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Intergenerational Analysis of Social Interaction and Social Skills: An Analysis of U.S. and U.K. Panel Data*

Abstract

A body of empirical evidence supports a positive relationship between educational attainment and social interaction. We build on this literature by exploring the relationship between the social interaction of parents and their offspring from an empirical perspective. Using two U.K. and U.S. panel data sets, we find robust evidence of intergenerational links between the social interaction of parents and their offspring supporting the existence of positive intergenerational effects in social interaction. These links exist after controlling for an extensive set of factors covering family background including income and wealth as well as attempting to control for issues related to reverse causality and endogeneity. Our empirical evidence indicates that higher levels of parental social interaction are associated with higher levels of child social interaction. Our findings indicate an important influence on this facet of children's human capital, namely social skills, with positive consequences expected for educational attainment.

JEL Classification: D19; I20
Keywords: Education; Intergenerational Transfer; Social Interaction; Social Skills

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1 Introduction and Background

Over the last two decades there has been growing interest in the economics literature in the implications of social interaction and social capital for socio-economic outcomes such as educational attainment. Given that social skills are an important part of human capital, see Bowles *et al.* (2001), such interest is not surprising. Empirical evidence supports a positive relationship between social interaction and educational attainment, see, for example, Brown and Taylor (2007), Iannaccone (1998), and Sacerdote and Glaeser (2001). Furthermore, Glaeser *et al.* (2002), who find evidence supporting a positive correlation between education and social interaction, state that this relationship is "one of the most robust empirical regularities in the social capital literature." (Glaeser *et al.*, 2002, p. F455).

Social capital, a term whose use, as it is understood here, dates back at least as far as Hanifan (1916), is a concept which recognises the value of investments in social contacts and networks through their influence on the productivity of groups and individuals. It is analogous to other types of capital, so for instance, according to (Putnam, 2000, p. 19) "Whereas physical capital refers to physical objects and human capital refers to properties of individuals, social capital refers to connections among individuals - social networks - and the norms of reciprocity and trustworthiness that arise from them." There is no uniformly agreed definition of social capital, with variations by discipline and context, amongst other things. However, a distinction is often made according to whether the focus is on external or internal relations (see, for example, Adler and Kwon, 2002). Internal (exclusive, bonding or linking) social capital acts to reinforce group homogeneity and exclusive identities, bonding along one or more social dimensions. External (inclusive, bridging or communal) social capital encompasses people, bridging, across social groupings. However, it is important to understand that social capital cannot always be divided according to whether its focus is internal or external. Family networks, for instance, might be highly homogenous and reinforcing in religion, social class or ideology (internal social capital) whilst at the same time bridging across gender and age (external social capital). Further, whilst both types of social capital are

associated with beneficial social effects, it is not the case that all the effects of social capital need be positive. For instance, the in-group loyalty associated with bonding or internal social capital (e.g., trust and mutual support) may create out-group tensions (e.g., ethnocentrism, NIMBYism or discrimination).

Though the early work of Hanifan (1916) had recognised the potential importance of social capital in education, it took until the late 1980s for the literature to gain momentum. There is now a large body of work on the role of social capital in education with arguments supporting a positive impact of social capital on education achievement (see for example Anderson, 2008), as well as education being an important determinant of social capital (see for example Alesina and Ferrara, 2000; Putnam, 2000; Huang *et al.*, 2009).

It is apparent that intergenerational aspects to the accumulation of social capital may exist as in the case of human capital accumulation. A vast literature exists exploring the determinants and implications of human capital, with much recent interest in intergenerational aspects such as the link between the human capital of parents and their children. A number of explanations have been put forward to explain the existence of a positive intergenerational relationship in educational attainment (see Brown *et al.*, 2011b). Firstly, it could be due to genetic transmission of ability, i.e. more able parents have more able children. Secondly, it could reflect a direct transfer of knowledge from parent to child, whereby parents with higher levels of education are more able to assist children with their learning. Thirdly, it could reflect the transfer of such things as self-confidence (e.g., see Filippin and Paccagnella, 2012). Alternatively, it may be due to economic factors such as income, providing, for example, books and private tutoring. In practice, it is likely that a combination of these factors leads to the observed positive relationship between parents' and children's human capital (see, for example, Cunha and Heckman, 2007; Blanden *et al.*, 2007).

