the following words: "sustainable", "ethical", "socially responsible", "SRI", "social" and "green". In total, 218 funds of the available 3,400 mutual funds are classified as socially responsible funds. It is important to note that this classification may suffer from look back bias as the oldest report available is from 2002, but our data dates back to 1999.

The data for each individual includes demographic characteristics such as birth year, gender, marital status, having children or not, level of education and municipality of residence. We use salary from employment as the main income source and aggregate wealth after liabilities as net wealth. Investment portfolio characteristics are calculated on the basis of reported mutual fund holdings at the end of each year. As we want to control for individual investors' choice of funds potentially driven by a profit motive, we create a portfolio return variable using the fund portfolio weights observed on December 31st each year and the funds' returns during the recent year. Individual investors' choice of fund portfolio risk or volatility is calculated using the same approach, where the fund portfolio weights and the standard deviation of the funds' returns for the recent year are used. We create a variable for the number of funds in individual investors' fund portfolio as a control for the chances of selecting socially responsible funds.

In our database, there are a total of 117,638 and 125,367 individuals for the 1963 and 1973 cohorts, respectively, observed during the period 1999-2007. To determine our sample, we, first, select individual investors with at least one mutual fund holding. A total of 69,022 and 71,654 individual investors or around 60% of the two cohorts invest in mutual funds. Second, since we want to observe both, mothers' and fathers' influence on individual investors' likelihood to hold socially responsible mutual funds, we restrict our sample to individual investors with both of their parents holding at least one mutual fund. Therefore, the final sample consists of 21,573 and 29,729 individual investors born 1963 and 1973, respectively. These numbers represent 31.26% and 41.49% of mutual fund investors from each cohort. In Table 1, Panel A, the sample selection is summarized.

[Table 1 about here.]

The selection of individuals to only those owning, and observed with both parents owning, mutual funds has been done to focus upon the individuals choice of type of mutual fund, i.e. the choice of either a conventional or a socially responsible mutual fund portfolio. Although the selection restricts the total sample, it allows us to separately analyze this choice independent from individuals and parents' choice to own mutual funds or not. A drawback with selecting only individual investors with both of their parents investing in mutual funds is that it may cause concerns regarding a potential selection bias. However, we assume that the participation decision (in the mutual fund market) and in regard to fund type are independent (conditional on observables). This is motivated since the factors that influence parents and individuals decision to invest in mutual funds do not necessarily influence them to invest in a socially responsible manner.

2.2 Individuals' and parents' holding of socially responsible mutual funds

Throughout this paper, we define socially responsible investors as individuals who have an investment in at least one socially responsible mutual fund. This definition is obviously broad since it does not take account of how much an individual has invested out of its total mutual fund wealth in the socially responsible oriented funds. The approach is, however, motivated when looking at socially responsible investors' empirical distribution of the proportions out of individuals' total mutual fund portfolios that they invest in socially responsible mutual funds. These are shown in Figure 1.

[Figure 1 about here.]

As can be seen, this distribution indicates that a large proportion of socially responsible mutual fund investors have all of their fund investments in socially responsible mutual funds, i.e. a proportion of 1. Given that conventional investors have a proportion of zero, this validates our separation of individuals as either conventional or socially responsible investors. From Panel B, Table 1, the proportion of socially responsible individual investors seems quite stable over the years.¹¹ For the individuals, 7.14% of all, on average, hold socially responsible mutual funds. When comparing the parents, mothers tend to invest more in socially responsible mutual funds than fathers, on average, 8.38% versus 7.70%. This result is in line with previous findings that females tend to invest in socially responsible assets more than males (e.g. Hellström et al. 2014a). Moreover, the average percentage of socially responsible individual investors with at least one parent holding socially responsible mutual funds is 13.13%. On average, only 2.95% of individuals have both of their parents investing in a socially responsible fund.

¹¹ While statistics from Eurosif show growing net asset values (NAV) in the SRI market every year, the number of individual investors in the market does not appear to increase significantly; the retail SRI market decreased from 8% in 2010 to 6% in 2012 (Eurosif 2012).

From Table 2, the cross tabulation reveals that individuals and parents without an investment in a socially responsible mutual fund is the largest, contributing to 82% of the observations.

[Table 2 about here.]

The second largest group is the one consisting of conventional investors whose parents have an investment in a socially responsible mutual fund, in total representing about 11% of the observations (5% for only mother, 4% for only father, and 2% for both). The group of socially responsible investors with parents having no investment in a socially responsible mutual fund contributes to 5% of the observations. In contrast, the group of socially responsible investors with socially responsible parents constitutes 3% of the observations.

In Table 3 individual investor characteristics separated between conventional and socially responsible investors are displayed (variable definitions are given in Appendix A, Table A1).

[Table 3 about here.]

Focusing first upon our main variables of interest, the figures indicate that the proportion of individuals with at least one parent holding a socially responsible mutual fund within the group of socially responsible investors is much higher than for the group of conventional investors. On average, 32.29% and 11.65% among socially responsible and conventional investors, respectively, have at least one parent holding socially responsible funds. In addition, it is more common among the socially responsible investors to have both parents investing in socially responsible mutual funds, 11.19% compared to 2.31% among conventional investors. In regards to parental characteristics, these differ significantly between conventional and socially responsible investors. Parents of socially responsible investors appear to be slightly older and to have higher incomes, for both mothers and fathers.

