Monograph:

Brown, S. and Taylor, K. (2010) Social Interaction and Stock Market Participation: Evidence from British Panel Data. Working Paper. Department of Economics, University of Sheffield ISSN 1749-8368

Sheffield Economic Research Paper Series 2010008

eprints@whiterose.ac.uk
https://eprints.whiterose.ac.uk/

Sheffield Economic Research Paper Series

SERP Number: 2010008

ISSN 1749-8368

Sarah Brown and Karl Taylor

**Social Interaction and Stock Market Participation:
Evidence from British Panel Data**

April 2010

Abstract:

This paper uses data from the British National Child Development Study to investigate the relationship between social interaction and participation in the stock market through holding stocks and/or shares at the individual level. In accordance with the existing literature, the results reveal that a positive relationship exists between social interaction and stock market participation, when both are measured concurrently. Furthermore, this relationship prevails across a range of measures of social interaction and social capital. In addition, we make a potentially important contribution to the existing literature by exploiting the panel nature of the data in order to explore the robustness of the cross-sectional findings. We find that the positive relationship between stock market participation and social interaction prevails within a fixed effects logit framework, which controls for time invariant unobserved effects.

Key words: Capital; Social Interaction; Stock Market Participation.

JEL: D12; D14; D71

Social Interaction and Stock Market Participation: Evidence from British Panel Data

Sarah Brown and Karl Taylor

Department of Economics
University of Sheffield
9 Mappin Street
Sheffield S1 4DT
Great Britain

Abstract: This paper uses data from the British National Child Development Study to investigate the relationship between social interaction and participation in the stock market through holding stocks and/or shares at the individual level. In accordance with the existing literature, the results reveal that a positive relationship exists between social interaction and stock market participation, when both are measured concurrently. Furthermore, this relationship prevails across a range of measures of social interaction and social capital. In addition, we make a potentially important contribution to the existing literature by exploiting the panel nature of the data in order to explore the robustness of the cross-sectional findings. We find that the positive relationship between stock market participation and social interaction prevails within a fixed effects logit framework, which controls for time invariant unobserved effects.

I.   Introduction and Background

There is a growing body of empirical literature exploring the role of social capital and social interaction in the economy. For example, at the microeconomic level, there has been interest in the link between social interaction, social capital and socio-economic outcomes such as educational attainment and employment, see, for example, Glaeser et al. (2002) and Brown and Taylor (2009). Whilst at the macroeconomic level, there has been considerable debate on the relationship between social capital and economic growth (see, for example, Knack and Keefer 1997). Social capital is a relatively general concept that unsurprisingly has been defined and measured in many different ways. For example, DiPasquale and Glaeser (1999, p.355) define social capital as "the social links among citizens" whilst Guiso et al. (2004, p.528) define social capital as "the advantages and opportunities accruing to people through membership in certain communities." Recent work has conjectured that social interaction and social capital might influence financial and economic decision-making at the individual or household level relating to, for example, wealth accumulation or the likelihood of investing in risky financial assets, see, for example, Hong et al. (2004).

Such an effect on financial decision-making could potentially occur through word-of-mouth or observational learning (e.g. Banerjee, 1992; Ellison and Fudenburg, 1995), i.e. operating via the diffusion of information relating to, for example, stock market opportunities or the dissemination of information relating to how to actually participate in the stock market, such as information on how to purchase stocks and shares. Hence, social interaction may essentially serve to break down potential psychological barriers to participating in a new venture for those individuals who belong to the same social circle. Thus, the decision to invest in financial assets, as well as the type of assets to invest in, may be influenced by the decisions and actions of work colleagues, friends and family. For example, Ivkovic and Weisbenner (2007) report a positive relationship between a household's stock purchases and

those made by neighbours. In a similar vein, Brown et al. (2008) explore the influence of community effects in the form of 'word of mouth' communication on stock market participation. They establish a causal link between an individual's decision to own stocks and the average stock market participation of the individual's community. Moreover, the latter result is found to be stronger within more social communities, as measured by whether households are likely to be asked by neighbours for advice.

Additionally, it may be the case that, in accordance with Becker (1991), individuals gain satisfaction from talking about the performance of their portfolio of stocks with peers who are fellow investors (Hong et al., 2004), in the same way that individuals might enjoy conversing with one another about any shared interest such as sport or literature. Such conversations may serve to disseminate information relating to the stock market and, thereby, lead to an increase in stock market participation. Moreover, it may be the case that if an individual belongs to a social group where stock market participation is high, then he/she may be inclined to conform to the social norms of the group by also joining the stock market, i.e. the so-called 'keeping up with the Joneses' effect (Brown et al., 2008).

Hong et al. (2004) present evidence supporting a positive association between social interaction and stock market participation in the U.S. with 'social' investors characterised by a higher probability of stock market participation whilst controlling for key demographic and socio-economic characteristics such as wealth and education. The measures of social interaction relate to church attendance and interaction with neighbours. Guiso et al. (2008) explore the relationship between trust and stock market participation and find that less trusting individuals are less likely to purchase stocks. They argue that their model is consistent with that of Hong et al. (2004), since social individuals exhibit more 'generalised trust', i.e. the trust that an individual has about an unknown individual from a particular community. In this paper, we explore the relationship between social interaction and the

propensity to invest in risky financial assets such as stocks and shares for the UK. To be specific, we initially follow Hong et al. (2004) by exploring this relationship when stock market participation and social interaction are measured concurrently. In order to explore the robustness of our findings, our rich data set enables us to employ a relatively wide range of measures of social interaction as well as a measure of social capital relating to generalised trust. In addition, we make a potentially important contribution to the existing literature by exploiting the panel nature of the data in order to explore the robustness of the cross-section findings. We find that the positive relationship between stock market participation and social interaction prevails within a fixed effects logit framework, which controls for time invariant unobserved effects, thus endorsing the robustness of this positive association.

II.   Social Interaction and Stock Market Participation

The analysis is based on the British *National Child Development Study (NCDS)*, which is a panel survey following a cohort of children born during a given week (March 3rd to March 9th) in 1958. This panel study provides a wealth of information relating to family background as well as having the advantage of tracing individuals over a relatively long time horizon and, hence, at various stages of the life cycle. The *NCDS* was conducted at ages 7, 11, 16, 23, 33, 42, 46 and 50. In the latest sweep of the *NCDS* in 2008/09, when the respondent was aged 50, individuals are asked whether they have any stocks and/or shares, as well as other savings and investments.[1] We define an observed binary variable $STOCK_i^{t=2008}=1$ if individual i states that they hold stocks and/or shares in 2008 and $STOCK_i^{t=2008}=0$ if they do not hold such financial assets, where 35% of the sample own stocks/and or shares in 2008. We define

---

[1] There are thirteen savings and investment categories in total, specifically: current account; savings account; tax exempt special savings account (TESSA); investment savings account (ISA); premium bonds; national savings; personal equity plans; employee share ownership; share clubs; investment trusts; government or corporate bonds; and other savings or investments. Both TESSA and ISA accounts are tax exempt. Whilst information is available on the total held in savings and investments across the thirteen categories unfortunately it is not possible to decompose the total into its constituent parts.