In contrast to the human capital literature, the relationship between parents' and

children's social interaction is relatively unexplored in the economics literature. One might conjecture that if a child is brought up by parents who are socially active, then this may become the norm for the child. Indeed, in the context of the more general concept of social capital, Putnam (2000) remarks that "the parents' social capital ... confers benefits on their offspring, just as children benefit from their parents' financial and human capital," (Putnam, 2000, p. 299). Similarly, Brown and Taylor (2009) argue that an intergenerational link between social interaction may exist whereby parental social interaction may be positively associated with their children's involvement in formal social activity, which in turn may be conducive to their human capital accumulation. As Coleman (1988) remarks, in a seminal contribution to the social capital literature, "there is one effect of social capital that is especially important: its effect on the creation of human capital in the next generation" (Coleman, 1988, p. S109).

In general, the existing research in this area is drawn from the sociological literature and has focused on social capital rather than social interaction and social skills. For example, Duncan *et al.* (2005) analyse the relationship between 17 characteristics of mothers and their children using U.S. data, where the characteristics of parents and offspring are both measured during adolescence. One of seven domains explored relates to social activities such as church attendance. They highlight four mechanisms which may explain correlations between such characteristics of mothers and their offspring, namely: socio-economic resources; parenting practices; genetic inheritance, and role modelling, whereby the latter two explanations find relatively more support. In a similar vein, Vesel (2006) explores whether social capital is transmitted from parents to children using survey data relating to the Czech Republic. The empirical analysis, which is based on establishing correlations rather than causal relationships, suggests weak intergenerational transmission of social capital. Similar findings are reported by Jennings and Stoker (2004) relating to the intergenerational transmission of social trust. In contrast, Beck and Jennings (1982) report a strong correlation between parents' and children's civic participation in the U.S.

In the related economics literature, Guiso *et al.* (2008) model the intergenerational transmission of priors about the trustworthiness of others within an overlapping generations framework. Following Dohmen *et al.* (2012), using the German Socio-Economic Panel (GSOEP), they report empirical evidence supporting a positive correlation between the trust of parents and their children by modeling the effect of parents' trust on their children's trust. Due to the limited availability of information on the key variables such as trust, which were elicited from parents and all their offspring who were aged 18 or over at the time of the interview, these two studies analyse information mainly drawn from the 2003 and 2004 waves of the GSOEP, and hence they are unfortunately unable to exploit the panel nature of the data.

Within the economics literature, using data drawn from the U.S. National Longitudinal Survey of Youth 1979, Okumura and Usui (2010) explore the effect of parents' social skills on their children's sociability. Respondents aged between 20 and 28 were asked about their sociability as a child such as the number of clubs they participated in during high school, whereas, due to the absence of information on their parent's social skills, parent's social skills are proxied by the people skills needed in the occupations the respondent's parents were in when the respondent was aged 14.[1] Support is found for a positive association between children's sociability and the proxy for parents' social skills.