2.3 Socio-economic characteristics among conventional and socially responsible investors

The results in Table 3 regarding the mean socio-economic characteristics of conventional and socially responsible investors are in line with findings in prior studies, i.e. female, non-single and older investors (born 1963) invest, on average, more in socially responsible mutual funds. Additionally, the group of socially responsible investors appears to earn higher income from salary and to be wealthier. In terms of education, individuals with education higher than high-school have a greater tendency to be socially responsible investors. Among the socially responsible investors, 58.32% have a university degree or above, while 42.74% among the conventional investors have education at those levels. The results also suggest that socially responsible investors are 1.55 times more likely to reside in the Stockholm area.

Regarding the portfolio characteristics, socially responsible investors earn slightly higher portfolio returns during the period. Furthermore, the portfolio standard deviations show that the group of socially responsible investors experience slightly greater volatility of fund returns during the period, about 0.01% higher. This indicates that controlling for differences in risk and

return between conventional and socially responsible mutual funds are important in order to interpret results as mainly capturing choice driven by social concern, i.e. to condition on the profit motive and study individuals' choice, all else equal in regard to risk and return. A potential explanation to the risk and return difference is that the socially responsible funds in our sample period mainly consist of equity funds. Individuals' with a preference to hold a larger number of mutual funds in their portfolio may, for purely probabilistic reasons, have a larger chance of selecting a socially responsible mutual fund. To control for this we include, as a portfolio characteristic, the number of funds in the portfolio. This proxy, then, broadly captures differences in individuals' preference for diversification.

2.4 Modelling approach

To study the parental influence upon individuals' likelihood to own socially responsible mutual funds, we split the sample of individuals, conditional on owning mutual funds at time t , between conventional and socially responsible. As indicated earlier, this binary approach is motivated since conventional investors have a proportion of zero invested in socially responsible funds, while many with a socially responsible investment orientation has a proportion of one (see Figure 1).¹² To model the individuals' likelihood to invest in socially responsible manner, a random effects panel data probit model is specified as

$$\text{Owns socially responsible fund}_{it} = \mathbf{1}(y_{it}^* > 0),$$

where the $\mathbf{1}(\cdot)$ is an indicator function equaling one if individual i 's unobserved likelihood to hold socially responsible mutual funds, y_{it}^* , takes a value greater than zero at time t . The unobserved propensity to hold a socially responsible mutual fund is parameterized as

$$y_{it}^* = \alpha + \beta x_{it-1}^P + \gamma x_{it} + \mu Y_t + c_i + \varepsilon_{it}.$$

The main coefficients of interest are those measuring effects of parental influence from the lagged parental ownership of socially responsible mutual funds, β .¹³ Although this capture a contemporary correlation between individuals' and parents lagged ownership of socially responsible mutual funds, we regard this correlation to mainly reflect similarities in individuals' and parents pro-social values driven by a parental transference of these during the socialization process. To make this claim we condition the analysis upon variables broadly thought to capture contemporary parental-individual sharing of information, i.e. the past year return on the parental socially responsible portfolio, as well as controls for alternative mechanisms. Individuals socio-economic characteristics, educational variables, geographical location of residence, as well as characteristics of mutual fund portfolios are contained in x_{it} . To further strengthen the claim

¹² In the robustness testing section of the paper, we also consider models where the socially responsible mutual fund proportion out of the total mutual fund portfolio is used as the dependent variable.

¹³ The specifications of the parental ownership variables, x_{it-1}^P , vary throughout, but are explained in the empirical section.

that the parental individual correlations in holdings of socially responsible mutual funds reflect transmission of values during the individuals' youth, the parental ownership variables are interacted with parental characteristics pertaining to the individuals' adolescents (age 18-19). Systematic patterns revealed by these interactions are unlikely to be explained by recent information sharing, but seem more likely to be associated with conditions pertaining to the individuals' socialization process. Annual time-specific fixed effects are contained in Y_t , while the random effects are captured by c_i and ε_{it} is a normally distributed error term.

3. Empirical analysis

In this section we report our empirical results based upon estimation of panel data random effects probit models. Throughout coefficients and corresponding standard errors, cluster robust at the community level, are reported for a number of model specifications.

3.1 Intergenerational correlation in pro-social investment values

In Table 4, Model 1 and 2, results for a baseline model (excluding parental variables), as well as for a model including a parental ownership indicator of socially responsible mutual funds, are presented.

[Table 4 about here.]

The indicator variable indicates whether either the mother or the father, or both, own socially responsible mutual funds in the previous period (dummy with the value one for ownership, zero otherwise). As indicated in Model 2, our result imply that an individual's likelihood to hold a socially responsible mutual fund portfolio increases (statistically significant at the 1% level) with parental ownership.

