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**WHO IS WILLING TO LET ETHICS GUIDE HIS ECONOMIC
DECISION-MAKING?
EVIDENCE FROM INDIVIDUAL INVESTMENTS IN ETHICAL
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by

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Abstract

Recent economics literature has devoted attention towards motives beyond the typical selfish norm for economic decision-making. Yet, it still remains a puzzle who allows such considerations to govern their behavior. This paper contributes by empirically identifying some features which differentiate individuals who choose to bear the cost of ethically guided economic decision-making from others. Using unique Swedish data on individual pension portfolio choices, we find that education, the choice of an occupation that is committed to taking care of others, actively joining a group working for a common cause, clearly predict the choice of an ethical screen for individual investments. In contrast to previous findings on altruism, income, financial wealth and age do not govern the decision. The results therefore suggest that investing ethically is typically a choice of principles.

Keywords: Socially Responsible Investing, Altruism, Individual Financial Investments, Individual Decision-Making, Ethics and Norms

JEL-Codes: A13, D80, C24, Z13

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I. Introduction

Recent economics literature has directed attention towards the way norms such as altruism, reciprocal preferences and fairness preferences, can affect economic activity (see, for example, Schokkaert, 2005). Such behavior means that individuals take into account considerations beyond the typical selfish norm of the economic actor.

One phenomenon that may lie behind such considerations is that individuals can entertain preferences over ethics, thereby wanting to integrate personal values and societal concerns with their economic decision-making. Yet, it is a puzzle as to who actually let ethics govern their behavior, and how they may be distinguished from others who do not (for a general discussion on ethics in economics, exemplified by growth in ethical investing, see Lewis & Cullis 1990)¹. Hence, can we identify the “ethic man”? The aim of this paper is therefore to empirically identify some individual features, by testing several hypotheses of individual characteristics that may be advantageously correlated to economic decision-making guided by ethical norms. The purpose is not to identify why individuals choose such economic decision-making but instead to attempt to identify who they are.

This paper considers ethical preferences following individual choices of screening their individual financial investments, either to promote ethical behavior or to ban unethical behavior. The data is gathered from pension portfolio choices in 2000-2001 following a Swedish national initiative that permitted individuals to select funds for their personal

¹ Lewis & Cullis [1990] foremost discuss preference formation in economics and the role of played by ethics. They use the growth of ethical investing to exemplify the discussion. The main explanations for the growth in ethical investments are: (i) supply-side driven by innovative marketing strategies; an ethics screen is used as a way to profile the fund. (ii) increased activism and raised consciousness; demand for ethical investments are “.....fueled by the committed action of dedicated consumer activism, who, bit by bit, literally put moral and ethical questions on the boardroom agenda”. (iii) vintage preferences; the preferences are economically determined but are, after a certain point in the life cycle, not subject to change by economic conditions. (iv) “Crowding in”; investors try to fill a void following governmental reduction in concern for others. The conclusions suggest that something beyond economic determinism and the crowding in hypotheses must explain the growth.

premium pension, combined with the Swedish Household Survey 2000. The leaning towards such ethical investments has not previously been empirically analyzed from the standpoint of individual investment decisions and the present paper seeks to fill this gap.²

In order to identify characteristics which distinguish ethical investors, it is helpful to consider what motivates individuals to choose an ethics screen. The ethical element, in this context, is having an investment profile which is primarily concerned to divert investments from or to activities which are thought to lead to an undesirable or desirable social change, or which have undesirable or desirable effects on certain groups. Consequently, one of the motives behind ethical concerns could be reflected by *altruistic* considerations.³ Such concerns may then arise when individuals feel compelled to be, or want to be, good citizens who, among other things, care about the social consequence of their own actions.⁴ Concern about the societal impact on others may not however necessarily be the altruistic impulse behind an ethical investment approach. Instead people may care about the act of doing “good” to other people, which gives them what is commonly referred to as a “warm glow” (see e.g. Andreoni, 1990). Previous literature on altruistic behavior is vast and has focused on the motivations behind bequests to heirs or others (see e.g. Laitner & Juster, 1996; Moscow McGranahan, 2000), or the motivation for charity contributions (especially in terms of tax deductibility in the US case (see e.g. Auten & Joulfaian, 1996), or donating

² The paper also sheds light on policy issues related to pension reform and self-directed investments. If as shown in this paper, the ethical profile of the investment fund is important to many investors, policy makers must take into account not only which types of funds but also the level of screening available. Similar data on the premium pension, but with focus on other issues, have been used in e.g. Cronqvist & Thaler [2004], Engström & Westerberg [2003] and Säve-Söderbergh [2003].

³ Becker [1974] offers a theoretical example by modeling individuals who maximize a social income, which is the sum of a person’s own income and the monetary value to him of the relevant characteristics of others, also known as the social environment. It is the amount the donor gives, rather than the quantity of the public good he receives, that then enters the utility function.

blood (see e.g. Titmuss, 1970, the seminal work on blood donors), or behavior in laboratory experiments in dictator games for instance (Bolton, Katok & Zwick, 1998), or the provision of volunteer labor (Freeman, 1997). Unlike these types of altruistic action (apart for blood donation and most laboratory experiments), however, the choice of ethically screened investments is often relatively anonymous to those who may benefit from the investment concerned. Consequently, exchange motives, involving bequests promised to procure services that cannot be purchased in the marketplace, do not provide a plausible explanation. Furthermore, as shown by Falk [2004], gift exchange motives, which appear important in charitable giving, may not be relevant here as no such exchange or reciprocal relationship is possible to establish with an ethics screen.

A second motive may be *ideological*, or political, building on a sentiment of “us all being in the same boat”, therefore considering it individually profitable to minimize societal impact due to the use of products considered unethical. A third driving force could be increased *awareness* about the societal impact of unethical products, and that, this awareness would lead individuals to attempt to avoid such effects by applying ethical screens. A final motive could stem from an attempt to show *status* or prestige in relation to others.⁵ But, as the act is not clearly visible⁶ to others will a motivation grounded on prestige⁷ or status

⁴ The psychological literatures divide these into first a wish to obey norms of social pressure (where behavior follow external norms and social rewards are necessary) or secondly a dutiful altruism abided by the need to follow internalized norms (for an elaborate discussion on psychological motivations to pro-social behavior see Schokkaert, 2005).

⁵ In addition, social pressure, guilt, or sympathy may play a part in choosing to let investments be governed by standards defined as ethical.

⁶ The investment could be made visible to others, however, perhaps by the investment firm revealing information on the investor concerned in annual reports, bank statements, etc.

⁷ For a theoretical and empirical discussion on the prestige motive for making charitable transfers see Harbaugh [1998]. Two types of benefit that may arise from donations are considered in his analysis. The first is purely internal, and derived from the donor’s own knowledge of what he has given. The second is the prestige benefits acquired from the donations, which the donor acquires when other people know how much he has given. It is found that the second type of motive is of great importance to donors, although the data show pronounced heterogeneity among donors.

accruing to the investment-maker, be immediately apparent. Note that the motivations may be intertwined and are not necessarily mutually excludable.

One must also bear in mind that even if ethical preferences are included in an individual's utility function, ethical investment screens may still not be adopted due to incentives to free-ride, as the benefit of investing in ethical funds cannot exclude others. In other words, the decision to contribute is similar to the decision to invest in the provision of a public good. Then, just as an optimal contribution to a public good is zero, an investor would not invest ethically. Nonetheless, as public goods experiments have found, a significant share of the participants do contribute positive amounts, despite strictly dominating incentives not to contribute (see e.g. Fischbacher, Fehr & Gächter, 2001), we may expect some individuals to invest ethically.