In this paper, we explore the relationship between the social interaction of parents and that of their offspring from an empirical perspective, which has attracted surprisingly limited interest in the existing literature, in order to explore whether an intergenerational aspect of this facet of human capital exists. Our focus specifically on social interaction rather than the arguably more general concepts of social capital and trust, not only reflects data availability, but also allows us to link our analysis to the existing studies on social interaction and education described above. For example, Sacerdote

[1]The definitions of the people skills required in occupations are based on occupational characteristics detailed in the US Department of Labor's Dictionary of Occupational Titles (DOT), which are related to objective and subjective evaluations, and include eight variables ranging from 'talking and/or hearing' to 'preferences for activities involving business contacts with people versus a preference for activities of a scientific and technical nature' (Okumura and Usui, 2010, p.6).

and Glaeser (2001) argue that the positive relationship between education and social interaction is the result of treatment and selection: the socialization function of schooling represents the treatment (i.e., skills such as reading and writing play a crucial role in developing communication skills) and selection reflects the fact that education requires the same skills as participation in many other formal social activities such as the ability to listen and communicate. Moreover, although a small number of existing studies in this area have presented interesting empirical evidence supporting the existence of positive correlations between the social capital and trust of parents and their offspring, most studies have relied on cross-sectional data which potentially leads to unresolved issues such as reverse causality. In contrast, we exploit panel data drawn from the U.K. National Child Development Study (*NCDS*) and the U.S. Panel Study of Income Dynamics (*PSID*), which allow us to compare the effects of parental social interaction as measured at various points in time on that of their children. Our empirical analysis supports the existence of a positive relationship between the social interaction of parents and their offspring.[2]

2 Data and Methodology

We explore the relationship between the social interaction of parents and their children from an empirical perspective. In order to explore the robustness of our findings, the empirical analysis employs two data sets: namely the U.K. National Child Development Survey (*NCDS*); and the U.S. Panel Study of Income Dynamics (*PSID*). The *NCDS* is a cohort study tracking individuals born in a particular week in 1958 and the *PSID* is a nationally representative panel of individuals ongoing since 1968 conducted at the Institute for Social Research, University of Michigan with the latest wave being in 2009. These data sets, which provide a wealth of information relating to family background, are ideally suited to our purposes since in each data set it is possible to link parents to their offspring allowing us to explore whether intergenerational associations exist be-

[2]For a theoretical rationale for our findings see Brown *et al.* (2011a), who extend Becker (1974) to address the issue of parent-child social interaction transfers.

tween the social interaction of parents and their offspring.

In the *NCDS* in 1991, when the respondent (i.e. parent) was aged 33, a random sample of one in three of the respondents' children were sampled. Matching parents with their offspring leads to a sample size of 1,437 observations, after missing cases, with the average age of the children being 9 years old. In the *PSID*, there is information on the children of the respondents available from the *Child Development Study* (*CDS*) in 1997, 2002 and 2007, which provides information on early human capital formation. All *PSID* families with children aged between 0 and 12 years were invited to complete the *CDS*, where up to two children per family were included in the survey. In cases where there were more than two eligible children in the family, two were randomly selected to take part in the study. In terms of our analysis, we analyse child characteristics in 2007 yielding a matched sample of 1,429 observations, where the average age of the children is 14 years old.

In accordance with the small number of related studies in this area as discussed in Section 1, we initially model the social interaction of the i^{th} child ($i = 1, .., n$), SOC^{child}, as a function of the social interaction of the j^{th} parent ($j = 1, .., m$), SOC^{parent}, where the social interaction of both parent and child are measured concurrently, i.e. at time period T:

$$SOC_{i,T}^{child} = \mathbf{X}'\boldsymbol{\beta}_1 + \gamma SOC_{j,T}^{parent} + \varepsilon_1. \tag{1}$$

A major advantage of the data that we employ is that it is possible to take account of the fact that individuals are followed over time to allow timing differences in the measures of social interaction. Hence, we then model the following:

$$SOC_{i,T}^{child} = \mathbf{X}'\boldsymbol{\beta}_1 + \gamma SOC_{j,T-K}^{parent} + \varepsilon_1, \tag{2}$$

This approach reduces the potential for reverse causality since, as argued by Angrist and Pischke (2009), the social interaction of the parent is measured *ex ante*, that is, it predates the outcome variable, i.e. child social interaction.