Given that the captured parental effect potentially could reflect both a transmission of pro-social values, as well as an effect driven by contemporary information sharing, we include in Model 3 the past one-year return on the parental socially responsible mutual fund portfolio. This is included as a proxy to broadly capture information sharing effects; here it is assumed that a positive (negative) past year socially responsible mutual fund performance creates a positive (negative) parental sentiment towards investing in these funds, shared with individuals through social interaction. Interestingly, the estimate for the parental ownership dummy changes only marginally (0.793 to 0.784), including this broad control for social interaction effects. Notably, the estimated coefficient for the past year parental mutual fund portfolio return is positive and statistically significant (at the 1% level). This indicates that relatively more positive parental socially responsible mutual fund experiences (during the past year) encourage individuals' subsequent likelihood to hold these.

The result are conditioned upon portfolio characteristics (lagged portfolio return, standard deviation of returns, and the number of funds in the portfolio), individual socio-economic characteristics (the gender, the number of children, marital status, the income, the net wealth,

educational attainment, and whether living in one of the largest cities in Sweden), as well as controls for unobserved heterogeneity (individual specific random effects and annual time-specific fixed effects). Given that these controls are included to capture competing mechanisms potentially generating parental and individual correlation in socially responsible mutual fund ownership, we interpret result as mainly pertaining to effects from a parental transmission of pro-social values.

3.2 The importance of mothers and fathers

To study the separate influence of mothers and fathers pro-social values upon individuals likelihood to hold socially responsible mutual funds, the (lagged) parental ownership variable of socially responsible mutual funds (in Table 4) is separated into indicators of whether only mothers, only fathers, or both, own. In Table 5, we report results for model specification using these indicators.

[Table 5 about here.]

As seen in Model 1, individuals' likelihood to hold socially responsible mutual funds is significantly higher (significant at the 1% level) for individuals when either mothers or fathers, or both, owns socially responsible mutual funds in the previous period. Controlling for the past one-year returns on mothers and fathers socially responsible mutual fund portfolios (our broad proxy for parental effects driven by contemporary social interaction), reported in Model 2, only marginally lowers these estimates. So does adding control variables regarding parental characteristics at the individuals' adolescent, reported in Model 3. Notable, for the controls capturing contemporary social interaction effects, i.e. the socially responsible mutual fund portfolio returns for mothers and fathers, only those for fathers' weakly matter (significant at the 10% level). A higher return on fathers' socially responsible mutual fund portfolios during the past year, i.e. a more positive sentiment towards social responsible investments, increase individuals likelihood to invest in socially responsible mutual funds.

The results in regard to parental ownership of socially responsible mutual funds are interesting and tentatively imply that both mothers and fathers, separately, are of importance in the transmission of pro-social values. Interestingly, the effect of mothers is significantly stronger than that of fathers. This result is consistent with Dohmen et al. (2012), who find that mothers are of higher importance than fathers in transmission of trust and with, for example, Acock and Bengtson (1978), indicating a relatively higher influence of mothers on adult children's political and religious orientations.

3.3 The impact of assortative parental mating

In Table 5 above, the indicator for dual parental ownership of socially responsible mutual funds is positive and in size larger than the sum of the individual influence from the mother and the father, i.e. $1.714 > 1.578$. This indicates that the correlation in parental and individuals'

holdings of socially responsible mutual funds is reinforced when both parents invest in a pro-social manner. To study this further, we report in Table 6 estimation results separating the effects for individuals with one parent investing in socially responsible mutual funds (regardless whether it is the mother or the father), from that of those with two.

[Table 6 about here.]

As seen in Model 1, having two parents holding socially responsible mutual funds in the previous period significantly increase the individuals' subsequent likelihood to invest in a pro-social manner relatively more than when only one (of two) parents invest in a socially responsible manner. The results hold also when controlling for the past year parental social responsible mutual fund returns, as well as when including parental characteristics from individuals adolescent (Model 2 and 3). A possible mechanism behind this relatively stronger effect is assortative mating. Assortative mating indicates that (parental) relationships are not exogenously formed, but rather based upon similarities in values, attitudes and preferences. Assuming parents have preferences to pass their values on to children, assortative parental mating (including consideration to pro-social values) then minimizes the potential distortion in parental transference of pro-social values. Having two parents agreeing in pro-social values, then, potentially explains the reinforced effect from parents on individuals' pro-social behavior. This result is consistent with Dohmen et al. (2012), who find that parents with more similar risk attitudes have a larger impact on the risk attitudes of the child.

3.4 Parental resources during individuals adolescent

Research in sociology and psychology indicate that parental resources are of key concern in the socialization process (e.g. Grusec and Hastings, 2007). To study to what extent the strength of the correlation between parents and individuals' ownership of socially responsible mutual funds depends on parental access to resources during the individuals' youth, we interact the general parental ownership variable (value one, if at least one parent own socially responsible mutual funds, zero otherwise) with proxies for parental resources during individuals' adolescent. To capture the potential effect of parental financial resources, the total income of the parents during individuals adolescent is utilized. To measure parental life experience during socialization, the age of the oldest parent during individuals youth, and to capture the potential impact of parent-child time, an indicator of whether both or only one parent worked during individuals' youth, are utilized. The results from including these interaction terms capturing parental differences in resources are shown in Table 7 (benchmark model reported in Model 1).