But what, then, is the cost of allowing investments to be guided by ethical standards? Modern portfolio theory holds that, in general, diversification reduces risk and maximizes long-term returns. Consequently, anything that limits an investor's ability to diversify will increase the risks unnecessarily and yield a non-optimal portfolio. To eliminate weapon industry securities, for example, will limit the individual's ability to diversify into an industry that may outperform the rest of the stock market. Socially screened investing may thus produce higher risk-adjusted portfolio returns than merely using all the available stocks in the equity universe. By the same token, the expected return will be lower at a constant risk level. The detrimental effect on expected returns will accordingly depend on how many investment opportunities are withdrawn from the portfolio.⁸

⁸ The empirical support to this theory is not conclusive. Geczy et al [2003] finds a significant cost of using an ethics screen, by comparing constructed optimal portfolios of mutual funds including ethical funds to those constructed from a broader fund universe to reveal the cost of imposing an ethics constraint on investors seeking the highest Sharpe ratio. Following data from 1963-2001 it is shown that there is a cost which depends crucially on the fraction of ethical funds along with prior beliefs about pricing models and manager skill. In contrast, Guerard [1997] discovers no statistically significant difference between the performance of a screened universe of 950 US common

Despite the lack of immediate incentives to have an ethically guided portfolio, and despite the cost arising from the limited diversity, it is an empirical fact that ethical investments - more generally referred to as socially responsible investing - are significant in the aggregate. In the US more than ten percent of all funds are managed on a socially responsible investing basis, whereas e.g. the figure for three European countries (France, Belgium and the Netherlands) is two percent (Plantinga & Scholtens 2001).⁹ In the present data approximately thirteen percent chose at least one ethical fund. Certain individuals are consequently willing to forego a return for non-economic values.

In this paper, results from a Tobit model on the portfolio share of ethical funds foremost show support for individuals who apply ethics screen to have an increased awareness and to be ideologically motivated. The first follows from education being increasingly decisive. The ideological motivation follows from the individual's choice of work sector, or more important, the choice of having an occupation with a focus on taking care of others, being a valid correlate to applying ethics screening. Furthermore, individuals who have joined a trade union (which may reflect an ideological willingness to commit to a group value rather than to an individual one) are more inclined to ethical screening. Altruistic motivations, on the other hand, are less apparent, as only having economically dependent children and being female is positively associated with ethics screening. Note that the latter is in line with some previous studies finding women to be more altruistic.

stocks and an unscreened universe of 1300 US stocks between 1987 and 1996. For US public pension plans, Munell & Sundén [2000] show no significant negative impact of divestiture, i.e. selling assets for political reasons, either in South Africa or for Tobacco companies from the early 1990s, using PENDAT data for state and local pension plans. For European securities, Plantinga & Scholtens [2001] conclude that sustainable investing according to the Dow Jones definition did not result in a return distribution that significantly differed from a more conventional or regular investment strategy for 784 funds in France, Belgium and the Netherlands during 1994-2000. For Sweden, Skillius [2002], found, however not in a formal analysis, that on average 19 Swedish ethical funds (also included in this analysis) did not underperform compared to some Nordic and international indices.

⁹ In Sweden, for example, 2.6 percent of the total fund savings is allocated to socially responsible investing, Skillius [2002].

No clear support is found for income, financial wealth or age when it comes to governing ethical investments. Since, in this context, an increase in any of these variables reflects a declining cost for ethical investments, we find no support for ethical investors being typically guided by the cost.¹⁰ Instead it seems to suggest that the decision to invest ethically is more a decision based on principles.¹¹ By the same token, the data find no support for the notion that individuals choose ethics screen from a status and prestige motive.

The outline of the paper is as follows. The hypotheses on what governs ethical investment behavior are outlined in Section II. In Section III the data is described. Section IV presents the empirical model. In Section V the results are presented and Section VI contains a sensitivity analysis, while Section VII offers some concluding remarks.

II. Hypotheses on the “Ethical Man”

The question to why and what features may distinguish individuals who choose to let their investments be guided by ethical standards are considered below in light of some testable hypotheses on ethical investment behavior.

I. Awareness Motivation

Education is here presumed to generate knowledge or increased awareness about environmental issues and the anticipated societal effects of abstaining from products such as those

¹⁰ Shleifer [2004] discusses how competition, more than greed, is the underlying force behind the spread of unethical behavior. But he also argues that competition may, in the long run, promote ethical behavior. The reason claimed is that since competition promotes growth, income will increase and with increasing income: (i) the willingness to pay for ethical behavior increases and (ii) what people believe to be ethical may change for the better. This paper, however, shows no support for the first claim. Demand for ethical investments is not increasing with income. Yet, there is some support for the second claim. We show that education is associated with more ethical investments. To the extent higher income leads to more education, it therefore indirectly affects ethical attitudes.

¹¹ Evidence for this is also found in the literature of economic psychology. Webley et al [2001] found for experimental data, following simulations of real investors' consultations with a virtual financial advisor, that ethical investors were generally committed to ethical investment and kept such investments even if they performed badly or even ethically ineffective.

defined as “undesirable” above, and that this may promote socially responsible investing. Moreover, we conjecture that education fosters certain attitudes regarding such behavior.

II. Altruistic Motivation

The altruistic motivation is tested by first considering parental altruism. If the choice of an ethical investment profile is driven by an active concern for societal change, then individuals with children may be more prone to invest in ethical funds. This argument rests on the assumption that parents are actively altruistic when they take account of their children’s future welfare, or the utility of certain societal changes, when they make their investments.¹² The importance of such intergenerational altruism is supported, for instance, by Laitner & Juster [1996].

The second altruistic motivation stem from previous literature on gender and altruism having found that, on average, women are more altruistic than men, although the evidence is not conclusive (see Eckel & Grossman, 2000; Andreoni & Vesterlund, 2001; Dufwenberg & Muren, 2002, however not found in Bolton & Katok 1995). In line with these admittedly weak findings, we expect women to apply ethics screening.

III. Ideological Motivation

The choice of ethics screening is also hypothesized to be related to an ideological motivation of individuals seeing themselves as part of a broader society, and thereby being willing to individually minimize any negative impact on society coming from the use of unethical products. Such ideological motivations are hypothesized to be correlated with the choice of occupation. For example, individuals who have chosen an occupation that is devoted to taking care of others are presumed to also ideologically find it important to use ethics screening. As they have chosen to work with other individuals’ well being they may

¹² Obviously, the altruistic argument could apply to any children and not just children within the family. The underlying assumption should also be remembered that the benefit of the screen is not immediate but that it gradually comes over time.

also consider a positive impact on society following ethics screening important. Moreover, as such people may also have to deal in their jobs with some of the consequences of unethical products (e.g. the physical and psychological effects of alcohol abuse or crimes of violence) people working in these sectors may be more likely than others to screen against companies which produce such goods.

Similarly, we presume individuals who have *actively chosen* to belong to or participate in a group – such as a trade union - which works for a common goal to be more inclined to ethics screening. We argue that the enrollment in a group may reflect an ideological willingness to prefer group norms rather than individual norms.

Furthermore, there is a growing literature on social capital (see e.g. Putnam, 1993, a seminal work on social capital), defined as a network of economic agents and the qualities of these agents, which foster efficient economic activity. Moreover, social interdependencies are found to be important to why members of the same group may behave similarly (Schokkaert, 2005). We then presume that, similarly to the decision to join a trade union, high levels of social capital, presumably then with high levels of social interaction, would reflect a willingness to work for a group norm rather than individual norms.¹³ If social capital has an influence on ethical behavior, we then expect to find ethical investors clustered in certain groups, for example among individuals who are highly active in, or affiliated to, political or religious associations. Although the data in the paper includes only broad indicators of group association, some relationships between social capital indicators and ethical behavior are worth exploring.

¹³ This may also be related to “social learning”, stressed by psychologists to be important for preference formation (see Schokkaert, 2005), such that others’ choice of screening is imitated or reinforced in a group.

IV. A Decision Based on Principles rather than on Costs

Is the decision to adopt an ethics screen sensitive to differences in the price or is it possible to say that the screening decision is foremost a decision based on principles and not on costs? First, if investors are driven by personal values or preferences regarding societal change, then the longer the time horizon of an investor the more likely they are to invest in ethical funds.¹⁴ The explanation is that an individual who has a longer time horizon also has a longer period in which to enjoy the expected benefit of the investment (that is, the societal change due to the investment). There is also a counteracting effect from time horizon on choosing an ethical screen. Assume that an elderly individual and a young investor choose the same ethical investment profile for their premium pension. Assuming no rebalancing occurs, the older investor will then have a shorter time span before realizing the investment and hence his cost of adopting ethical guidelines will be lower compared with the younger investor's. Thus a positive relationship between age and ethical investment share would suggest that demand increases as the relative cost declines.