$STOCK_i^{t=2008} = 1$ if $STOCK_i^{*t=2008} = 1$ and $STOCK_i^{t=2008} = 0$ otherwise, where $STOCK_i^{*t=2008}$ is a continuous latent variable reflecting the utility gained from holding stocks, which determines the stock market participation decision as follows:

$$STOCK_i^{t=2008} = 1 \quad if \quad STOCK_i^{*t=2008} = X_i'\beta + \gamma SOC_i^{t=2008} + \varepsilon_i \tag{1}$$
$$STOCK_i^{t=2008} = 0 \quad otherwise$$

Assuming a logistic distribution of the error term (ε_i), equation (1) is estimated via a logit specification. The *NCDS* is ideally suited for our purposes since it includes a range of measures of social interaction in 2008, $SOC_i^{t=2008}$, allowing us to test Hong et al.'s (2004) hypothesis for the UK, where our focus is upon the sign, magnitude and statistical significance of γ in equation (1) estimated over an initial sample of 7,286 individuals.

Specifically, we have five alternative measures of social interaction, which is important given the general nature of this concept. Thus, our rich data source allows us to explore the robustness of the relationship between social interaction and stock market participation. The measures of social interaction which we employ are: firstly, a binary dummy variable equal to unity if the individual currently attends church two or three times a month or more frequently; secondly, a binary dummy variable equal to unity if the individual believes that most people can be trusted;[2] thirdly, a binary indicator equal to unity if the individual has visited their friends three or more times in the last two weeks; fourthly, a binary indicator equal to unity if the individual is currently an active member of a sports club and attends once a month or more frequently. The final measure of social interaction that we adopt is the number of clubs that the individual is currently an active member of.[3] Three

---

[2] The question regarding trust is very similar to that used by Glaeser et al. (2000) and Guiso et al. (2008) and arguably proxies social capital rather than social interaction.
[3] The different types of club include active current membership of a political party, an environmental charity/voluntary group, other charity/voluntary group, women's groups, townswomen's guild or women's institute, parents/school organizations, tenants/residents association, trade union/staff associations, and religious organizations.

binary indicators are defined for whether the individual is a member of one club, two or three clubs, or four or more clubs.[4]

Such measures of social interaction have previously been used in the sociology literature (see, for example, the survey of Granovetter, 1983) as well as in the economics literature. For example, Iannaccone (1983), Sacerdote and Glaeser (2001) and Brown and Taylor (2007) focus upon the relationship between religion and human capital accumulation. Glaeser et al. (2000) and, more recently, Guiso et al. (2008) analyse the role of trust. The latter use Dutch and Italian micro level data as well as cross-country data to investigate the role of trust in stock market participation. Their findings suggest that less trusting individuals are less likely to purchase stocks and risky financial assets and, if they do purchase stocks, they tend to invest a larger share of their wealth in it. Finally, Brown and Taylor (2009) analyse a range of measures of social interaction exploring whether an intergenerational link exists between parental social capital and the ability test scores of their offspring. The alternative measures of social interaction employed herein, which as seen above have been previously used in the economics literature in a range of applications, potentially capture opportunities for individuals to acquire information through such informal connections, which may relate to financial decision-making.

We also condition the probability of holding stocks and/or shares upon a vector of additional covariates, X, which may control for differences in participation costs across demographic groups. The covariates include binary controls for whether the individual is: male; white;[5] married; and currently unemployed or not in the labour market. Guiso and Jappelli (2005) posit that one reason for non participation in the stock market is lack of

---

[4] It should be acknowledged, however, that in accordance with Glaeser et al. (2002), the club membership variable captures the number of types of clubs rather than the number of clubs an individual belongs to. In addition, we have no information on the size of the club (i.e. the extent of the social network that an individual belongs to).

[5] Existing research for the U.S. finds that whites are more likely to hold risky financial assets, e.g. Hong et al. (2004).

financial awareness. To control for potential financial product advertisement, we include a binary control for whether the individual reads a national newspaper on a daily basis. This potentially acts as a signal of awareness of current affairs and, potentially, a route for spreading information and, thereby, making individuals more aware of financial products and investment opportunities. Similarly, in an attempt to provide a proxy for access to information, we condition on whether the individual has a computer at home and believes that they are skilled in using it. Furthermore, following Christelis et al. (2010), who argue that cognitive skill is associated with stock market participation, computer usage may also act as a proxy for cognitive skill. We also include controls for the highest level of educational attainment,[6] the wealth quartile of the household (where the lowest wealth quartile is the reference category),[7] the natural logarithm of weekly household labour income, the natural logarithm of weekly household benefit income and whether they own their home outright (i.e. without a mortgage). As noted by Hong et al. (2004), social interaction may be related to optimism and so we control for whether the individual is optimistic about the future (where 0=none of the time, 1=rarely, 2=some of the time and 3=often). We also include an index of extraversion (defined on a scale 0 through to 45) and an index of intelligence (defined on a scale 0 through to 45), where both extraversion and intelligence may be related to social interaction by providing a proxy for how open minded the individual is with respect to

---

[6] Educational attainment is defined as degree (undergraduate or postgraduate); diploma level, nursing or teaching qualification; Advanced (A) level and Ordinary (O) level. O' level qualifications are taken after eleven years of formal compulsory schooling and approximate to the U.S. honours high school curriculum. The A' level qualification is a public examination taken by 18 year olds over a two year period studying between one to four subjects and is the main determinant of eligibility for entry to higher education in the UK. No education is the reference category.

[7] Wealth quartiles are defined based upon the household's wealth in 2000 since arguably current wealth is endogenous with stock market participation. Wealth is defined as the summation of the value of savings, premium bonds, company shares, unit trusts, government stocks, local authority bonds, property other than main residence and the value of the home. Existing research has found that stock market participation is increasing in wealth, e.g. Bertaut and Starr-McCluer (2002).

embarking on new ventures.[8] The inclusion of this set of variables relating to the individual's personality, which represents an interesting extension of the existing literature, is potentially important since it may be the case that the proxies for social interaction are capturing personality traits rather than the extent of social interaction. Finally, we include ten binary region variables to control for any regional differences in stock market participation rates.

In Table 1, the proportion of the sample investing in stocks and/or shares is tabulated over the distribution of wealth and by the various measures of social interaction. Across all individuals, regardless of the household's position in the wealth distribution, participation rates are lower amongst those who are not social. For example, for those who are not currently a member of a club, as compared to individuals who are currently a member of one or more clubs, the respective stock market participation rates are 27.43% and 40.65%. A similar pattern is evident for the other measures of social interaction: for example, for those who do not attend church, as compared to those who attend church frequently, the stock market participation rates are 34.7% and 43.62%, respectively. Once participation rates are stratified by wealth, the difference remains in that social individuals have higher participation rates, although the difference in the rate of stock market participation does not rise monotonically over the wealth distribution as found for the U.S. by Hong et al. (2004). Table 2 presents a correlation matrix between stock market participation and each measure of social interaction, where a positive and statistically significant relationship is apparent. In addition, where statistically significant, the measures of social interaction are positively correlated with each other. Table 3 reports summary statistics for the control variables, where in 2008: 21%

---

[8] The index of extraversion is defined from an amalgamation of responses to whether the individual: talks a lot, keeps in the background, has little to say; does not like to draw attention to themselves; is the life of the party; feels comfortable around people; starts conversations; talks to a lot of different people at parties; and does not mind being the centre of attention. Similarly, the index of intelligence is defined from an amalgamation of responses to whether the individual: has difficulty understanding abstract ideas; is not interested in abstract ideas; does not have a good imagination; has a rich vocabulary; has a vivid imagination; has excellent ideas; is quick to understand things; uses difficult words; spends time reflecting on things; and is full of ideas. Both the index of extraversion and the index of intelligence are part of the International Personality Item Pool (IPIP) and form two of the so called 'Big-5' personality traits, see Goldberg (1999, 2001).

have a degree as their highest level of education; 13% are unemployed or currently not in the labour market; 39% have a computer at home; 20% read a national newspaper daily; and 26% of households are in the lowest wealth quartile.