[Table 7 about here.]

The results in Model 2 indicate that the parental impact, i.e. the correlation between parental and individual holdings of socially responsible mutual funds, increases significantly (at the 1% level) with total parental income during individuals youth. This tentatively indicates that

parental financial resources during the socialization process (in the individuals' youth) are of key importance for the parental transmission of pro-social preferences. This is interesting and consistent with research in sociology and psychology indicating the importance of parental financial resources for successful socialization (e.g. Fields et al., 2001; Bradley, 2002; Magnuson and Duncan, 2002; Patterson and Hastings, 2007) and transference of pro-social behavior (e.g. DeGarmo et al., 1999). In Model 3, the extension including parental experiences during individuals' youth (age of the oldest parent during the socialization process) is reported. The results indicate that the correlation between parental and subsequent individual ownership in socially responsible mutual funds increases for individuals that have been raised by relatively more experienced parents (higher age). This is interesting and consistent with research suggesting that parents with more life experience during the socialization process, on average, are better equipped in socializing children (e.g. Culp et al., 1988; Moore et al., 1997; Luster et al., 2000). In Model 4, we further extend the analysis including a parental equality interaction variable. This variable captures potential effects of having both parents working during individuals adolescent. As seen, the effect from this variable is insignificant. Thus, having both parents at work during individuals youth do not seem to affect individuals' adult investing behavior.

In terms of other variables, we note that our broad control for contemporary parental social interaction effects, i.e. the parental return on their socially responsible mutual fund portfolio during the previous year, has a positive significant (at the 1% level) effect upon individuals' likelihood to invest in a socially responsible manner. This indicates that recent positive parental experiences from investing in socially responsible mutual funds seem to be shared and to affect individuals' subsequent decisions.

3.5 Alternative mechanisms and controls

In regard to the other control variables included in all regressions (see Table 4), the results are rather stable over all model specifications. In terms of socio-economic characteristics females and older individuals (belonging to the older cohort born in 1963) stand out as those significantly (at the 1% level) more likely to invest in socially responsible mutual funds. In terms of educational, usually considered to be one of the main institutions in the socialization process, only weak evidence (significant at the 10% level) tentatively indicates that higher educational attainment increases individuals' propensity to invest in socially responsible mutual funds. Notable, the effects become smaller when controlling for parental effects (c.f. Model 1 and 3 in Table 4). The individuals' geographic location of residence is found to matter since the likelihood to invest in a socially responsible manner increase for individuals living in Stockholm (the capital, and largest city in Sweden). This may potentially be taken as an indication of the influences from peers and from social norms that may differ in a large compared to smaller cities.

Portfolio characteristics, i.e. the return and standard deviation of returns for the individuals' mutual fund portfolio in the year before observing holdings, as well as the number of mutual funds included in the portfolio, are all found to be of significant importance (all significant at the 1% level). A higher past portfolio return on individuals' mutual fund portfolios lowers the probability that an individual invest in a socially responsible mutual fund. Given that this variable mainly capture return on socially responsible mutual fund portfolios for socially responsible investors (corresponding to a one on the dependent indicator variable) and return on conventional mutual fund portfolios for non-socially responsible investors (corresponding to a zero on the dependent indicator variable) the results indicate conditionally that as the relative return on conventional mutual funds become, on average, higher this decreases the likelihood among individuals to hold socially responsible mutual funds. For the mutual fund portfolio standard deviation (based upon the previous year) and the number of funds in the portfolio, an increase in both, respectively, increases individuals' likelihood to hold socially responsible mutual funds. Given that these measures are included to condition the individuals' choice between socially responsible and conventional mutual funds upon holding risk (standard deviation) and return constant, i.e. to make the choice all else equal in regard to risk and return, it is reassuring that these portfolio characteristics are of significant importance. We take this as an indication that, at least broadly, our analysis is conditioned upon effects driven by individuals choosing socially responsible mutual funds based upon an expectation of a superior risk-return tradeoff. This then strengthens our interpretation of the observed pro-social behavior, i.e. investing in socially responsible mutual funds, as mainly reflecting individuals' pro-social values.

4. Conclusions

In this paper we have analyzed the correlation between parental and individuals' subsequent ownership of socially responsible mutual funds. Given that we condition the analysis upon differences in risk and return between conventional and socially responsible mutual funds (reducing the concerns about that individual's choice is driven by a profit motive) and control for recent parental socially responsible mutual fund performance (broadly capturing information sharing effects), we favor an interpretation of effects as reflecting a parental transmission of pro-social values. Interestingly, studying parental-individual correlations in detail reveal distinct patters. First, ownership of socially responsible mutual funds among mothers is found to have a greater influence on individuals' subsequent likelihood to own, although fathers matter too. Second, parents agreeing in pro-social values have a larger impact upon individuals' pro-social behavior. Third, greater resources (both economical and life experiences) held by parents during individuals' adolescents are found to strengthen the parental-individual correlations in holdings of socially responsible mutual funds. Overall, these results are consistent with research in sociology and psychology on the parental role in individuals' socialization process, tentatively indicating that parental effects seem to pertain to a transmission of pro-social values during

socialization. A general conclusion from our study is, thus, that individuals' pro-social values affecting investing behavior seem to be established early in life and that parents are an important influence in this process.