We then compare the effects of concurrent and past parental social interaction by estimating Eq. (3) as follows:

$$SOC_{i,T}^{child} = \mathbf{X}'\boldsymbol{\beta}_1 + \gamma_1 SOC_{j,T}^{parent} + \gamma_2 SOC_{j,T-K}^{parent} + \varepsilon_1, \tag{3}$$

Finally, we explore the robustness of our results in two additional ways. Firstly, it can be argued that, for the parent's social interaction to be exogenous in Eqs. (1) to (3) above, the parent's behaviour should not be influenced by that of their offspring. Although, we have used lagged parental social interaction to attempt to moderate such reverse causality, to further explore this, we re-estimate Eqs. (2) to (3) on a sub-sample of individuals where we observe the measure of parental social interaction at $T-K$ before they had children. To be specific, we investigate the robustness of the estimates of γ conditional on the individual (i.e. the parent at time T) not already having children when their social interaction is measured at time $T-K$.[3] The sample sizes for the *NCDS* and the *PSID* fall to 495 and 1,020 observations, respectively.

Our second robustness check, which, due to data availability, we conduct for the *NCDS* only, again relates to the issue of the potential endogeneity of parental social interaction, i.e. the possibility that parental social interaction may be influenced by the behaviour of their children. In the context of social interaction, such a possibility is arguably particularly apparent. For example, if a child engages in a range of activities, such as sport or dancing lessons, it is conceivable that parents will become involved in social events associated with such activities or, alternatively, may simply meet other parents, which may lead to social interaction or the dissemination of information about social interaction opportunities.

Hence, we re-estimate Eq. (1) instrumenting parental social interaction including the child's social interaction as an explanatory variable when modelling parental social

[3]It is important to note that unobserved factors may still affect the social interaction of the parent and child even conditioning on measuring parental social interaction prior to having offspring if there are persistent unobserved factors, which may, for example, be related to genetic factors.

interaction. The key issue here concerns locating a suitable instrument which affects the social interaction of the parents, but is uncorrelated with unobserved characteristics of the parents and has no influence on the child's social interaction (other than via any effect on the parent's social interaction). Given the availability of a wealth of information over an individual's life cycle afforded by a cohort study such as the *NCDS*, we are able to identify a particularly suitable instrument for our application.

Following Brown *et al.* (2011b), we have selected the age at which the parent started the formal, structured learning of phonics as an instrument. Phonics is an approach to teaching individuals, who can speak English, how to read and write the language, based on making the connections between spoken English and letters. This approach is widely used in a number of countries such as the US, UK and Australia, which highlights its support amongst policymakers. In 1984, for example, the US National Academy of Education commissioned a report entitled '*Becoming a Nation of Readers* which reported that phonics improves the ability of children to identify words. It is apparent that the age at which the parent started learning phonics arguably influences their early education and skills development, which in turns play a key role in determining educational outcomes later in life. Additionally, as argued by Sacerdote and Glaeser (2001), skills such as reading and writing are fundamentally important for developing communication skills, which are in turn essential for social interaction. When the parent formally started learning phonics as a child is arguably determined exogenously by accident of birth location and Local Education Authority (*LEA*) policy, rather than by endogenous deliberate decisions taken by the respondents' parents to reside in a particular area. The age at which the *NCDS* respondents began structured phonics learning does vary across individuals: under 5 years (3.97%); $5-5\frac{1}{2}$ years (29.30%); $5\frac{1}{2}-6$ years (35.42%); $6-6\frac{1}{2}$ years (18.58%); $6\frac{1}{2}-7$ years (10.79%); $7-7\frac{1}{2}$ years (1.95%). The head teacher of the school is asked: "At what age was the systematic teaching of phonics (i.e. letter sounds) commenced with this child in school?" [4] This reflects differences in *LEA* policy