We initially replicate the analysis of Hong et al. (2004), which is based on the U.S. Health and Retirement Study (*HRS*), for the UK employing cross sectional analysis where stock market participation is measured in 2008 and proxies for social interaction are also measured in 2008. The results are shown in Table 4, where there are five columns each showing the results of conditioning stock market participation on a different measure of social interaction.

Focusing initially on control variables other than the measures of social interaction, it is apparent that males have around a 6 percentage point higher probability of owning stocks and/or shares. Compared to those with no education, the reference category, educational attainment is positively associated with stock market participation. For example, those individuals with a degree have around a 22 percentage point higher probability of owning stocks and/or shares, which is consistent with the findings of Hong et al. (2004) for the U.S. and Guiso et al. (2008) who use Dutch and Italian survey data. The level of weekly household labour income has a positive inelastic effect and weekly benefit income has a negative elastic effect on stock market participation. The largest effects in terms of the magnitudes of the marginal effects come from the wealth controls, where the probability of owning stocks increases monotonically across the wealth distribution, culminating in around a 24 percentage point higher probability of participation for households in the highest wealth quartile compared to those in the lowest quartile. Interestingly, and, in contrast to Hong et al. (2004), there is no evidence of a statistically significant difference in the probability of participation in the stock market according to ethnicity, although the sign of the marginal effect is positive. Whether the individual is currently unemployed or not in the labour market has no

association with stock market participation, whereas those who own their home outright are around 15 percentage points more likely to invest in the stock market, an effect, which exists over and above the effect of wealth.

Turning to those variables associated with personality traits, individuals who are more optimistic about the future have a higher probability of stock market participation, which is consistent with the findings of Puri and Robinson (2007) and Guiso et al. (2008). A possible interpretation is that optimistic investors are more confident about the expected future returns, which may encourage them to invest. To the extent that open mindedness is captured by controls for extraversion and intelligence, the only significant effect, albeit at the 10 percent level, comes from extraversion. Computer usage and whether the individual reads a daily newspaper were included as covariates to capture knowledge of current affairs and/or financial products. Interestingly, there is only a significant influence from whether the individual uses a computer at home, which has around a 6 percentage point positive influence on the probability of owning stocks and/or shares, which is of the same order of magnitude as the gender effect.

Turning to the focus of our analysis, the measures of social interaction are all positively associated with stock market participation. Those individuals who attend church on a regular basis have around a 2 percentage point higher probability of owning stocks, which is similar in size to that found for the U.S. by Hong et al. (2004). Whether individuals are generally trusting has approximately the same influence on the likelihood of owning stocks and/or shares as regular attendance at church, although the effect is only statistically significant at the 10 percent level. Although the sign is as expected and concurs with Guiso et al. (2008), the magnitude of the association with stock market participation is much smaller than that found in Dutch and Italian households. Other measures of social interaction also reveal a consistent positive association with stock market participation. For example, visiting

friends three or more times a week or being a current member of a sports club and attending at least once a month have a positive and statistically significant association with stock and/or share ownership, increasing the probability of participation by around 4 and 7 percentage points, respectively. The final specification controls for the number of clubs that the individual is currently an active member of. There are clearly large effects on the probability of owning stocks and/or shares culminating in a 12 percentage point higher probability for those individuals who are a member of four or more clubs (relative to those who are not currently a member of a club). This corresponds to around a 33% increase in the unconditional probability of stock market participation. Hence, the empirical results portray a consistent finding in that individuals who are more socially active have a higher probability of participation in the stock market.

III.   Social Interaction and Stock Market Participation: Timing

The key shortcoming with the analysis presented in Section II is that the estimated parameter γ only measures whether an association exists between the dependent variable and social interaction so it is not possible to discern information about the causal nature of the relationship.[9] In contrast to Hong et al. (2004), we are able to exploit the panel nature of the *NCDS*, which allows us to investigate whether measures of social interaction in a previous period, i.e. prior to 2008, are associated with stock market participation. Such an approach alludes to whether a causal linkage exists due to the timing difference between holding stocks and social interaction, which arguably reduces the potential for reverse causality. Specifically lagged social interaction variables ($SOC_i^{t=1991}$) are measured in 1991 and have exactly the same definitions as in 2008.

---

[9] Brown et al. (2008) establish a causal link between an individual's decision to own stocks and the average stock market participation of the individual's community. The average stock market participation of the individual's community is instrumented by the lagged average stock ownership of the states in which the individual's 'non-native' neighbours were born.

The results are shown in Table 5, where the control variables have similar effects upon the likelihood of owning stocks, in terms of magnitude and statistical significance, as found in Table 4. The positive influence of social interaction, across a range of alternative definitions and measured prior to stock market participation in 2008, remains statistically significant, with the magnitudes of the marginal effects being slightly larger than those reported in Table 4.

The *NCDS* also asks individuals whether they held investments in stocks and/or shares in earlier sweeps of the survey. The year in which this information was collected prior to the 2008 sweep was 1991, i.e. when the individual was aged 33. Hence, in order to further reduce the potential for reverse causality, we re-estimate equation (1), conditional upon measures of social interaction in 1991, and also conditional upon a subsample of individuals, who reported that they did not own stocks and/or shares in 1991, as follows:

$$STOCK_i^{t=2008} = 1 \quad if \quad STOCK_i^{*t=2008} = X_i'\beta + \gamma SOC_i^{t=1991} + \varepsilon_i \quad if \quad STOCK_i^{t=1991} = 0$$
$$STOCK_i^{t=2008} = 0 \quad otherwise \tag{2}$$

Hence, social interaction is measured prior to stock market participation with differences in the timing of the two events arguably enabling an indirect causal relationship to be discerned.[10] The results from estimating equation (2) are shown in Table 6. After conditioning upon not owning stocks and/or shares in 1991, the sample size falls to 5,463 individuals. The control variables all have similar influences upon the probability of stock market participation as found in the larger sample, with the exception that whether the individual is currently unemployed or out of the labour market is now statistically significant, reducing the likelihood of stock market participation by around 4 percentage points.

Interestingly, the influence of social interaction, measured in 1991 prior to stock market participation in 2008 and also conditional on not holding any stocks and/or shares in

---

[10] This modelling strategy is akin to that used by Fairlie (2002) who investigated whether young drug dealers were more likely to become self-employed in later years.