Given that values well rooted in individuals' youth may be harder to change, this has implications for policies trying to promote socially responsible investing practices. Recent efforts among governments (see for example Steurer et al., 2008) include also initiatives directed towards private investors, mainly in terms of informational guidelines and resources. Given our findings these efforts may, however, prove to be of limited importance. An indication of this is given by the fact that over our observational period the proportion, out of individuals owning mutual funds, holding socially responsible mutual funds is fairly stable around 7.15%. Given that awareness about the existence of, and information related to, socially responsible mutual funds likely have increased during this period, it seems to have had a limited impact upon individuals' pro-social investment behavior. If governmental efforts to promote pro-social investment practices, also among private investors, are serious, then our results suggest that economic incentives (tax or subsidies) or legal instruments are of better use.

Understanding the reasons for investors socially responsible investing is important. This distinction is essential since previous research (e.g. Heinkel et al., 2001; Fama and French, 2007; Statman et al., 2008; and Hong and Kacperczyk, 2009) indicate that the effect of pro-social investment behavior on asset prices differ depending on whether it is profit- versus pro-socially value driven. If deviations from the market portfolio (due to restricting investments to socially responsible assets) are driven by pro-social preferences, it could influence stock prices in the long run, while if driven by differences in performance expectations, pertain to short run effects upon asset prices (Derwall et al., 2011). Given our empirical evidence, we favor the conclusion that individual investors socially responsible investments, at least partly, is pro-socially value driven.

While our results are of direct interest for the financial literature, it is also of interest for the more general literature considering individuals social, or other-regarding, preferences. Recent research in this broader literature has begun to focus upon the development of social preferences for children and adolescents (e.g. Sutter et al. 2010). Given that these studies provide experimental evidence related to the origin of pro-social preferences, evidence within our study complements this research with results based upon individuals' actually observed behavior.

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TABLES

Table 1: Sample selection and individuals' holdings of socially responsible mutual funds

Panel A reports the number of individuals in the sample after each sample selection step. First, we select individuals born 1963 and 1973 that have an investment in at least one mutual fund. Second, we keep individuals if both of their parents invest in mutual funds in the same period. Panel B reports the proportion of individuals holding socially responsible mutual fund each year.

Panel A: Sample selection.										
	Born 1963		Born 1973		Total					
	Observation	Percent	Observation	Percent	Observation	Percent				
Population	117,638		125,367		243,005					
Individuals invest in mutual funds	69,022	58.67%	71,654	57.16%	140,676	57.89%				
Parent invest in mutual funds (percent out of population)	44,038	37.44%	51,174	40.82%	95,212	39.18%				
Parent invest in mutual funds (percent out of mutual fund investors)	44,038	63.80%	51,174	71.42%	95,212	67.68%				
Both parent invest in mutual funds (percent out of population)	21,573	18.34%	29,729	23.71%	51,302	21.11%				
Both parent invest in mutual funds (percent out of mutual fund investors)	21,573	31.26%	29,729	41.49%	51,302	36.47%				

Panel B: Proportion of individuals holding socially responsible mutual funds on an annual basis.										
	1999	2000	2001	2002	2003	2004	2005	2006	2007	Total
Sustainable investors	6.74%	6.62%	7.12%	6.81%	6.84%	7.56%	7.38%	7.39%	7.87%	7.14%
Father invest in sustainable funds.	7.65%	7.58%	7.84%	7.32%	7.25%	8.37%	7.90%	7.66%	7.72%	7.70%
Mother invest in sustainable funds.	8.36%	8.48%	8.69%	8.20%	8.17%	8.81%	8.40%	8.06%	8.18%	8.38%
One of the parent invest in sustainable funds.	12.90%	13.07%	13.53%	12.84%	12.77%	13.96%	13.23%	12.79%	12.99%	13.13%
Both parent invest in sustainable funds.	3.11%	2.99%	3.01%	2.68%	2.65%	3.23%	3.07%	2.91%	2.91%	2.95%
Number of observations	27,487	35,337	36,102	35,738	34,958	33,843	33,030	31,644	29,812	297,951

Table 2: Individuals' and parents' mutual fund holdings

The table reports the cross tabulation of individuals' and parents' mutual fund holdings.

Individual's mutual fund investment	Parent socially responsible mutual funds investment				
	None	Mother	Father	Both Parents	Total
Conventional investor	0.82	0.05	0.04	0.02	0.93
Socially responsible investor	0.05	0.01	0.01	0.01	0.07

Table 3: Summary statistics

This table reports individual investors' characteristics separated between conventional (with no investment in socially responsible mutual fund) and socially responsible mutual fund investors (with at least one socially responsible mutual fund). Variable descriptions are given in Table A1 in Appendix A.