Second, a price argument, similar to that suggested secondly regarding the time horizon of the investor, applies to increasing income or wealth. The amount of the expected pension income that constitutes the premium pension will be relatively smaller, given greater wealth or higher income, other things being equal.¹⁵ Thus an individual with a high income or great wealth will incur a lower relative cost for having an ethical profile for the premium pension compared with a less wealthy investor. Previous literature has also found wealth or income to be a significant determinant of charitable giving (Auten & Joulfaian 1996; Schokkaert, 2005). Hence, to the extent that ethical investments reflect such altruistic pref-

¹⁴ This hypothesis rests on the assumption that the benefits of some ethical screens - for instance an environmental change - are not immediate or apparent at the time of investment. Instead the change may emerge gradually over time.

erences, or even a prestige motive, we may again expect demand for ethical funds to rise with increasing income or wealth.

A final test of price sensitivity is performed using the individual's marital status. Married individual can pool their resources, thereby reducing the risk exposure and hence the cost implied by an ethical screen. Consequently, since the cost is lower than it is for single individuals, married people may have a larger share of ethical investments.

III. Data

The data on portfolio choices for the premium pension has been collected from the Premium Pension Authority (PPM), and merged with cross-section data from the Swedish Household Survey on Income (HINK) for the year 1999. The HINK data consists of 38 237 individuals of whom 18 124 were eligible participants.¹⁶ The premium pension is part of a new public and mandatory defined-contribution pension system in Sweden.¹⁷ Individuals who were born in 1954 or later will have their total pension determined by the new pension system; 2.5 percent of their wages and other taxable remuneration¹⁸ has been set aside for the premium pension from 1999 onwards, while 2 percent of their income was set aside for the same purpose during 1995-98.

The analysis is based on the first choice of fund allocations (fund allocations could be rebalanced at no cost after the first choice) in connection with the premium pension in the

¹⁵ This is especially important since earnings above a given threshold do not accumulate higher premium pensions. The threshold level is set at 7.5 times a base level, where the base level was SEK 37 500 for 1995, SEK 36 200 for 1996, SEK 36 300 for 1997 and SEK 36 400 for 1998.

¹⁶ To be eligible for fund selection a person's income must have exceeded SEK 36 000 in 1995, SEK 36 800 in 1996, SEK 37 000 in 1997 and SEK 37 100 in 1998.

¹⁷ For more information on the data and the new pension system, see Säve-Söderbergh [2003].

¹⁸ Individuals born from 1938 to 1954 will get their pensions from a combination of the old ATP system and the new system. A smaller amount has been set aside for these individuals for the premium pension. The share is 0.1 percentage point less for each year prior to 1954. The entire pension of individuals born in 1937 or earlier will be based on the old system.

years 2000 and 2001.¹⁹ Individuals could allocate their premium pension across a maximum of five funds. Those who chose not to select any fund for themselves had their premium pension allocated to the *Premiesparfonden*, managed by *Statliga Sjunde AP-fonden* (a government agency).²⁰ The non-selectors amounted to 7122 individuals, who are excluded from the main part of the analysis. The remaining sample includes 11 102 individuals of whom 52 percent are women and 48 percent men.

There were 627 available funds to choose from, of which 20 had a pronounced ethical investment profile.²¹ The *Premievalsfonden* is based primarily on the same investment profile as the *Premiesparfonden* (designed to reflect the portfolio shares of equity, mixed, interest and ethical funds chosen on average in the national fund selection) and does include ethical guidelines. Although these ethical guidelines are not as pronounced as they are in other ethical funds, individuals who have chosen *Premievalsfonden* are included since this implies that they have made an active choice of a fund employing some sort of ethical screen.²²

Table I about here

Fund statistics regarding the ethical funds are given in Table I. The investment profiles are divided into funds applying negative or positive screening, with 71 percent using a negative screen and 29 percent a positive one. Funds, which also include a charity donation, are included. The funds also differ in their investment profiles, thus embracing equity

¹⁹ Note that in the aggregate for all eligible investors, PPM reports a mere three percent having changed their initial selection.

²⁰ As the investment profile of *Premiesparfonden* is constructed to reflect the profile of an average investor in the national fund selection it does contain ethical guidelines. Still, as the investment profile was set after the first fund choices were made, non-selectors could not have been certain of any ethical principles used for the funds management or of the extent of such principles. See Section VI for estimated results that include these individuals.

²¹ Not all funds were available to all eligible participants as the national fund selection was carried out sequentially across the country. At the outset of the implementation 460 funds were available.

²² All results remain robust when excluding these individuals.

funds, index funds, mixed funds and interest funds: specifically, the data includes 15 equity funds, 2 mixed funds, 3 index funds and 1 interest fund.

Table II about here

Table II columns 1-2 presents summary statistics on the data. The share of individuals who have chosen a certain number of ethical funds is 13 percent (1421 individuals). If we exclude individuals who chose *Premievalsfonden* the figure is 10 percent (1030 individuals). Of the full ethical sample 88 percent chose one ethical fund; of those choosing a number of different ethical funds, 9 chose two, 2 chose three, 0.7 chose 4 and 0.3 chose 5 (i.e. 100 percent ethical funds).

The ethical fund share for each individual i , ϖ_i , is defined as

$$\varpi_i = \sum_{j=1}^N \alpha_{ij} F_j^E \text{ and } \sum_{j=1}^N \alpha_{ij} = 1 \text{ with } 1 \leq j \leq N = 5 \quad (1)$$

where α_{ij} is the share for each fund j for individual i , N is the total number of funds chosen, and F_j^E is equal to 1 if the fund has an ethical investment profile and equal to 0 otherwise. The average share invested in ethical funds is 0.31, or if we exclude those with investments in *Premievalsfonden* it is 0.29.

The distribution of ethical portfolio shares is given in *Figure 1*. The modal share is 0.2 and the majority chose a share between 0.2-0.5. The number of people who chose to invest the total value of the premium pension in an ethical fund amounted to 5 percent of the ethical investors, or 4 percent if we exclude *Premievalsfonden*. Hence we can conclude that for the great majority, the ethical principle does not involve choosing ethically or not doing so; rather it means having a fraction of one's portfolio invested ethically.

Figure 1 about here

The summary statistics in Table II regarding ethical investors and the main comparison group "other investors, given a fund choice", show statistically significant differences in some of the control variables. The ethical investor is on average more often a

woman, have a higher education and have a higher level of annual income (including both income from work and social transfers). Note that no difference is found for net wealth (defined as: assets (savings deposits, real estate, premium bonds, market value of bond funds, mixed funds, stock funds, stocks (A-listed, OTC-listed and other listings) – debt).²³ The ethical investor is also more likely to have joined a trade union. The hypothesis on social capital is tested using data on average regional activity or affiliation levels for political activity (political party membership, active political party member, and attendance at political party meetings), on trade union activity (membership in trade union, active membership) and on attendance at religious services for each region, given in Appendix Table I. Following these regional statistics, the greatest political and trade union activity is found in the regions with the lowest population density and the least activity in regions with the highest population density. No similar clear-cut relationship is found for religious service attendance. But all in all, the regional data implies that higher average levels of social capital are to be found in the low populated areas. For the pension investment data, we find that the ethical investors are more likely to live in the more densely populated areas.

Finally, the data allows for two measures of the individual's choice of occupation. First, the work sector, which is defined as the work sector in which the person's main income is earned. This measure is divided into five broad categories and 11 narrow categories.²⁴ This classification allows us to test whether individuals who work in the public sector, where

²³ As the quality of the data is uncertain when it comes to assets and inventories associated with unincorporated businesses, farms and commercial real estate, the conventional practice when using HINK data is to exclude households owning declared wealth in these asset categories. The number of people excluded from the analysis is 1728 individuals with declared wealth in unincorporated businesses, 751 who farm and 72 who receive income from commercial real estate. All results remain robust to the inclusion of these individuals.

²⁴ The broad sector includes the private non-financial business sector, the financial business sector, the governmental sector, the municipal sector, non-profit organisations and other or unclassified sector (non-classified or households generating income from other sources).

the majority of professions focusing on the well-being of others are found, reveals a demand for investments of a different kind compared with those who work in the private sector. For this division we find that the typical ethical investors work in the public sector and in non-profit organizations, and are especially rare in the financial sector. The second measure, type of work, is an indicator of the character of the work and is divided into seven categories as given in Table II. Using this measure we can determine whether it is the specific element of working directly with individuals or the particular sector where the work is performed that is correlated with the demand for ethical investments. The summary statistics show that the typical ethical investor has chosen to work with health care, public administration and education, and less with financial business or manufacturing.