1991, remains positive and statistically significant. Such evidence is consistent with a causal relationship between social interaction and stock market participation. The magnitudes of the effects on the probability of stock market participation associated with the different measures of social interaction are remarkably similar at around 3 percentage points, with the exception of undertaking sport, which is of the magnitude of approximately 1 percentage point. These findings are consistent with peer group effects where word-of-mouth might influence participation in the stock market through observational learning or, alternatively, peer group effects may operate via the enjoyment one gets from conversing with others about, for example, financial market highs and lows. An alternative view is that social interaction acts as a proxy for the trust that individuals have in financial institutions, see, for example, Hong et al. (2004) and Guiso et al. (2008). It is conceivable that people who are more socially active may have a greater tendency to trust and so disentangling the influence of sociability and trust is not trivial. However, estimating equation (2) including each measure of social interaction simultaneously, i.e. church attendance, visiting friends, undertaking sport and trust, the marginal effect associated with trust, although positive, is statistically insignificant. This would seem to suggest that social interaction is important in that it has an effect over and above the individual's level of general trust.

IV.   Social Interaction and Stock Market Participation: Panel Data Analysis

The *NCDS* allows us to expand the panel further prior to 1991 since information on stock and/or share ownership was also available in 1981 when the individual was aged 23. The percentage of individuals participating in the stock market in 1981, 1991 and 2008 is 4%, 22% and 33%, respectively. Hence, the rate of stock market participation appears to increase over the life cycle. It is also possible to construct consistent binary measures of social interaction over time relating to church attendance, participation in sport and the number of clubs that the individual is currently a member of across the 1981, 1991 and 2008 *NCDS*

sweeps (as defined above). Hence, we also estimate a binary fixed effects logit model as follows:

$$
\begin{aligned}
STOCK_{it} &= 1 \quad if \quad STOCK_{it}^* = \tilde{X}_{it}' \phi + \lambda SOC_{it} + \alpha_i + \varepsilon_{it} \\
STOCK_{it} &= 0 \quad otherwise
\end{aligned}
\tag{3}
$$

where $\tilde{X}_{it}$ is a vector of time varying covariates (a subset of those included in equation 1), specifically whether the individual is married; currently unemployed or not in the labour market; owns their home outright; highest educational qualification; household wealth quartile binary indicators; the logarithm of weekly household labour income and the logarithm of weekly household benefit income (both in 2008 prices); ten binary indicators for region of residence; and year dummy variables to capture any trends in stock market participation. The remaining covariates, which were used in equation (1), are either time invariant or unavailable over the entire period. The parameter α_i is a specific individual fixed effect and ε_{it} is a random error term. It is conceivable that a number of time invariant unobserved variables might be important determinants of whether individuals participate in the stock market.[11] This is potentially an important extension of the cross sectional analysis of Hong et al. (2004) and Guiso et al. (2008). The results from estimating equation (3) are shown in Table 7 where there are 11,673 observations.[12] Not surprisingly, now fixed effects have been taken into account, the marginal effects are smaller in magnitude. In addition, no education effects are evident. The influence of the household's position in the wealth

---

[11] For example, Hong et al. (2004) and Guiso et al. (2008) control for risk preference (proxied by gambling and lottery responses). Whilst empirical measures of risk preference can be criticised, see, e.g., Kimball et al. (2009), Hong et al. (2004) find that it is an important determinant of participation in the stock market. If, however, risk preference is time invariant, or at least largely time invariant, it will be captured by the fixed effect and, hence, the panel framework adopted in equation (3) will account for this, as well as other time invariant unobserved effects.

[12] Note that 22,123 observations are dropped from the available 33,796 observations obtained by pooling across the 1981, 1991 and 2008 sweeps. This is because there is no variation in the dependent variable over time, i.e. $\sum_{i=1}^{T_i} STOCK_{it} = 0$ or $\sum_{i=1}^{T_i} STOCK_{it} = 1$. This is the downside of using a fixed effects, i.e. within group, estimator in a binary framework (see Cameron and Trivedi, 2005). Estimates based upon a random effects model, which employs all 33,796 observations, reveal positive and statistically significant effects between each measure of social interaction and stock market participation.

distribution remains, with individuals living in a household in the top wealth quartile having around a 6 percentage point higher probability of stock market participation. Both frequent participation in sport and church attendance are associated with around a 1 percentage point increase in the probability of participating in the stock market. Those individuals who are currently members of four or more clubs have around a 1.6 percentage point higher probability of owning stocks and/or shares. The effects from social activity are larger in magnitude than those stemming from weekly labour income or weekly benefit income and one fifth of the size of the marginal effect associated with being in the highest wealth quartile.

V.   Social Interaction and Other Types of Financial Investment

Finally, Guiso et al. (2004) have found evidence to suggest that in regions of Italy where social capital is high individuals make use of a variety of types of financial product, including stock market investments and checking accounts, equivalent to bank and building society savings/current accounts in the UK. With the measures of social interaction available, it is conceivable that those individuals who attend church frequently or who interact with their neighbours may have more trust in the institutions responsible for generating such investment opportunities. Hence, we might also expect to see social interaction being positively related to the probability of having savings/current accounts, i.e. financial assets which are less risky than stocks and shares. In Table 8, where the dependent variable is now a binary indicator for whether the individual has a current/savings account: in Panel A we re-estimate equation (1); in Panel B equation (1) is re-estimated with indicators of social interaction measured prior to 2008 (see Section III); in Panel C equation (2) is estimated conditional upon not having a savings/current account in 1991; and, finally, in Panel D the results of the fixed effects logit analysis are presented based upon re-estimating equation (3). The results reveal that, across the different cross-sectional specifications (Panels A to C), none of the measures of social

interaction, with the exception of trust, have an influence upon the probability of having a savings/current account. This finding concurs with Hong et al. (2004) for the U.S. who argue that measures of social interaction are not indicative of general trust in financial institutions. The finding that trust does have a positive and statistically significant association with holding current/savings accounts does not accord however with this interpretation. Although, in arguably the most rigorous cross-sectional specification shown in Panel C, the influence of trust becomes statistically insignificant. Turning to the panel fixed effects logit results reported in Table 8 Panel D, neither church attendance nor being an active member of a sports club have a significant influence on holding a savings/current account. Furthermore, the number of clubs that the individual is currently a member of would appear to lower the probability of holding savings. If general trust in financial institutions were the main explanation of the association between social interaction and stock market participation, e.g. Hong et al. (2004) and Guiso et al. (2008), then arguably such a relationship should also exist between social interaction and other forms of investment, e.g. savings/current accounts. Hence, for the UK it would appear that trust is not the primary reason for stock market participation.

VI.   Conclusion

In accordance with the existing literature, which predominantly focuses on the U.S., our findings support a positive relationship between social interaction and stock market participation for the U.K. when both are measured concurrently. In addition, our cohort data allows us to make an interesting contribution to the existing literature in this area by exploring the panel aspect of the data. To be specific, based upon modelling stock market participation in 2008 on social interaction measured in 1991, and conditional on not owning stocks and/or shares in 1991, the influence of each measure of social interaction is around 10% of the unconditional probability of stock market participation, rising to 33% for those

individuals who are currently an active member of four or more clubs. Moreover, this positive relationship is robust to employing a relatively wide range of measures of social interaction. Finally, the positive relationship between social interaction and stock market participation prevails within a panel data framework, which controls for unobserved fixed effects. Our findings shed further light on the nature of financial decision-making at the individual level lending further support for the importance of social interaction for stock market participation. Furthermore, our findings are potentially important from a policy perspective since if stock market participation enhances wealth accumulation and if those individuals who suffer from social exclusion are less likely to make such financial investments, then inequalities in wealth may be further exacerbated.