	Conventional Investor	Sustainable Investor	All
<i>Socio-economic characteristics</i>			
Female	49.01%	53.10%	49.30%
Single	63.63%	60.64%	63.42%
Children	58.76%	57.26%	58.65%
Born 1973	58.58%	56.53%	58.43%
Income from salary	238,203	254,223	239,347
Net wealth	415,119	580,755	426,944
<i>Educational Attainment</i>			
Compulsory 9 years	3.79%	2.67%	3.72%
Secondary	43.20%	28.48%	42.15%
Post-secondary	10.26%	10.53%	10.28%
Post-secondary 2 years or longer	41.65%	55.91%	42.67%
Graduate	1.09%	2.41%	1.19%
<i>Portfolio Characteristics</i>			
Portfolio return	6.40%	6.91%	6.43%
Portfolio Standard Deviation	0.17%	0.18%	0.17%
Number of funds in portfolio	2.79	4.88	2.94
<i>Municipality of Residence</i>			
Stockholm	10.49%	16.22%	10.90%
Gothenburg	5.84%	6.54%	5.89%
Malmö	2.53%	2.26%	2.51%
Other Municipalities	81.15%	74.99%	80.71%
<i>Parent Investment</i>			
None	88.34%	67.70%	86.87%
Mother	4.92%	12.06%	5.43%
Father	4.42%	9.04%	4.75%
Both	2.31%	11.19%	2.95%
<i>Father</i>			
Income	163,433	174,938	164,255
Age when the child was born	30.41	30.91	30.45
<i>Mother</i>			
Income	98,613	104,731	99,050
Age when the child was born	27.84	28.45	27.88
Number of observations	276,682	21,269	297,951

Table 4: Overall parental influence on individuals' likelihood to hold socially responsible funds.

The table report estimated coefficients and corresponding standard errors in parenthesis for random effects panel probit regression models using a robust covariance estimator. The dependent variable is a binary variable, where one indicates individuals' ownership of socially responsible mutual funds, zero otherwise (ownership of conventional mutual funds). The main variable of interest, parental ownership, is an indicator with the value one if either the mother or the father, or both, own socially responsible funds in the previous period. Significance levels: ***p<0.01 **p<0.05 *p<0.10

	Model 1		Model 2		Model 3	
<i>Socio-economic characteristics</i>						
Female	0.216***	(0.036)	0.212***	(0.039)	0.209***	(0.040)
Children	0.024	(0.036)	0.032	(0.037)	0.036	(0.037)
Born 1973	-0.282***	(0.038)	-0.298***	(0.042)	-0.300***	(0.043)
Single	-0.033	(0.037)	-0.015	(0.039)	-0.011	(0.039)
Income from salary	-0.151	(0.106)	-0.146	(0.111)	-0.144	(0.113)
Net wealth	0.766*	(0.423)	0.536	(0.445)	0.421	(0.448)
<i>Educational attainment</i>						
Secondary	-0.174	(0.116)	-0.188	(0.127)	-0.186	(0.128)
Post-secondary (less than 2 years)	0.133	(0.119)	0.072	(0.129)	0.071	(0.131)
Post-secondary (more than 2 years)	0.330***	(0.116)	0.252**	(0.126)	0.248*	(0.128)
Graduate	0.383**	(0.177)	0.283	(0.194)	0.289	(0.194)
<i>Portfolio characteristics</i>						
Portfolio return	-0.422***	(0.087)	-0.436***	(0.088)	-0.442***	(0.088)
Portfolio Standard Deviation	0.322***	(0.042)	0.345***	(0.038)	0.353***	(0.037)
Number of funds in portfolio	0.360***	(0.009)	0.356***	(0.010)	0.357***	(0.010)
<i>Geographic location</i>						
Stockholm	0.229***	(0.050)	0.198***	(0.052)	0.191***	(0.053)
Gothenburg	0.071	(0.067)	0.061	(0.070)	0.054	(0.072)
Malmö	0.075	(0.097)	0.086	(0.100)	0.070	(0.102)
<i>Parental socially responsible investment</i>						
Parental ownership	-		0.985***	(0.054)	0.784***	(0.056)
Parental socially responsible mutual fund return	-		-		0.325**	(0.132)
Constant	-8.104***	(1.310)	-7.421***	(1.377)	-7.057***	(1.387)
Annual time-specific effects	Yes		Yes		Yes	
Pseudo-R ²	0.108		0.116		0.118	
Number of Observations	297,951		297,951		297,951	
Number of Individuals	51,302		51,302		51,302	

Table 5: Mother versus father influence on individuals' likelihood to hold socially responsible funds

The table report estimated coefficients and corresponding standard errors in parenthesis for random effects panel probit regression models using a robust covariance estimator. The dependent variable is a binary variable, where one indicates individuals' ownership of socially responsible mutual funds, zero otherwise (ownership of conventional mutual funds). The main parental variables of interest include dummy variables indicating if only the mother, only the father, or both, own socially responsible mutual funds, the socially responsible mutual fund returns for mothers and fathers during the past year (separately), as well as parental characteristics pertaining to the individuals adolescent. While the reporting of results is restricted to the parental variables of main interest, the full model (as those reported in Table 4) have been used in estimation. The estimates for these other explanatory variables are similar in sign and significance, as those reported in Table 4. Significance levels: ***p<0.01 **p<0.05 *p<0.10