IV. Empirical Model

The demand for ethical investments is modeled as a Tobit model, following a similar setup as that outlined in Guiso et al. (1996) for the demand for risky assets. The demand for ethical assets is thereby modeled as a two-stage decision, whereby the individual first chooses whether to have an ethical screen or not, and then decides how to allocate the investment between ethical and other funds. The choice of a Tobit model derives from tackling two sources of selection bias. The first is connected with the fact that not all individuals hold any ethical funds and the second because some individuals hold their entire investment in ethical funds. Such censoring arises since a zero investment in ethical funds may actually be a corner solution, such that if individuals could choose freely the optimal share would be negative. Similarly, individuals who choose to invest everything in ethical investments may actually have an optimal share exceeding one. This type of bias leads to

inconsistent estimates of a simple OLS regression on the share of ethical investments on individuals' characteristics.²⁵

The problem is handled by the Tobit model if we let the lower limit be zero (individuals hold other funds exclusively) and the upper limit be one (individuals hold ethical funds excessively). The standard framework is then to imagine an underlying latent "desired" portfolio share that does not have restrictions on the value it can assume. Define a latent variable U_i^* , which is an index or utility of a person's desire for ethical investments, such that

$$U_i^* = \beta_0 + \beta_1 \text{COSTS}(\text{age, income, wealth, married}) + \beta_2 \text{AWARENESS}(\text{education}) + \beta_3 \text{ALTRUISM}(\text{children, female}) + \beta_4 \text{IDEOLOGY}(\text{region, work}) + \varepsilon_i$$

and $\varepsilon_i \sim N(0, \sigma^2)$. (2)

Hence the utility of ethical investments are determined by *COSTS*, *AWARENESS*, *ALTRUISM* and *IDEOLOGY* and a standard error term. We do not observe U_i^* but rather y_i , which is observed according to

$$y_i = \begin{cases} U_i^* & \text{if } U_i^* > 0 \\ 0 & \text{if } U_i^* \leq 0 \end{cases}, \quad (3)$$

where the observed y_i is the value of the index function when it exceeds zero and is equal to zero otherwise. The coefficient interpretation of the Tobit thus describes the effect on the latent utility function due to a change in, for example the *COSTS*, such that

²⁵ A limitation of the Tobit model, however, is that the decision to invest and the share to invest are estimated simultaneously using the same independent variables, thus assuming both decisions to be essentially driven by the same underlying model for tastes. This is not a severe limitation in this context as the focus is on what individual attributes distinguish an ethical investor and not the actual level of investments made in ethical funds. Yet, if we model the ownership decision and the share decision separately, then for the ownership decision a probit regression renders the same results as given by the Tobit model. For the share decision some of the coefficients measured with the Tobit model are insignificant in an OLS model using only ethical investors (female, education, trade union member). Thus for some variables the ownership decision is more important in determining whether or not to have an ethically guided portfolio, rather than the share decision. Still, as mentioned above, as the focus is on the total effect on the demand for ethical funds a Tobit

$$\frac{\partial E(U_i^* | COSTS)}{\partial COSTS} = \beta_1 . \quad (4)$$

Note the effect of an increase in $COSTS$ only has a linear effect on the underlying latent utility function and not on the actually observed share y_i (which is dependent on the probability of U_i^* being positive).²⁶ As we focus mainly on the sign and statistical significance of the coefficients, and not on magnitudes, the effect on the level of investments due to an increase in x_k are discussed following the effect on the underlying latent utility value as given in equation (4).

V. Results

The results from the Tobit regressions are given in Table III and Table IV. Consider first the altruistic motivation for choosing ethical funds, there is no clear support for such motivations to be important. It was hypothesized that if parents were motivated by a preference for societal change, and were altruistically motivated when it came to their children's future welfare, then individuals with children would be more likely to choose ethical funds. There is no such empirical support found in the data as the coefficient on the number of children is insignificant. In addition, if we divide the number of children into independent children, who are defined as those not living in or being dependent of their parents' household (and above 17 years of age), and dependent children as those still living and depending on the parents' household (and 0-17 years of age), we find contrasting evidence to our hypothesis, see Table III column 2. We find that the number of dependent children does not have any effect on the demand for ethical investments whereas the number of independent children has a negative effect on the demand for ethical investments. Hence, it

mentioned above, as the focus is on the total effect on the demand for ethical funds a Tobit model is sufficient.

²⁶ For a more elaborate discussion on the Tobit model see Maddala [1983].

could be that as the children grow independent, parents' interest in providing for the children's future well-being is reduced and hence investing in ethically guided investments declines.

Table III about here

Second, it was hypothesized that women would have more ethical investments and we find evidence for this, as the coefficient on female is positive and highly significant. Thus if choosing an ethical investment profile reflects altruistic concerns for others, the data then reveals women to be more altruistic than men.

Is the decision to invest ethically a decision not based on costs but on principles? Yes, we find some evidence for this to be the case. First, considering the impact of age we find a negative effect for individuals in the age group 60 or over and a positive effect for individuals in the youngest age group, compared to individuals in the 40-49 age group.²⁷ Thus, as indicated by the age coefficients, the demand for ethical investments does not generally increase with age; in fact, with a lower relative cost, if anything, the opposite applies.²⁸ Second, in spite of a lower cost of having an ethical screen for married individuals, there is no evidence in the data that married individuals differ from their single counterparts, among either men or women.²⁹ Finally, neither annual income nor net wealth affects the demand for ethical investments.³⁰ In total, this would suggest that the demand for ethical

²⁷ With a continuous measure, the coefficient (and standard errors) on age is 0.0096 (0.0071) and -0.0001 (0.0001) for the squared age term. None of these are statistically significant.

²⁸ Note however that we cannot determine whether these are age or cohort effects. Nevertheless, investors who have invested 100 percent in ethical funds tend to be older than other ethical investors and the difference is statistically significant

²⁹ A division of the sample between married, cohabiting and single investors reveals no different investment behavior between the three groups.

³⁰ The same results are obtained if financial and real assets are included separately or joint.

investment is not driven by current wealth, nor that demand increases as the relative cost of an ethical profile declines.³¹

Table IV about here

Very strong support is found for awareness to matter. Education is highly influential in choosing ethically screened investments. Thus we can conclude that education has an independent effect on the demand for ethical funds.³² Paralleling this positive relationship with respect to education and ethically screened investments, Freeman [1997] for example shows that individuals who volunteer their labor are typically those with a high level of human capital (see also Schokkaert, 2005). Wealth levels, on the other hand, were not important to the demand for ethical investment. This is a remarkable result, since wealth has a positive effect on the supply of volunteer labor (Freeman, 1997), and on bequests as well as charity contributions (Moscow McGranahan, 2000; Schokkaert, 2005). Thus, despite the

³¹ We have also tested whether individuals who have ethically guided portfolios also are individuals who do not care primarily about the expected return on the investment. This was done by looking at risk exposure in the residual part of the portfolio (i.e. the share not governed by ethical standards) and at the share of stocks out of the total financial wealth. The level of risk is defined as the average standard deviation of fund performance for the years 1997-1999 and for funds created in 2000 imputed risk values are used, by assigning to them the average risk for similar funds (for a more elaborate discussion on this definition of risk, see Säve-Söderbergh [2003]). The results show that the latter variable does not have a significant impact on demand for ethical funds but that the first variable does have a negative and statistically significant impact. Hence, ethical investments decline with a higher expected risk-return investment profile in the case of pensions, but not necessarily in the case of savings portfolios. Still we cannot disentangle whether a lower level of residual risk is chosen to counteract the higher level of risk imposed by the ethical profile or whether these individuals are less concerned with expected portfolio return.

³² An examination of investors, who have invested 100 percent in ethical funds, shows them to have a statistically significant lower income and to have a higher education than other ethical investors. The results are, however, reported with both education and income included in the model. Since these variables are often highly correlated and thus a cause of multi-collinearity, the common practice is not to use them simultaneously. In this setting, though, we expect them to measure distinctly different motivations for ethical investments. While higher education captures effects related to knowledge or attitudes, income should have a more direct influence suggesting the extent to which ethical investments are afforded. The correlation between annual income and education is 0.27, which suggests some cause for concern. But if we correlate the wages for each level of income we find that it is only for the group EDUCATION>15 years where we have a high correlation of 0.29. For the other groups the correlation is lower than 0.11. If both are used simultaneously, education still appears highly influential while there is no effect on annual income. We obtain the same results for education if we omit annual income in the model but if we instead omit education annual income become significant.

altruistic aspect, the choice to invest ethically does not have the same motivation with respect to wealth as charitable contribution or volunteer work. One explanation of this may be the difference in the degree of anonymity, and thus the difference in the social prestige gained from the investment. Whereas the latter activities can be made public, ethical investments are typically not public. If altruistic actions are driven by a desire to demonstrate wealth, as suggested by Glazer & Konrad [1996], and not by the desire for the good provided, then this may explain the difference between choosing ethical investments and charity contribution with respect to wealth.