References

Banerjee, A. (1992) 'A Simple Model of Herd Behavior.' *Quarterly Journal of Economics*. 107, 797-817.

Becker, G. S. (1991) 'A Note on Restaurant Pricing and Other Examples of Social Influences on Price.' *Journal of Political Economy*. 99, 1109-16.

Bertaut, C. and M. Starr-McCluer (2002) 'Household Portfolios in the U.S.' In *Household Portfolios*, Guiso, L., Haliassos, M. and T. Jappelli (eds). MIT Press.

Brown, J., Ivković, Z., Smith, P. and S. Weisbenner (2008) 'Neighbors Matter: Causal community Effects and Stock Market Participation.' *Journal of Finance*. 63, 1509-31.

Brown, S. and K. Taylor (2007) 'Religion and Education: Evidence from the National Child Development Study.' *Journal of Economic Behavior and Organization*. 63, 439-60.

Brown, S. and K. Taylor (2009) 'Social Interaction and Children's Academic Test Scores: Evidence from the National Child Development Study.' *Journal of Economic Behavior and Organization*. 71, 563-74.

Cameron, C. A. and P. K. Trivedi (2005) Microeconometrics: Methods and Applications. *Cambridge University Press*.

Christelis, D., Jappelli, T. and Padula, M. (2010) 'Cognitive Abilities and Portfolio Choice.' *European Economic Review*. 54, 18-38.

DiPasquale, D., and E. L. Glaeser (1999) 'Incentives and Social Capital: Are Homeowners Better Citizens?' *Journal of Urban Economics*. 45, 354-84.

Ellison, G. and D. Fudenberg (1995) 'Word of Mouth Communication and Social Learning.' *Quarterly Journal of Economics*. 110, 93-125.

Fairlie, R. W. (2002) 'Drug Dealing and Legitimate Self-Employment.' *Journal of Labor Economics*. 20, 538-567.

Glaeser, E., Laibson, D., Scheinkman, J., Soutter, C. (2000) 'Measuring Trust.' *Quarterly Journal of Economics*. 65, 811–46.

Glaeser, E., Laibson, D., Sacerdote, B., (2002) 'An Economic Approach to Social Capital.' *The Economic Journal*. 112, F437–F58.

Goldberg, L. R. (1999) 'A Broad-Bandwidth, Public Domain, Personality Inventory Measuring the Lower Level Facets of Several Five-Factor Models.' In *Personality Psychology in Europe*, Mervielde, I., Deary, I., De Fruyt, F. and F. Ostendorf (eds). Tilburg, The Netherlands: Tilburg University Press.

Goldberg, L. R. (2001) 'Analyses of Digman's Child-Personality Data: Derivation of Big-Five Factor Scores from each of Six Samples.' *Journal of Personality*. 69, 709-43.

Granovetter, M. (1983) 'The Strength of Weak Ties: A Network Theory Revisited.' *Sociological Theory*. 1, 201-33.

Guiso, L., Sapienza, P. and L. Zingales (2004) 'The Role of Social Capital in Financial Development.' *American Economic Review*. 94, 526-56.

Guiso, L., Sapienza, P. and L. Zingales (2008) 'Trusting the Stock Market.' *Journal of Finance*. 63, 2557-600.

Guiso, L. and T. Jappelli (2005) 'Awareness and Stock Market Participation.' *Review of Finance*. 9, 537-67.

Hong, H., Kubik, J. D., and J. C. (2004) Stein 'Social Interaction and Stock-Market Participation.' *Journal of Finance*. 59, 137-63.

Iannaccone, L. R. (1998) 'Introduction to the Economics of Religion.' *Journal of Economic Literature*. 36, 1465–95.

Ivkovic, Z. and S. Weisbenner (2007) 'Information Diffusion Effects in Individual Investors' Common Stock Purchases: Cover Thy Neighbours' Investment Choices.' *Review of Financial Studies*. 20, 1327-57.

Kimball, M. S., C. R. Sahm and M. D. Shapiro (2009) 'Risk Preferences in the PSID: Individual Imputations and Family Covariation.' *American Economic Review*. 99, 363-8.

Knack, S. and P. Keefer (1997) 'Does Social Capital Have an Economic Payoff? A Cross-Country Investigation.' *Quarterly Journal of Economics*. 112, 1251-88.

Puri, M. and D. T. Robinson (2007) 'Optimism and Economic Choice.' *Journal of Financial Economics*. 86, 71-99.

Sacerdote, B. I., and E. L. Glaeser (2001) 'Education and Religion.' NBER Working Paper Number: 8080.

TABLE 1: Stock market participation rates by wealth and social interaction

WEALTH DISTRIBUTION	CHURCH		TRUST		FRIENDS		SPORT		CLUBS	
	Not social	Social	Not social	Social	Not social	Social	Not social	Social	Not social	Social
All	34.70%	43.62%	31.39%	38.84%	34.34%	38.35%	32.97%	47.46%	27.43%	40.65%
<25th percentile	17.70%	20.31%	15.52%	20.59%	16.88%	20.29%	16.46%	28.97%	14.44%	21.14%
≥25th and <50th percentile	36.37%	41.04%	34.57%	38.53%	35.10%	40.77%	35.25%	44.69%	32.04%	39.70%
≥50th and <75th percentile	37.88%	48.40%	36.35%	40.72%	37.97%	41.34%	37.14%	46.90%	30.23%	43.86%
≥75th percentile	49.23%	56.22%	46.07%	52.61%	49.48%	51.30%	46.99%	58.99%	40.11%	54.58%

Note: 'not social' ('social') binary indicator for type of social interaction equals zero (one).

TABLE 2: Correlation matrix between stock market participation and measures of social interaction

	STOCK	CHURCH	TRUST	FRIENDS	SPORT	CLUBS
STOCK	1					
CHURCH	0.0546 *[0.000]*	1				
TRUST	0.0774 *[0.000]*	0.0755 *[0.000]*	1			
FRIENDS	0.0385 *[0.001]*	0.0172 *[0.142]*	0.0498 *[0.000]*	1		
SPORT	0.1158 *[0.000]*	-0.0158 *[0.177]*	0.0562 *[0.000]*	0.0660 *[0.000]*	1	
CLUBS	0.1638 *[0.000]*	0.3739 *[0.000]*	0.1309 *[0.000]*	0.0897 *[0.000]*	0.4023 *[0.000]*	1