	Model 1		Model 2		Model 3	
<i>Parental ownership of socially responsible funds</i>						
Only Mother	0.864***	(0.072)	0.861***	(0.072)	0.857***	(0.081)
Only Father	0.714***	(0.076)	0.704***	(0.075)	0.703***	(0.082)
Both Mother and Father	1.714***	(0.094)	1.696***	(0.093)	1.694***	(0.104)
<i>Social responsible mutual fund portfolio return</i>						
Mother	-		0.137	(0.154)	0.134	(0.159)
Father	-		0.325*	(0.176)	0.324*	(0.182)
<i>Parental characteristics during individuals youth</i>						
Mother Income	-		-		0.434	(0.000)
Father Income	-		-		0.134	(0.099)
Mother age	-		-		0.014**	(0.006)
Father age	-		-		-0.000	(0.005)
Explanatory variables (c.f. Table 4)	Yes		Yes		Yes	
Annual time-specific effects	Yes		Yes		Yes	
Pseudo-R ²	0.119		0.119		0.128	
Number of Observations	297,951		297,951		297,951	
Number of Individuals	51,302		51,302		51,302	

Table 6: Effect of parental similarities in pro-social values on individuals' likelihood to hold socially responsible funds.

The table report estimated coefficients and corresponding standard errors in parenthesis for random effects panel probit regression models using a robust covariance estimator. The dependent variable is a binary variable, where one indicates individuals' ownership of socially responsible mutual funds, zero otherwise (ownership of conventional mutual funds). The main parental variables of interest include dummy variables indicating if only one (regardless of mother or father), or both of the parents own socially responsible mutual funds, the total socially responsible mutual fund returns for mothers and fathers during the past year, as well as variables pertaining to the individuals adolescent. While the reporting of results is restricted to the parental variables of main interest, the full model (as those reported in Table 4) have been used in estimation. The estimates for these other explanatory variables are similar in sign and significance, as those reported in Table 4. Significance levels: ***p<0.01 **p<0.05 *p<0.10

	Model 1		Model 2		Model 3	
<i>Parental ownership of socially responsible funds</i>						
Only one parent _{t-1}	0.796***	(0.071)	0.787***	(0.071)	0.782***	(0.071)
Both parents _{t-1}	1.583***	(0.092)	1.567***	(0.092)	1.562***	(0.092)
<i>Social responsible mutual fund portfolio return</i>						
Parents	-		0.461***	(0.137)	0.459***	(0.137)
<i>Parental characteristics during individuals youth</i>						
Parental income	-		-		0.233***	(0.073)
Parental age	-		-		0.009***	(0.003)
Explanatory variables (c.f. Table 4)	Yes		Yes		Yes	
Annual time-specific effects	Yes		Yes		Yes	
Pseudo-R ²	0.118		0.118		0.118	
Number of Observations	297,951		297,951		297,951	
Number of Individuals	51,302		51,302		51,302	

Table 7: Parental resources during socialization and individuals' likelihood to hold socially responsible funds.

The table report estimated coefficients and corresponding standard errors in parenthesis for random effects panel probit regression models using a robust covariance estimator. The dependent variable is a binary variable, where one indicates individuals' ownership of socially responsible mutual funds, zero otherwise (ownership of conventional mutual funds). The main parental variables of interest include dummy variables indicating if only one (regardless of mother or father), or both of the parents own socially responsible mutual funds, the total socially responsible mutual fund returns for mothers and fathers during the past year, as well as variables pertaining to the individuals adolescent. While the reporting of results is restricted to the parental variables of main interest, the full model (as those reported in Table 4) have been used in estimation. The estimates for these other explanatory variables are similar in sign and significance, as those reported in Table 4. Significance levels: *** $p < 0.01$ ** $p < 0.05$ * $p < 0.10$

	Model 1		Model 2		Model 3		Model 4	
<i>Parental ownership of socially responsible funds</i>								
Parental ownership _{t-1}	0.970***	(0.054)	0.678***	(0.087)	0.004	(0.329)	0.002	(0.330)
Parental ownership _{t-1} × total parental income	-		0.936***	(0.220)	0.948***	(0.221)	0.957***	(0.222)
Parental ownership _{t-1} × parental experience (age)	-		-		0.021**	(0.010)	0.021**	(0.010)
Parental ownership _{t-1} × parental equality	-		-		-		0.030	(0.153)
<i>Social responsible mutual fund portfolio return</i>								
Parents	0.386***	(0.131)	0.391***	(0.131)	0.389***	(0.131)	0.389***	(0.131)
<i>Parental characteristics during individuals youth</i>								
Parental income	0.227***	(0.072)	0.071	(0.069)	0.070	(0.069)	0.069	(0.070)
Parental age	0.008***	(0.003)	0.008***	(0.003)	0.004	(0.004)	0.004	(0.004)
Explanatory variables (c.f. Table 4)	Yes		Yes		Yes		Yes	
Annual time-specific effects	Yes		Yes		Yes		Yes	
Pseudo-R ²	0.116		0.116		0.117		-	
Number of Observations	297,951		297,951		297,951		297,951	
Number of Individuals	51,302		51,302		51,302		51,302	