Turning to the ideological motivations the data suggest such motivations to be of significance. First, the decision to join a trade union, is correlated with the desire for ethical screening as individuals who have chosen not to be members of a trade union, thus chosen not to actively join a group working for a common cause, are significantly less likely to take ethical considerations into account when choosing their investments. To the extent that this reflects an ideological motivation, the above hypothesis is supported.

The hypothesis that social capital is important for the choice of ethical screening is however not supported. It is interesting to see that the relationship found is the opposite of the expected one. Individuals who live in the area with the lowest population density, that is those with the highest average level of social capital, actually have lower levels of ethical investments compared to individuals from areas of the highest population density (the omitted category) whereas in areas with middling densities no difference is found.³³ Thus,

³³ The gender difference found for ethical investments could also be related to the social capital approximates. Appendix Table I reveals gender differences in the social capital indicators. Contrary to the expectation that social capital guides ethical behavior, we find that men have higher average levels of social capital than women, but have lower investment shares in ethical funds than women. Thus gender differences in social capital fail to account for the gender differences noted in ethical investments.

divergencies in regional association membership, and consequently divergencies in social capital, cannot account for the clustering of ethical investor.³⁴

Finally we expected there to be a positive relation between individuals who have selected an occupation with a focus on the well-being of others, or who deal with the consequences of the use of unethical products, on the one hand, and a desire to screen investments on the other. We first find that individuals who earn their main incomes from the financial sector have a lower demand for ethically screened investments than individuals who earn their incomes from the private non-financial business sector. The result is highly significant and suggests that financial knowledge may have some importance as individuals who are more aware of the cost of choosing an ethical screen, have lower shares. Furthermore, including dummy variables for a narrow division of the work sector, see Table III column 3, we find that it is individuals who work in the monetary financial sector who drive the negative results. This implies either that there is a selection of individuals who primarily care about expected portfolio returns who also work in the monetary financial sector, or that more knowledge on the detrimental effect of an ethical investment profile leads to fewer ethical investments.³⁵

Employees in the governmental sector in general do not differ from those who work in the private sector, but a division of the governmental employees into public administration, other public institutions and state-owned corporations, show that employees in this last group use ethics screening more. Similarly, individuals who work in the municipal sector do so. Thus, we cannot conclude that working for the public sector in itself is correlated

³⁴ Again it should be noted that an important difference between the decision to have ethically screened investments and the social capital approximates, is the degree of anonymity. Whereas the regional indicators all measure activities which may be monitored by a group or be subject to group pressure, the ethical investment profile is not readily visible to others.

with applying ethical screening; rather the results suggest that there may also be a connection with the type of work performed.

An examination of individuals who earn their main incomes from work in non-profit organizations shows them to have a higher share of ethical investments. But if the model is adjusted to allow for a narrower definition of this earnings sector, we find that it is exclusively individuals who earn their main incomes from registered religious associations who have a higher share of ethical investments.³⁶ Hence this may support the notion that individuals who choose to work in sectors that focus on the well-being of others and who are strongly guided by ethical beliefs in their work environment, will also be willing to bear the cost of their ethical principles in their long-term expected returns.³⁷

The second measure, type of work, is an indicator of the nature of the work performed. Using this measure we can determine whether it is the specific element of working directly with individuals or the particular sector where the work is performed that is correlated with using ethical screening. The results of the regression models based on the type of work are reported in Table IV, columns 1-2, show a strong relationship between the type of work performed and the demand for ethically screened investments. Again we find employees working with financial business issues to be less inclined to invest ethically compared to those working with service jobs (the omitted category). We also find that employees who work with public administration do not have a higher demand for ethical investments compared to those who have chosen a service job. Thus, despite working in the public sector,

³⁵ One reason why some investors have chosen 100 percent ethical funds may be that they think they can outperform the market or the average investor. However, in light of the result for financial sector employees, there is at least no support for ethically screened investments being preferred by those assumed to have higher levels of financial knowledge.

³⁶ However, it should be noted that 70 percent of the individuals who received their main earnings from religious associations did not invest anything in ethical funds. Only two individuals invested 100 percent in ethical funds.

³⁷ Moscow McGranahan [2000] similarly found intensity of religious belief to be positively influential on the decision to bequeath gifts to the poor in seventeenth-century wills.

those doing so in jobs of an administrative kind do not have a higher demand for ethical investments.

On the other hand, individuals who work with health care are particularly prone to have a higher demand for ethical investments. This supports the conjecture that individuals whose work is directly concerned with the well-being of others typically invest ethically.³⁸ Further strengthening this conjecture we find that individuals who work with educating others also have a higher demand for ethical investments.

VI. Sensitivity Analysis

So far we have only considered the probability of making an ethically guided choice, given that the individual chose a fund allocation for his or her premium pension. If instead we consider the demand for investing ethically, given that the individual was eligible to invest, we obtain a few different results. The sample size has now increased to include all eligible participants in the national fund selection in the data, which means 17987 individuals.³⁹

The basic estimations including all eligible investors are given in columns 4-6 in Table III for the model including work sector, and in Table IV, columns 3-4, for the model including type of work. The main finding is that most regression results are robust to the inclusion of

³⁸ One might speculate, however, whether this difference depends on these individuals investing in ethical funds that focus on medical innovations, rather than that they are more likely to choose ethical funds as a response to taking care of others in their work. A two-sided t test on the difference in the share of medical funds chosen by health-workers against other ethical investors does not support this. The difference is negative and statistically significant. Thus a more plausible conclusion is that there is a correlation between individuals' choice to work in jobs which deal directly with other people's individual well-being on the one hand, and the demand for ethically screened investments on the other.

³⁹ As noted above, individuals who did not directly select their own funds, did also have their investments guided by ethical standards. The reason for excluding them as ethical investors is that the investment profile of the Premiesparfondren was determined after the start of the national fund selection, which means that individuals cannot have predicted the particular screen of the fund. Moreover, if a person's aim in not selecting funds was a strategy for acquiring an ethically screened portfolio, there were better options than choosing the default alternative.

all eligible investors. One difference relative to previous estimations is the impact of age on the demand for ethical investments. Whereas previous estimates revealed no clear age pattern, the demand for ethical investments among the entire population of eligible investors is hump-shaped as regards age.

In contrast to previous estimations the income variable and net wealth are significant, even with education included. Both are negatively related and statistically significant. However, this result may stem from the fact that income and wealth do affect the choice between actively selecting or not selecting funds for the premium pension (Engström & Westerberg, 2003). When all eligible investors are included there is no longer any social-capital effect on the demand for ethical investments. However, the effect of actively belonging to a group, i.e. of being a trade union member, is more important in both comparison groups, with a demand that is significantly lower than among trade union members. Finally, the results regarding work sector and type of work are robust to the inclusion of all eligible investors, except for a negative effect on individuals who work in “other” sectors or with unclassified types of jobs.

VII. Concluding Remarks

Earlier research on ethical investments has been mainly limited to analyzing the performance of ethical funds relative to other funds. The question as to who invests, and what distinguishes ethical investors from other investors, has not previously been explored. In the present paper this issue has been approached empirically.

This paper’s findings contribute to the research on altruism, and other norm-related driving forces behind economic decision-making, by identifying some characteristics which distinguishes individuals driven by ethical concerns from others. More generally, and consistently with other findings on social norms, we find that such individuals appear

to take other considerations into account apart from those usually assumed by a typical selfish actor. Further, despite the high degree of anonymity surrounding the ethical screening of investments, in comparison to other altruistic actions, these individuals are willing to let societal concerns guide their investment behavior.