[4]The age at which individuals started full-time schooling varies across individuals differently to the age at which the teaching of phonics began: under $3\frac{1}{2}$ years (1.53%); $3\frac{1}{2}$ to under 4 years (1.74%); 4 to under $4\frac{1}{2}$ years (3.55%); $4\frac{1}{2}$ to under 5 years (43.56%); 5 to $5\frac{1}{2}$ years (47.53%); $5\frac{1}{2}$ to 6 years (1.60%); and over 6 years (0.49%). Furthermore, we test the null hypothesis that the distribution of the phonics

regarding the age at which phonics was taught. This is the case since, for the *NCDS* cohort, the policy regarding the age at which children were formally taught phonics in primary school was determined at the *LEA* level, the *LEAs* being the local authorities responsible for education.[5]

With respect to the specific definitions of the dependent variables, in the *NCDS*, the dependent variable SOC^{child} is defined as a binary indicator of whether the child is a member of a club. In the *NCDS*, this is measured in 1991 ($T = 1991$). The binary indicator for whether the child is a member of a club is based on parents' responses to the following question "does your child get any special lessons (for example musical) or belong to any organisations that encourage activities such as sport, music, art, dance, drama etc?" In terms of the *NCDS*, the social interaction of the child is modelled via a probit specification, i.e. exploring the determinants of the probability of club membership. For the *PSID*, we construct an index of the number of clubs that the child attends, which is measured in 2007 (i.e. $T = 2007$). Hence, the measure of SOC^{child} in the *PSID* is an ordered index ranging from zero clubs to attending three or more clubs, constructed from the child's responses in the *CDS* 2007 to the following questions: "in the past 12 months, did you participate in religious clubs and activities?"; "during the past 12 months, did you spend time on social activities such as clubs or student government?"; "were you a member of any groups in the community such as scouts or hobby clubs in the last 12 months?"; "did you spend time on volunteer service activities over the last 12 months?"; "during last summer, were you involved in any organised summer or after-school sports or recreational programmes?"; and, finally, "were you a member of any athletic or sports teams at school in the last 12 months?" For the *PSID*, the dependent variable, SOC^{child} , is modelled as an ordered probit specification, i.e. exploring the determinants of the probability of being a member of zero clubs, one club, two clubs or three or more clubs.

and school starting age are the same. The null hypothesis is rejected at the 1 per cent level with a z statistic of 26.88.

[5]There are currently 152 *LEAs* in England.

As detailed in Eqs. (1) and (2) above, parental social interaction is included as an explanatory variable in the child social interaction equation in order to ascertain the existence or otherwise of an intergenerational relationship. In the *NCDS*, parental social interaction is measured by the number of clubs the parent was a member of in 1991 ($T = 1991$) and also in 1981 ($T - K = 1981$) entered into the empirical specification as a set of binary controls, i.e. a member of one club, two clubs or three or more clubs, with no clubs as the reference category. 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; and/or trade union/staff associations. For the *PSID*, in order to explore the robustness of our findings, we measure parental social interaction in two ways. Firstly, we create a set of dummy variables relating to the number of social activities the parent engages in during weekdays and at the weekend, including: entertainment/social activities; volunteering or helping organisations; professional organisations; family organisations (e.g. child/youth groups); special interest groups; sports events; movies; theatre/opera/classical concerts/ballet; museums, art galleries, exhibitions; other spectator events; dancing; and other events/socialising. We distinguish between engaging in no social activities (the omitted category), one activity, two activities and 3 or more social activities. Secondly, we explore the amount of time that the parent spends in these social activities in order to explore the effects of the intensity of club participation, which is defined as the sum of time spent during weekdays and at the weekend on the social activities listed above. This measure provides a time dimension to the measurement of parental social interaction. Both measures relate to 2007 (i.e. T), with measures in 1997 providing the measure of parental social interaction at $T - K$.[6] The measures are based on information relating to activities recorded during sampled 24 hour days: one randomly sampled weekday and one randomly sampled weekend day in the relevant survey year. Thus, both the *NCDS* and *PSID* provide information on the number of clubs that parents are members of. The *PSID* also contains information on the amount of time spent in

[6]We focus on the most recent *CDS*, i.e. 2007, so that the lag length between T and $T - K$ is of the same length as that in the *NCDS*.

such activities thereby providing a measure of the intensity of parent club participation. Unfortunately, such information is not available in the *NCDS*.