FIGURES

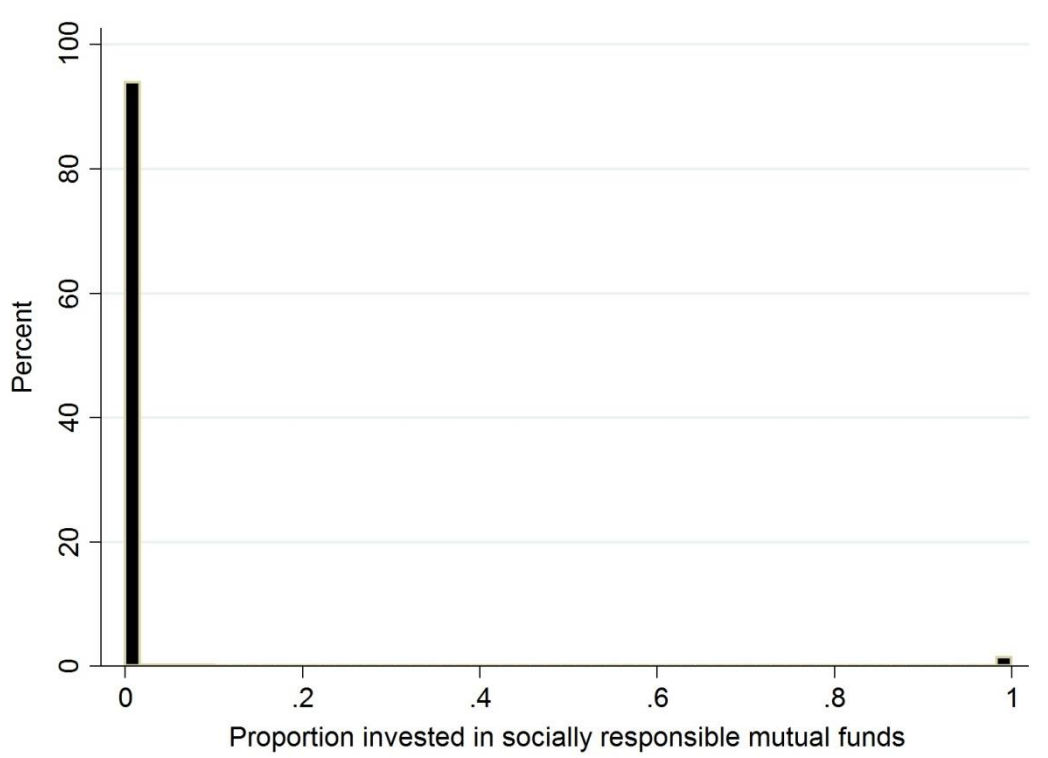


Figure 1: Empirical distribution of the aggregated proportions of money invested in socially responsible funds over value of a portfolio of all mutual funds of each individual investor by year.

APPENDIX A

Table A1: Variable definitions

The table defines the variables used within the analysis. The data pertaining to...LINDA,...

Female	Equal to one if individuals are female, zero otherwise.
Single	Equal to one if individuals are married or co-habit (sambo) , zero otherwise.
Children	Equal to one if individuals have children, zero otherwise.
Born 1973	Equal to one if individuals are born in 1973, zero otherwise.
Salary	Annual income before tax from wage (labor). Millions of SEK.
Net wealth	Net wealth calculated from cash at bank, investment in funds, bonds, stocks, real estate wealth, minus the total value of liabilities. Millions of SEK.
Educational attainment	Dummy variables for highest level of education for each individual: "Compulsory 9 years", "Secondary", "Post-Secondary", "Bachelor and Master degree", and "Doctoral degree".
Portfolio return	Synthetic value-weighted portfolio returns on total mutual fund holdings of each individual using current mutual fund choice, current mutual fund weight and mutual fund return during the year.
Portfolio Standard Deviation	Value-weighted portfolio standard deviation for each individual using current mutual fund choice, current mutual fund weight and annualized standard deviation from funds' daily NAVs.
Number of funds in portfolio (log)	Natural logarithm of the number of funds held by each individual each year.
Municipality of residence	Dummy variables for "Stockholm", "Gothenburg", "Malmo" and "Others".
One Parent	Equal to one if at least one of the parent invest in socially responsible mutual funds in the same period, zero otherwise.
Both Parents	Equal to one if both mother and father invest in socially responsible mutual funds in the same period, zero otherwise.
Parent SR Investment (Category)	Categorical variables for characteristics of parents socially responsible mutual fund holding: equal to 0 if no one hold, 1 if only mother hold, 2 if only father hold and 3 if both mother and father hold.
Parent SR portfolio return	Weighted average return base on total amount invested in socially responsible mutual funds of both mother and father in the same period.
Mother SR portfolio return	Mother' weighted portfolio return from investment in socially responsible mutual funds.
Father SR portfolio return	Father' weighted portfolio return from investment in socially responsible mutual funds.
Mother Income	Mother income during the period when the child is 17 years old
Father Income	Father income during the period when the child is 17 years old
Mother age	Mother age when the child was born.
Father age	Father age when the child was born.