One of the main findings is that education has a considerable impact on ethical concerns in investments. Knowledge about anticipated societal effects from the use of unethical goods may thus be an important influence. Moreover, weak support only has been found for a relation between the decision to invest in ethical funds and the cost of the investment. Since individuals with lower investment costs tend not to have a higher share of ethical investments, this suggests that ethical investments may be driven by principles.

It is also revealed that individuals who have chosen to be and are directly concerned with the well-being of others in their work, also invest more in ethical funds. Similarly, the active decision to join a group, which works for a common cause, is correlated with entertaining ethical concerns in making investments, since individuals who have chosen to join a trade union have a higher share of ethical funds in their investments. This suggests that ideological motivations are of importance for choosing to bear the cost of an ethics screen.

Altogether the results suggest that ethical investors constitute a fairly large share of all investors and that they are distinctly different from other investors. The importance of these results, therefore, suggests that more companies may be compelled to behave ethically in order to attract investors. If, as shown, education is a powerful impetus to the demand for ethical investments, a significant number of investors could make it profitable for companies to employ stricter ethical criteria in the production of goods and services. If so, and since education levels are rising internationally, ethical standards may be given greater prominence in the future.

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Figures

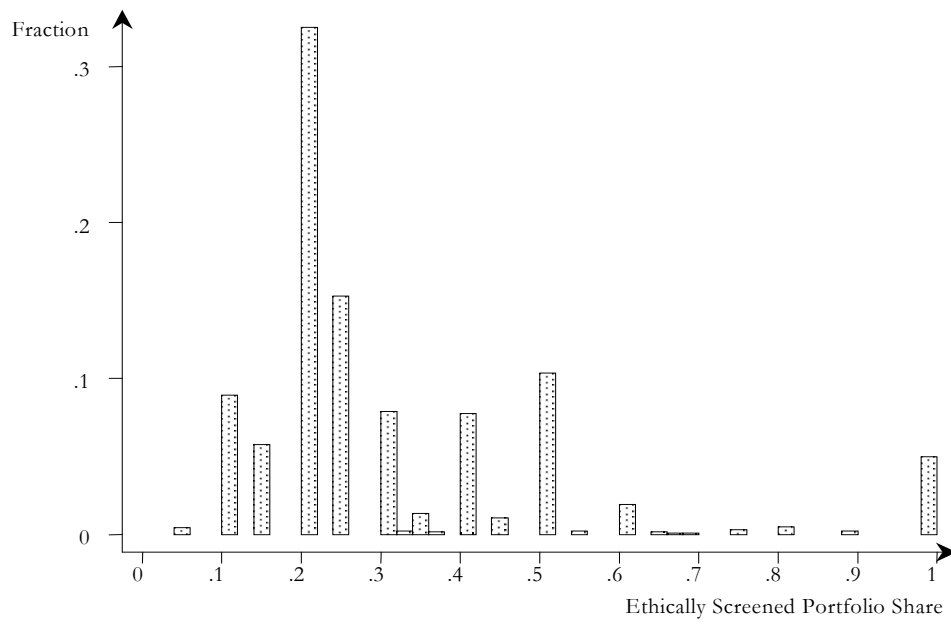


Figure 1 The Distribution of Individual Investment Shares in Ethical Funds

Tables

TABLE 1 ETHICAL FUND DATA

	Neg. Screen	Pos. Screen	Cha rity	Screen	Risk Level	Inv. Profile	Total value ^A
<i>Premievalsfonden</i>	Y			Law & Constitutional Rights	9	Equity	2 860 269
Salus Ansvar Öhman Hjärt och Lungfond		Y	Y	Medical drugs & Research	19	Equity	1 763 708
KPA Etisk Aktiefond	Y			Alcohol, Tobacco, Weapon, Fossil fuel	20	Equity	798242
KPA Etisk Blandfond 2	Y			Alcohol, Tobacco, Weapon, Fossil fuel	12	Mixed	477 677
Svenska Kyrkans Värdepappersfond	Y			Alcohol, Tobacco, Weapon, Gambling	20	Equity	346 822
Roburs Miljöfond		Y		Best Environmental Performance	19	Equity	341 854
KPA Etisk Blandfond 1	Y			Alcohol, Tobacco, Weapon, Fossil fuel	12	Mixed	278 776
Folksam's Globala Miljöfond		Y		Best Environmental Performance	20	Equity	265 745
Bancos Etiska Sverigefond Pension	Y			Alcohol, Tobacco,*, Weapon, Con. Viol .	21	Equity	141 438
UBS (Lux) Equity Fund-Eco Performance		Y		Best Environmental Performance	21	Equity	126 075
Salus Ansvar Ohman Nordisk Miljöfond		Y	Y	Best Environmental Performance	25	Equity	108 102
Ansvar Aktiefond Sverige	Y		Y	Alcohol, Tobacco, Weapon	20	Equity	93 180
Salus Ansvar Öhman Etisk Index Pacific	Y			Alcohol, Tobacco, Weapon	33	Index	75 798
KPA Etisk Räntefond	Y			Alcohol, Tobacco, Weapon, Fossil fuel	0	Interest	52 454
Banco Human Pension	Y		Y	Alcohol, Tobacco,*, Weapon, Conv. Viol .	21	Equity	42 983
Banco Samarit Pension	Y		Y	Alcohol, Tobacco,*, Weapon, Conv. Viol .	21	Equity	42 488
Salus Ansvar Öhman Etisk Index USA	Y			Alcohol, Tobacco, Weapon	20	Index	28 499
Salus Ansvar Öhman Etisk Index Europa	Y			Alcohol, Tobacco, Weapon	19	Equity	23 053
Ansvar Aktiefond Europa	Y		Y	Alcohol, Tobacco, Weapon	19	Equity	13 070
Länsföräkringars Miljöteknikfond		Y		Environmental Improving Inform. Tech.	26	Equity	2 301
Salus Ansvar Öhman Etisk Index Japan	Y			Alcohol, Tobacco, Weapon	26	Index	0
Total	15	6	6				7 882 533

^A The "Total value" refer to the total amount invested of the premium pensions for the participants first choice. All values are given in SEK. * Refers to violations on conventions against child labour, discrimination, trade-union activism and international environmental regulations.

TABLE II SUMMARY STATISTICS

	Investor Type		
	Ethical Investors	“Other” Investors, Given a Fund Choice	“Other” Investors, Given Eligibility
THE FUND CHOICE			
Ethical Fund Share	0.31 (0.21)		
Nr of Ethical Funds	1.15 (0.01)		
Invested Value ^A	18 472.7 (222.1)	17 458.8*** (87.1)	15 188.2*** (72.4)
TIME HORIZON			
Age	40.67 (0.29)	40.74 (0.12)	39.53*** (0.97)
AGE <20	1.8 %	1.7 %	5.0 %***
AGE 20-29	16.1 %	18.1 %**	20.4 %***
AGE 30-39	28.0 %	26.3 %*	23.8 %
AGE 40-49	28.4 %	26.4 %*	23.8 %***
AGE 50-59	24.1 %	24.4 %	23.1 %
AGE 60+	1.6 %	3.1 %**	3.7 %***
FAMILY VARIABLES			
FEMALE	59 %	50 % ***	51 %***
MARRIED	56 %	55 %	49 %***
NUMBER OF CHILDREN	1.548 (0.032)	1.551 (0.013)	1.463*** (0.010)
DEPENDENT CHILDREN	0.873 (1.084)	0.797*** (1.038)	0.728*** (1.044)
INDEPENDENT CHILDREN	0.784 (1.111)	0.861*** (1.121)	0.834* (1.143)
EDUCATION			
EDUCATION >15 years	20 %	13 %***	12 %***
EDUCATION 15 years	21 %	16 %***	15 %***
EDUCATION 12 years	17 %	18 %	19 %**
EDUCATION 10-11 years	31 %	34 %***	31 %
EDUCATION <10 years	12 %	19 %***	23 %***
INCOME AND WEALTH			
ANNUAL INCOME ^A	224 777.3 (4046.5)	217 618.3** (1410.7)	194 539.7*** (1038.6)
NET WEALTH ^A	361 970.4 (17 571.4)	353 523.0 (9093.1)	304 314.6*** (6376.9)
REGIONAL SOCIAL CAPITAL			
CITY ^B	38 %	35 %***	37 %
HIGH DENSITY ^C	36 %	37 %	36 %
HIGH-MIDDLE DENSITY ^D	16 %	18 %	17 %
MIDDLE DENSITY ^E	6 %	6 %	5 %
LOW DENSITY ^F	4 %	5 %**	4 %