TABLE 3: Summary statistics: NCDS 2008/09

	MEAN	STD. DEV.	MIN	MAX
Stock market participation	0.3554	0.4787	0	1
Male	0.4764	0.4995	0	1
White	0.7101	0.4537	0	1
Married	0.7201	0.4489	0	1
O levels	0.5243	0.4994	0	1
A levels	0.0895	0.2855	0	1
Diploma	0.0491	0.2162	0	1
Degree	0.2055	0.4041	0	1
Log household weekly labour income	5.0356	2.4598	0	10.96
Log household weekly benefit income	1.3978	1.9076	0	6.74
$\geq 25^{th}$ and $<50^{th}$ wealth percentile	0.2313	0.4217	0	1
$\geq 50^{th}$ and $<75^{th}$ wealth percentile	0.2971	0.4570	0	1
$\geq 75^{th}$ wealth percentile	0.2925	0.4549	0	1
Unemployed or not in labour market	0.1289	0.3351	0	1
Own house outright	0.2513	0.4338	0	1
Computer at home	0.3897	0.4877	0	1
Optimistic about future	2.0044	1.2175	0	3
Index of extraversion	26.3566	10.9110	0	45
Index of intelligence	28.8819	11.3324	0	45
Read national newspaper daily	0.1965	0.3974	0	1
Whether attend church	0.0947	0.2928	0	1
Whether most people can be trusted	0.5579	0.4967	0	1
Whether visit friends	0.3017	0.4590	0	1
Whether member of a sports club	0.1781	0.3827	0	1
Whether member of one club	0.3199	0.4664	0	1
Whether member of 2-3 clubs	0.2542	0.4354	0	1
Whether member of ≥ 4 clubs	0.0397	0.1952	0	1
Whether attend church (t=1991)	0.3886	0.4875	0	1
Whether most people can be trusted (t=1991)	0.6685	0.4708	0	1
Whether visit friends (t=1991)	0.3898	0.4877	0	1
Whether member of a sports club (t=1991)	0.6926	0.4615	0	1
Whether member of one club (t=1991)	0.4336	0.4956	0	1
Whether member of 2-3 clubs (t=1991)	0.1348	0.3415	0	1
Whether member of ≥ 4 clubs (t=1991)	0.0169	0.1289	0	1
OBSERVATIONS		7,286		

TABLE 4: Social interaction and stock market participation in 2008/09

	CHURCH		TRUST		FRIENDS		SPORT		CLUBS	
	M.E.	*TSTAT*	M.E.	*TSTAT*	M.E.	*TSTAT*	M.E.	*TSTAT*	M.E.	*TSTAT*
Male	0.0684	*(5.74)*	0.0678	*(5.68)*	0.0689	*(5.78)*	0.0588	*(4.86)*	0.0601	*(5.01)*
White	0.0110	*(0.86)*	0.0106	*(0.83)*	0.0110	*(0.86)*	0.0106	*(0.82)*	0.0112	*(0.87)*
Married	0.0862	*(6.71)*	0.0864	*(6.74)*	0.0899	*(7.02)*	0.0861	*(6.71)*	0.0853	*(6.64)*
O levels	0.0887	*(4.24)*	0.0882	*(4.21)*	0.0893	*(4.27)*	0.0866	*(4.15)*	0.0845	*(4.04)*
A levels	0.2584	*(8.58)*	0.2579	*(8.54)*	0.2608	*(8.66)*	0.2523	*(8.33)*	0.2428	*(7.97)*
Diploma	0.1591	*(4.39)*	0.1591	*(4.39)*	0.1580	*(4.36)*	0.1546	*(4.25)*	0.1387	*(3.82)*
Degree	0.2252	*(8.56)*	0.2251	*(8.55)*	0.2260	*(8.65)*	0.2196	*(8.41)*	0.1921	*(7.15)*
Log household weekly labour income	0.0088	*(3.12)*	0.0086	*(3.06)*	0.0090	*(3.19)*	0.0084	*(2.97)*	0.0079	*(2.79)*
Log household weekly benefit income	-0.0125	*(3.79)*	-0.0123	*(3.73)*	-0.0119	*(3.62)*	-0.0120	*(3.65)*	-0.0131	*(3.96)*
$\geq 25^{th}$ and $<50^{th}$ wealth percentile	0.1749	*(9.24)*	0.1743	*(9.19)*	0.1746	*(9.22)*	0.1734	*(9.15)*	0.1740	*(9.15)*
$\geq 50^{th}$ and $<75^{th}$ wealth percentile	0.1843	*(9.52)*	0.1837	*(9.47)*	0.1840	*(9.50)*	0.1816	*(9.36)*	0.1817	*(9.33)*
$\geq 75^{th}$ wealth percentile	0.2492	*(12.69)*	0.2488	*(12.66)*	0.2488	*(12.66)*	0.2428	*(12.27)*	0.2469	*(12.50)*
Unemployed or not in labour market	-0.0161	*(0.77)*	-0.0158	*(0.75)*	-0.0192	*(0.92)*	-0.0164	*(0.78)*	-0.0080	*(0.37)*
Own house outright	0.1484	*(10.40)*	0.1489	*(10.43)*	0.1482	*(10.38)*	0.1490	*(10.45)*	0.1489	*(10.43)*
Computer at home	0.0561	*(4.46)*	0.0559	*(4.44)*	0.0565	*(4.49)*	0.0573	*(4.55)*	0.0544	*(4.33)*
Optimistic about future	0.0184	*(2.36)*	0.0181	*(2.21)*	0.0181	*(2.30)*	0.0184	*(2.34)*	0.0171	*(2.17)*
Index of extraversion	0.0014	*(1.74)*	0.0014	*(1.70)*	0.0011	*(1.39)*	0.0012	*(1.44)*	0.0011	*(1.42)*
Index of intelligence	-0.0011	*(1.42)*	-0.0011	*(1.40)*	-0.0009	*(1.20)*	-0.0010	*(1.26)*	-0.0011	*(1.36)*
Read national newspaper daily	0.0076	*(0.52)*	0.0063	*(0.43)*	0.0064	*(0.43)*	0.0050	*(0.34)*	0.0062	*(0.42)*
Whether attend church	0.0229	*(2.14)*	–		–		–		–	
Whether most people can be trusted	–		0.0197	*(1.74)*	–		–		–	
Whether visit friends	–		–		0.0408	*(3.11)*	–		–	
Whether member of a sports club	–		–		–		0.0752	*(4.71)*	–	
Whether member of one club	–		–		–		–		0.0304	*(2.05)*
Whether member of 2-3 clubs	–		–		–		–		0.0910	*(5.47)*
Whether member of ≥ 4 clubs	–		–		–		–		0.1219	*(3.64)*
Chi sq. (d); p value	832.93 *p=[0.000]*		834.14 *p=[0.000]*		838.23 *p=[0.000]*		858.33 *p=[0.000]*		860.47 *p=[0.000]*	
OBSERVATIONS					7,286					

Notes: (i) degrees of freedom d=29 except for where the number of clubs is the measure of social interaction when d=31; (ii) year and region controls are also included.

TABLE 5: Social interaction and stock market participation in 2008/09; Timing of social interaction t=1991