TRADE UNION MEMBERSHIP			
MEMBER	59 %	54 %***	47 %***
NOT MEMBER	9 %	11 %***	13 %***
NOT CLASSIFIED IF MEMBER	32 %	35 %***	40 %***
WORK SECTOR			
NON-FINANCIAL BUSINESS	48.3 %	55.7 %***	54.2 %***
PRIVATE FIRMS, ETC	48.3 %	55.7 %***	54.2 %***
FINANCIAL BUSINESS	1.4 %	2.7 %***	2.1 %**
MONETARY FINANCIAL INST.	0.8 %	1.8 %***	1.4 %**
PENSION/INSURANCE/OTHER	0.6 %	0.9 %*	0.7 %
GOVERNMENTAL SECTOR	7.8 %	6.2 %**	5.4 %***
PUBLIC INST.	6.5 %	5.2 %**	4.5 %***
OTHER PUBLIC INST.	0.5 %	0.5 %	0.5 %
STATE OWNED CORPORATION	0.8 %	0.5 %*	0.4 %**
MUNICIPAL SECTOR	34.2 %	26.3 %***	25.5 %***
LOCAL GOVERN. SECTOR	25.1 %	20.4 %***	20.2 %***
COUNTY COUNCIL	9.1 %	5.9 %***	5.3 %***
NON-PROFIT ORGANISATION	3.4 %	2.3 %***	2.5 %**
NON-RELIGIOUS	1.9 %	1.8 %	1.9 %
REGISTERED RELIGIOUS	1.5 %	0.5 %***	0.6 %***
OTHER SECTOR	5.1 %	6.8 %***	10.3 %***
HOUSING, UNCLASSIFIED	5.1 %	6.8 %***	10.3 %***
TYPE OF WORK			
FINANCIAL BUSINESS	1.4 %	2.7 %***	2.0 %*
MANUFACTURING/ CONSTR. ^G	20.3 %	24.0 %***	21.0 %
HEALTH CARE	33.5 %	25.5 %***	23.8 %***
SERVICE WORK (NOT INCL. PA)	27.2 %	30.0 %**	28.6 %
EDUCATION	3.5 %	2.2 %***	2.1 %***
PUBLIC ADMINISTRATION (PA)	4.6 %	3.9 %	3.3 %***
UNCLASSIFIED/OTHER	9.5 %	11.7 %***	19.2 %***
NR OF OBS.	1421	9681	16566

Note: numbers in parentheses are standard deviations.

****/**/ * denote a statistical significant difference between ethical investors and the comparison group at the 1/5/10 percent levels respectively in a two-tailed t test. A. Values are denoted in SEK. B. Stockholm/Göteborg/Malmö. C. Areas with more than 90000 inhabitants within a 30 km radius of the most densely populated parish (mdpp). D. Areas with 27000-90000 inhabitants within a 30 km radius of the mdpp and fewer than 300000 inhabitants within a 100 km radius of the mdpp. E. Identical to Region 3 but with fewer than 300000 inhabitants. F. Areas with less than 27000 inhabitants within a 30 km radius of mdpp. G. Includes the forestry, hunting,, fishing, electricity, gas workers as well.

TABLE III TOBIT MODEL REGRESSION RESULTS FOR THE SHARE OF ETHICAL FUNDS USING WORK SECTOR

Model	[1]	[2]	[3]	[4]	[5]	[6]
AGE <20	0.142* (0.077)	0.138* (0.078)	0.138* (0.078)	-0.138** (0.067)	-0.143** (0.067)	-0.144** (0.068)
AGE 20-29	-0.050 (0.034)	-0.054 (0.034)	-0.054 (0.034)	-0.071** (0.034)	-0.077** (0.034)	-0.076** (0.035)
AGE 30-39	-0.002 (0.025)	-0.019 (0.026)	-0.018 (0.026)	0.012 (0.026)	-0.005 (0.026)	-0.005 (0.027)
AGE 50-59	-0.009 (0.026)	0.020 (0.029)	0.021 (0.029)	-0.030 (0.026)	-0.002 (0.026)	-0.002 (0.029)
AGE 60+	-0.135** (0.064)	-0.102 (0.065)	-0.100 (0.065)	-0.229*** (0.063)	-0.196*** (0.063)	-0.196*** (0.065)
FEMALE	0.084*** (0.021)	0.085*** (0.021)	0.085*** (0.021)	0.103*** (0.021)	0.103*** (0.021)	0.104*** (0.021)
MARRIED	0.000 (0.021)	-0.006 (0.021)	-0.006 (0.021)	0.046** (0.021)	0.040** (0.021)	0.040* (0.022)
NUMBER OF CHILDREN	-0.008 (0.009)			-0.013 (0.009)		
DEPENDENT CHILDREN		0.007 (0.011)	0.007 (0.011)		0.002 (0.011)	0.002 (0.011)
INDEPENDENT CHILDREN		-0.023** (0.011)	-0.022* (0.011)		-0.028** (0.011)	-0.027** (0.011)
EDUCATION>15 years	0.212*** (0.036)	0.208*** (0.036)	0.204*** (0.036)	0.236*** (0.036)	0.232*** (0.037)	0.228*** (0.037)
EDUCATION 15 years	0.178*** (0.034)	0.175*** (0.034)	0.173*** (0.034)	0.215*** (0.034)	0.212*** (0.034)	0.209*** (0.034)
EDUCATION 12 years	0.105*** (0.034)	0.103*** (0.034)	0.102*** (0.034)	0.129*** (0.033)	0.126*** (0.033)	0.126*** (0.033)
EDUCATION 10-11 years	0.065** (0.030)	0.063** (0.030)	0.065** (0.030)	0.108*** (0.030)	0.106*** (0.030)	0.107*** (0.030)
ANNUAL INCOME ⁺	0.001 (0.001)	0.001 (0.001)	0.001 (0.002)	0.003*** (0.001)	0.003*** (0.001)	0.003*** (0.001)
NET WEALTH ⁺⁺	0.002 (0.002)	0.002 (0.002)	0.002 (0.002)	0.006** (0.002)	0.006** (0.002)	0.006** (0.002)
NET WEALTH SQUARED ⁺⁺⁺	-0.005 (0.004)	-0.005 (0.004)	-0.005 (0.003)	-0.009** (0.004)	-0.009** (0.004)	-0.009** (0.004)
HIGH DENSITY	-0.043* (0.022)	-0.043** (0.022)	-0.047** (0.022)	-0.000 (0.022)	-0.000 (0.022)	-0.003 (0.022)
HIGH-MIDDLE DENSITY	-0.034 (0.027)	-0.034 (0.027)	-0.036 (0.027)	0.018 (0.028)	0.019 (0.028)	0.017 (0.028)
MIDDLE DENSITY	-0.051 (0.042)	-0.050 (0.042)	-0.052 (0.042)	0.021 (0.042)	0.022 (0.042)	0.020 (0.042)
LOW DENSITY	-0.110** (0.049)	-0.110** (0.049)	-0.110** (0.049)	-0.039 (0.050)	-0.039 (0.050)	-0.039 (0.050)

NOT UNION MEMBER	-0.089*** (0.034)	-0.087** (0.034)	-0.083** (0.034)	-0.123*** (0.034)	-0.121*** (0.034)	-0.119*** (0.034)
NOT CLASS. IF UNION MEMBER	-0.033 (0.021)	-0.032 (0.021)	-0.031 (0.021)	-0.076*** (0.021)	-0.076*** (0.021)	-0.074*** (0.021)
FINANCIAL BUSINESS SECTOR	-0.212*** (0.070)	-0.210*** (0.070)		-0.193** (0.075)	-0.190** (0.075)	
MONETARY FINANCIAL INSTITUTE			-0.237*** (0.087)			-0.211** (0.093)
INSURANCE/PENSION INSTITUTE			-0.154 (0.112)			-0.144 (0.121)
GOVERNMENTAL SECTOR	0.022 (0.039)	0.021 (0.039)		0.028 (0.040)	0.027 (0.040)	
PUBLIC ADMINISTRATION			0.031 (0.041)			0.041 (0.042)
OTHER PUBLIC INSTITUTIONS			-0.047 (0.131)			-0.072 (0.133)
STATE OWNED CORPORATION			0.208* (0.114)			0.209* (0.117)
MUNICIPAL SECTOR	0.075*** (0.024)	0.074*** (0.024)		0.056** (0.024)	0.056** (0.024)	
LOCAL GOVERN. SECTOR			0.069*** (0.025)			0.049* (0.025)
COUNTY COUNCIL			0.102*** (0.037)			0.089** (0.038)
NON-PROFIT ORGANISATIONS	0.145*** (0.055)	0.145*** (0.055)		0.100* (0.054)	0.100* (0.054)	
NON-RELIGIOUS ASSOCIATION			0.039 (0.069)			0.004 (0.068)
REGISTERED RELIGIOUS ASSOC.			0.367*** (0.092)			0.298*** (0.089)
“OTHER” SECTOR /UNCLASSIFIED	0.010 (0.042)	0.009 (0.042)	0.010 (0.042)	-0.093** (0.041)	-0.095** (0.041)	-0.094** (0.041)
CONSTANT	-0.819*** (0.050)	-0.815*** (0.050)	-0.813*** (0.050)	-1.153*** (0.054)	-1.147*** (0.054)	-1.145*** (0.054)
LR chi2	180.62	185.43	198.34	338.13	342.78	354.85
Log likelihood	-3957.671	-3955.266	-3948.810	-4607.311	-4604.983	-4598.949
Left Censored	9681	9681	9681	16566	16566	16566
Right Censored	71	71	71	71	71	71
Number of obs.	11102	11102	11102	17987	17987	17987

Note: numbers in parentheses are standard deviations. Omitted categories are: male, not married, EDUCATION<10years, AGE40-49, CITY, trade union member, private non-financial business sector. ****/**/ * denote statistical significance at the 1/5/10 percent levels respectively. + Value in 10³. ++ Value in 10⁵. +++ Value in 10¹².

TABLE IV TOBIT MODEL REGRESSION RESULTS FOR THE SHARE OF ETHICAL FUNDS USING TYPE OF WORK

Model	[1]	[2]	[3]	[4]
AGE <20	0.140* (0.079)	0.136* (0.079)	-0.091 (0.068)	-0.096 (0.068)
AGE 20-29	-0.052 (0.034)	-0.057* (0.034)	-0.066* (0.034)	-0.071* (0.034)
AGE 30-39	-0.003 (0.025)	-0.019 (0.026)	0.010 (0.026)	-0.006 (0.027)
AGE 50-59	-0.009 (0.026)	0.020 (0.029)	-0.031 (0.026)	-0.003 (0.029)
AGE 60+	-0.138** (0.064)	-0.105 (0.066)	-0.229*** (0.063)	-0.197*** (0.065)
FEMALE	0.085*** (0.021)	0.086*** (0.021)	0.106*** (0.021)	0.106*** (0.021)
MARRIED	0.000 (0.021)	-0.006 (0.021)	0.046** (0.022)	0.040* (0.022)
NUMBER OF CHILDREN	-0.008 (0.009)		-0.013 (0.009)	
DEPENDENT CHILDREN		0.007 (0.011)		0.001 (0.011)
INDEPENDENT CHILDREN		-0.023** (0.012)		-0.028** (0.011)
EDUCATION >15 years	0.212*** (0.030)	0.208*** (0.036)	0.237*** (0.037)	0.233*** (0.037)
EDUCATION 15 years	0.179*** (0.034)	0.176*** (0.034)	0.219*** (0.034)	0.216*** (0.034)
EDUCATION 12 years	0.106*** (0.034)	0.104*** (0.034)	0.129*** (0.033)	0.127*** (0.033)
EDUCATION 10-11 years	0.065** (0.030)	0.063** (0.030)	0.107*** (0.030)	0.105*** (0.030)
ANNUAL INCOME+	0.001 (0.001)	0.001 (0.001)	0.003*** (0.001)	0.002*** (0.001)
NET WEALTH++	0.002 (0.002)	0.002 (0.002)	0.006** (0.002)	0.006** (0.002)
NET WEALTH SQUARED	-0.005 (0.004)	-0.005 (0.004)	-0.009** (0.004)	-0.009** (0.004)
HIGH DENSITY	-0.042* (0.022)	-0.042* (0.022)	0.000 (0.022)	0.000 (0.022)
HIGH-MIDDLE DENSITY	-0.033 (0.028)	-0.032 (0.028)	0.018 (0.028)	0.019 (0.028)
MIDDLE DENSITY	-0.048 (0.042)	-0.047 (0.042)	0.024 (0.042)	0.024 (0.042)
LOW DENSITY	-0.109** (0.049)	-0.109** (0.049)	-0.038 (0.050)	-0.038 (0.050)

NOT UNION MEMBER	-0.087** (0.034)	-0.086** (0.034)	-0.115*** (0.034)	-0.114*** (0.034)
NOT CLASS. IF UNION MEMBER	-0.032 (0.021)	-0.032 (0.021)	-0.070*** (0.021)	-0.070*** (0.021)
FINANCIAL BUSINESS	-0.200*** (0.070)	-0.198*** (0.070)	-0.174** (0.074)	-0.171** (0.074)
MANUFACTURING/CONSTRUCTION	0.011 (0.027)	0.011 (0.027)	0.024 (0.027)	0.024 (0.027)
HEALTH CARE ‡	0.077*** (0.026)	0.076*** (0.026)	0.062** (0.027)	0.062** (0.027)
EDUCATION ‡	0.116** (0.057)	0.114** (0.057)	0.100* (0.057)	0.100* (0.057)
PUBLIC ADMINISTRATION ‡	0.009 (0.048)	0.009 (0.048)	0.030 (0.049)	0.030 (0.049)
UNCLASSIFIED/OTHER	0.019 (0.037)	0.019 (0.037)	-0.076** (0.035)	-0.076** (0.035)
CONSTANT	-0.821*** (0.052)	-0.817*** (0.052)	-1.155*** (0.055)	-1.149*** (0.055)
LR chi2	177.06	181.87	339.03	343.55
Log likelihood	-3959.451	-3957.045	-4606.860	-4604.600
Left Censored	9681	9681	16566	16566
Right Censored	71	71	71	71
Number of obs.	11102	11102	17987	17987

Note: numbers in parentheses are standard deviations. Omitted categories are: male, not married, EDUCATION<10years, AGE40-49, CITY, trade union member, service work (not including public administration). ****/**/ * denote statistical significance at the 1/5/10 percent levels respectively. + Value in 10³. ++ Value in 10⁵. ++. Value in 10¹². ‡ includes both the governmental and the municipal sector.

Appendix

APPENDIX TABLE I REGIONAL INDICATORS OF SOCIAL CAPITAL

REGIONS	Variables ^A					
	Member of political Party	Active in Political Party	Attended any political Party Meeting	Member of a Trade Union	Active member of Trade Union	Attended five religious services
REGION 1 (<i>STOCKHOLM</i>)	<i>5.2</i>	<i>1.4</i>	<i>4.0</i>	<i>65.8</i>	<i>7.7</i>	<i>6.7</i>
REGION 1 (<i>GOTHENBURG/ MALMÖ</i>)	5.5	1.8	4.6	80.3	8.9	8.7
REGION 2 ^a	7.2	1.8	4.7	87.3	9.3	10.7
REGION 3 ^b	10.3	2.5	6.2	86.8	11.0	12.4
REGION 4 ^c	10.4	2.6	5.1	90.2	9.6	8.4
REGION 5 ^d	11.4	3.1	7.0	91.0	12.7	8.2
MEN ^B	8.5	2.1	5.4	<i>79.3</i>	9.6	7.2
WOMEN	<i>6.6</i>	<i>1.8</i>	<i>4.6</i>	84.6	<i>9.2</i>	12.1

Source: Undersökningen om levnadsförhållanden, ULF 1998-1999, Statistics Sweden. Note: figures in italics refer to the lowest level and figures in bold refer to the highest level of the sample. A Variables are the percentage who were member/active during the years 1998-1999. B averages for the whole country. a. Areas with more than 90000 inhabitants within a 30 kilometre radius of the most densely populated parish(mdpp). b. Areas with 27000-90000 inhabitants within a 30 kilometre radius of the mdpp and fewer than 300000 inhabitants within a 100 kilometre radius of the mdpp. c. Identical to Region 3 but with fewer than 300000 inhabitants. d. Areas with less than 27000 inhabitants within a 30 kilometre radius of mdpp.