	CHURCH		TRUST		FRIENDS		SPORT		CLUBS	
	M.E.	*TSTAT*	M.E.	*TSTAT*	M.E.	*TSTAT*	M.E.	*TSTAT*	M.E.	*TSTAT*
Male	0.0732	(6.04)	0.0696	(5.83)	0.0631	(5.25)	0.0675	(5.67)	0.0713	(5.95)
White	0.0110	(0.86)	0.0097	(0.75)	0.0110	(0.85)	0.0104	(0.81)	0.0123	(0.96)
Married	0.0834	(6.46)	0.0854	(6.64)	0.0828	(6.41)	0.0870	(6.80)	0.0819	(6.35)
O levels	0.0889	(4.23)	0.0867	(4.14)	0.0932	(4.45)	0.0876	(4.19)	0.0835	(3.97)
A levels	0.2549	(8.42)	0.2557	(8.48)	0.2636	(8.77)	0.2577	(8.56)	0.2464	(8.08)
Diploma	0.1597	(4.38)	0.1588	(4.38)	0.1651	(4.54)	0.1580	(4.36)	0.1430	(3.96)
Degree	0.2252	(8.58)	0.2228	(8.50)	0.2342	(8.97)	0.2260	(8.65)	0.2097	(7.90)
Log household weekly labour income	0.0090	(3.18)	0.0084	(2.96)	0.0088	(3.10)	0.0087	(3.08)	0.0093	(3.27)
Log household weekly benefit income	-0.0124	(3.76)	-0.0124	(3.77)	-0.0118	(3.56)	-0.0123	(3.73)	-0.0141	(4.24)
$\geq 25^{th}$ and $<50^{th}$ wealth percentile	0.1753	(9.23)	0.1735	(9.15)	0.1768	(9.32)	0.1735	(9.14)	0.1716	(9.06)
$\geq 50^{th}$ and $<75^{th}$ wealth percentile	0.1831	(9.42)	0.1832	(9.46)	0.1856	(9.56)	0.1830	(9.44)	0.1808	(9.31)
$\geq 75^{th}$ wealth percentile	0.2502	(12.68)	0.2494	(12.69)	0.2513	(12.74)	0.2476	(12.58)	0.2440	(12.35)
Unemployed or not in labour market	-0.0144	(0.69)	-0.0146	(0.69)	-0.0155	(0.74)	-0.0166	(0.79)	-0.0121	(0.57)
Own house outright	0.1484	(10.39)	0.1484	(10.39)	0.1480	(10.36)	0.1482	(10.38)	0.1488	(10.42)
Computer at home	0.0558	(4.43)	0.0560	(4.45)	0.0569	(4.52)	0.0560	(4.45)	0.0544	(4.33)
Optimistic about future	0.0183	(2.33)	0.0177	(2.26)	0.0184	(2.34)	0.0184	(2.34)	0.0176	(2.25)
Index of extraversion	0.0013	(1.73)	0.0013	(1.67)	0.0012	(1.53)	0.0013	(1.68)	0.0013	(1.57)
Index of intelligence	-0.0010	(1.32)	-0.0011	(1.39)	-0.0010	(1.33)	-0.0011	(1.39)	-0.0011	(1.37)
Read national newspaper daily	0.0058	(0.39)	0.0057	(0.39)	0.0040	(0.27)	0.0063	(0.42)	0.0084	(0.57)
Whether attend church (t=1991)	0.0346	(2.79)	–		–		–		–	
Whether most people can be trusted (t=1991)	–		0.0363	(2.90)	–		–		–	
Whether visit friends (t=1991)	–		–		0.0395	(2.85)	–		–	
Whether member of a sports club (t=1991)	–		–		–		0.0203	(2.59)	–	
Whether member of one club (t=1991)	–		–		–		–		0.0575	(4.37)
Whether member of 2-3 clubs (t=1991)	–		–		–		–		0.0595	(3.01)
Whether member of ≥ 4 clubs (t=1991)	–		–		–		–		0.1436	(2.89)
Chi sq. (d); p value	844.57	*p=[0.000]*	839.89	*p=[0.000]*	845.01	*p=[0.000]*	835.01	*p=[0.000]*	856.30	*p=[0.000]*
OBSERVATIONS					7,286					

Notes: (i) degrees of freedom d=29 except for where the number of clubs is the measure of social interaction when d=31; (ii) year and region controls are also included.

TABLE 6: Social interaction and stock market participation in 2008/09; Timing of social interaction t=1991 and conditional on no stocks in 1991

	CHURCH		TRUST		FRIENDS		SPORT		CLUBS	
	M.E.	*TSTAT*	M.E.	*TSTAT*	M.E.	*TSTAT*	M.E.	*TSTAT*	M.E.	*TSTAT*
Male	0.0540	*(4.31)*	0.0533	*(4.26)*	0.0494	*(3.95)*	0.0522	*(4.18)*	0.0543	*(4.33)*
White	0.0030	*(0.22)*	0.0019	*(0.14)*	0.0021	*(0.16)*	0.0022	*(0.17)*	0.0038	*(0.29)*
Married	0.0665	*(5.13)*	0.0672	*(5.19)*	0.0655	*(5.03)*	0.0682	*(5.28)*	0.0651	*(5.01)*
O levels	0.0581	*(2.86)*	0.0578	*(2.85)*	0.0600	*(2.96)*	0.0577	*(2.85)*	0.0545	*(2.67)*
A levels	0.1774	*(4.91)*	0.1799	*(5.01)*	0.1849	*(5.12)*	0.1798	*(5.00)*	0.1712	*(4.75)*
Diploma	0.1042	*(2.67)*	0.1068	*(2.72)*	0.1077	*(2.74)*	0.1056	*(2.69)*	0.0931	*(2.42)*
Degree	0.1534	*(5.34)*	0.1552	*(5.42)*	0.1611	*(5.60)*	0.1565	*(5.46)*	0.1439	*(4.99)*
Log household weekly labour income	0.0086	*(2.86)*	0.0083	*(2.75)*	0.0085	*(2.83)*	0.0085	*(2.80)*	0.0089	*(2.92)*
Log household weekly benefit income	-0.0124	*(3.59)*	-0.0120	*(3.49)*	-0.0116	*(3.36)*	-0.0120	*(3.49)*	-0.0132	*(3.80)*
$\geq 25^{th}$ and $<50^{th}$ wealth percentile	0.1172	*(6.07)*	0.1171	*(6.06)*	0.1172	*(6.07)*	0.1170	*(6.04)*	0.1156	*(5.99)*
$\geq 50^{th}$ and $<75^{th}$ wealth percentile	0.1257	*(6.25)*	0.1250	*(6.22)*	0.1250	*(6.21)*	0.1248	*(6.20)*	0.1230	*(6.12)*
$\geq 75^{th}$ wealth percentile	0.1810	*(8.15)*	0.1823	*(8.20)*	0.1805	*(8.12)*	0.1806	*(8.13)*	0.1768	*(7.95)*
Unemployed or not in labour market	-0.0412	*(1.96)*	-0.0409	*(1.95)*	-0.0419	*(2.00)*	-0.0420	*(2.01)*	-0.0393	*(1.86)*
Own house outright	0.1444	*(9.16)*	0.1440	*(9.13)*	0.1440	*(9.12)*	0.1439	*(9.12)*	0.1441	*(9.14)*
Computer at home	0.0372	*(2.81)*	0.0374	*(2.82)*	0.0376	*(2.84)*	0.0369	*(2.78)*	0.0360	*(2.72)*
Optimistic about future	0.0265	*(3.31)*	0.0262	*(3.27)*	0.0267	*(3.35)*	0.0266	*(3.33)*	0.0265	*(3.31)*
Index of extraversion	0.0012	*(1.50)*	0.0012	*(1.47)*	0.0011	*(1.39)*	0.0012	*(1.46)*	0.0011	*(1.37)*
Index of intelligence	-0.0015	*(1.87)*	-0.0015	*(1.86)*	-0.0014	*(1.82)*	-0.0014	*(1.84)*	-0.0014	*(1.80)*
Read national news paper daily	-0.0006	*(0.04)*	-0.0011	*(0.07)*	-0.0015	*(0.10)*	-0.0015	*(0.10)*	0.0001	*(0.01)*
Whether attend church (t=1991)	0.0269	*(1.95)*	–		–		–		–	
Whether most people can be trusted (t=1991)	–		0.0235	*(2.84)*	–		–		–	
Whether visit friends (t=1991)	–		–		0.0282	*(2.95)*	–		–	
Whether member of a sports club (t=1991)	–		–		–		0.0136	*(2.04)*	–	
Whether member of one club (t=1991)	–		–		–		–		0.0415	*(3.08)*
Whether member of 2-3 clubs (t=1991)	–		–		–		–		0.0343	*(1.71)*
Whether member of ≥ 4 clubs (t=1991)	–		–		–		–		0.1258	*(2.16)*
Chi sq. (d); p value	506.67	*p=[0.000]*	507.92	*p=[0.000]*	510.72	*p=[0.000]*	507.31	*p=[0.000]*	519.40	*p=[0.000]*
OBSERVATIONS					5,463					

Notes: (i) degrees of freedom d=29 except for where the number of clubs is the measure of social interaction when d=31; (ii) year and region controls are also included.

TABLE 7: Social interaction and stock market participation over time; panel data analysis

	CHURCH			SPORT			CLUBS		
	COEF	*TSTAT*	M.E.	COEF	*TSTAT*	M.E.	COEF	*TSTAT*	M.E.
Married	0.3308	*(3.59)*	0.0205	0.3405	*(3.64)*	0.0204	0.3298	*(3.49)*	0.0177
O levels	-0.1070	*(0.87)*	-0.0065	-0.1026	*(0.83)*	-0.0060	-0.0872	*(0.71)*	-0.0046
A levels	0.0143	*(0.10)*	0.0009	0.0141	*(0.10)*	0.0008	0.0240	*(0.17)*	0.0012
Diploma	0.0447	*(0.32)*	0.0026	0.0468	*(0.33)*	0.0027	0.0710	*(0.51)*	0.0036
Degree	0.0977	*(0.56)*	0.0057	0.0976	*(0.56)*	0.0055	0.0866	*(0.49)*	0.0044
Log household weekly labour income	0.0309	*(2.07)*	0.0019	0.0302	*(2.02)*	0.0017	0.0281	*(1.87)*	0.0015
Log household weekly benefit income	-0.0462	*(2.30)*	-0.0028	-0.0447	*(2.23)*	-0.0026	-0.0463	*(2.28)*	-0.0024
$\geq 25^{th}$ and $<50^{th}$ wealth percentile	0.6720	*(5.01)*	0.0348	0.6748	*(4.97)*	0.0337	0.6689	*(4.77)*	0.0299
$\geq 50^{th}$ and $<75^{th}$ wealth percentile	0.8626	*(5.27)*	0.0450	0.8668	*(5.23)*	0.0435	0.8633	*(5.01)*	0.0389
$\geq 75^{th}$ wealth percentile	1.1932	*(5.45)*	0.0631	1.1978	*(5.40)*	0.0610	1.1903	*(5.15)*	0.0544
Unemployed or not in labour market	0.0017	*(0.02)*	0.0001	-0.0024	*(0.03)*	-0.0001	0.0120	*(0.14)*	0.0006
Own house outright	0.3280	*(3.23)*	0.0177	0.3311	*(3.24)*	0.0172	0.3292	*(3.17)*	0.0153
Whether attend church	0.0825	*(4.00)*	0.0139		–			–	
Whether member of a sports club		–		0.1524	*(2.22)*	0.0088		–	
Whether member of one club		–			–		0.1766	*(2.36)*	0.0089
Whether member of 2-3 clubs		–			–		0.2824	*(3.42)*	0.0132
Whether member of ≥ 4 clubs		–			–		0.3107	*(2.14)*	0.0156
Chi sq. (d); p value	3,728.61 *p=[0.000]*			3,732.81 *p=[0.000]*			3,741.56 *p=[0.000]*		
OBSERVATIONS				11,673					

Notes: (i) Coefficients are also reported due to the problem of calculating marginal effects in the instance of   (see Cameron and Trivedi, 2005); Marginal effects reported are based on ; Degrees of freedom d=25 except for where the number of clubs is the measure of social interaction when d=27; (ii) Year and region controls are also included.

TABLE 8: Social interaction and savings/current accounts

	CHURCH		TRUST		FRIENDS		SPORT		CLUBS	
	M.E.	*TSTAT*	M.E.	*TSTAT*	M.E.	*TSTAT*	M.E.	*TSTAT*	M.E.	*TSTAT*
PANEL A: <u>Social interaction and participation in 2008</u>										
Whether attend church	0.0061	*(1.17)*	–		–		–		–	
Whether most people can be trusted	–		0.0068	*(2.02)*	–		–		–	
Whether visit friends	–		–		0.0014	*(0.41)*	–		–	
Whether member of a sports club	–		–		–		0.0070	*(1.60)*	–	
Whether member of one club	–		–		–		–		0.0060	*(1.74)*
Whether member of 2-3 clubs	–		–		–		–		0.0073	*(1.77)*
Whether member of ≥4 clubs	–		–		–		–		0.0116	*(1.72)*
OBSERVATIONS					7,286					
PANEL B: <u>Timing of social interaction (t=1991)</u>										
Whether attend church (t=1991)	0.0052	*(1.23)*	–		–		–		–	
Whether most people can be trusted (t=1991)	–		0.0072	*(2.00)*	–		–		–	
Whether visit friends (t=1991)	–		–		0.0037	*(1.03)*	–		–	
Whether member of a sports club (t=1991)	–		–		–		-0.0004	*(0.12)*	–	
Whether member of one club (t=1991)	–		–		–		–		0.0127	*(1.65)*
Whether member of 2-3 clubs (t=1991)	–		–		–		–		0.0073	*(0.86)*
Whether member of ≥4 clubs (t=1991)	–		–		–		–		0.0015	*(0.12)*
OBSERVATIONS					7,286					
PANEL C: <u>Timing and conditional on no savings/current account in 1991</u>										
Whether attend church (t=1991)	0.0173	*(1.50)*	–		–		–		–	
Whether most people can be trusted (t=1991)	–		0.0035	*(0.42)*	–		–		–	
Whether visit friends (t=1991)	–		–		0.0099	*(1.11)*	–		–	
Whether member of a sports club (t=1991)	–		–		–		0.0026	*(0.33)*	–	
Whether member of one club (t=1991)	–		–		–		–		0.0160	*(1.09)*
Whether member of 2-3 clubs (t=1991)	–		–		–		–		0.0237	*(1.12)*
Whether member of ≥4 clubs (t=1991)	–		–		–		–		-0.0122	*(0.29)*
OBSERVATIONS					2,251					

TABLE 8 CONT.: Social interaction and savings/current accounts

	CHURCH			SPORT	
	COEF	*TSTAT*	M.E.	COEF	*TSTAT*
PANEL D: <u>Panel data analysis</u>					
Whether attend church	0.1021	*(1.05)*	0.0211		–
Whether member of a sports club		–		-0.0806	*(1.00)*
Whether member of one club		–			–
Whether member of 2-3 clubs		–			–
Whether member of ≥4 clubs		–			–
OBSERVATIONS					19,366

Notes: (i) Coefficients are also reported in Panel D due to the problem of calculating marginal effects in the instance of   (see Cameron and Trivedi, 2005); Marginal effects reported in Panel D are based on   ; In Panel D 14,430 observations are dropped from the available 33,796 observations obtained by pooling across the 1981, 1991 and 2008 sweeps; This is because there is no variation in the dependent variable over time; (ii) year and region controls are also included.