A range of additional covariates are included in **X** consisting of child covariates and parental characteristics. In particular, the child covariates are binary controls for whether the child: is male; is in good health; has any siblings; lives in a single parent family; and is white. A quadratic in the age of the child is included along with the number of schools that the child has attended, the number of friends that the child has and the number of books owned by the child. Parental characteristics include: gender; educational attainment;[7] and housing tenure, specifically whether the house is owned outright or on a mortgage. We also control for household finances by including the natural logarithm of benefits, non labour income and labour income. Finally regional controls are also included. Summary statistics are presented in Tables 1A and 1B.

3 Results

3.1 The National Child Development Study (*NCDS*)

In Tables 2 and 3, we present the empirical results relating to the *NCDS*, focusing on exploring the influence of parental social interaction on the probability that their child is a member of a club. In Table 2 Panel A, the results from estimating Eq. (1) are presented, where the social interaction of the parent and the child are measured concurrently, i.e. in 1991. It is apparent that older children have a higher probability of being a member of a club, whilst no gender or ethnicity effects are evident. In contrast, the number of close friends that the child has and the number of books owned by the child both have positive and significant effects on the probability of club membership.

[7] In the *NCDS*, educational attainment is defined as the highest level of educational attainment: 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 into higher education in the UK. No education is the reference category. In the *PSID*, educational attainment is measured as a continuous variable by years of completed schooling.

Parental influences are dominated by the effect of the highest educational qualification, where a child whose parent has a degree as their highest academic qualification (relative to no education) has a 19 percentage point higher probability of being a club member. The number of clubs that the parent is a member of appears to be as equally important as parental education in terms of the magnitude of the effect, where a child whose parent is a member of three or more clubs (relative to no clubs) has an 18 percentage point higher probability of club membership.

As discussed in Section 2, a possible issue with the empirical analysis thus far concerns reverse causality. We explore this issue in four ways. Firstly, we measure parental social interaction *ex ante*, so that our primary explanatory variable of interest predates the outcome variable. Specifically, parental social interaction is measured in 1981, i.e. ten years prior to the child's club membership. The results of estimating Eq. (2), which are summarised in Table 2 Panel B, are consistent with those in Panel A, with a monotonic relationship being apparent, i.e. the extent of the social interaction of the parent matters. Moreover, the magnitude of the effect associated with the parent being a member of three or more clubs is unchanged.

The second approach we take to investigate the robustness of our findings is related to the possibility that social interaction is persistent over time, which could mean that the results based upon the timing difference between the measurement of the child's social interaction and parental social interaction are arguably just capturing a fixed effect. We explore whether there is an effect from parental social interaction measured *ex ante* whilst simultaneously controlling for concurrent parental social interaction by estimating Eq. (3), which is arguably an indication of the existence of an effect over and above a fixed effect. The results from this analysis are summarised in Table 2 Panel C. Interestingly, the effect of parental social interaction in 1981 remains when controlling for concurrent club membership. Specifically, whether the parent is a member of three or more clubs is associated with around a 15 percentage point higher probability of the child being a member of a club regardless of when parental social interaction is measured.

The third approach that we adopt in order to explore the robustness of our findings is to instrument parental social interaction. As described in Section 2, the rich information available in the *NCDS* enables us to instrument the number of clubs that the parent is a member of in 1991 by using the age at which the parent began learning structured phonics. The use of this instrument allows us to isolate the random variation in the parents' social interaction, hence allowing us to determine whether this random component is subsequently associated with the social interaction of their offspring. The results are summarised in Table 2 Panel D. The Wald-test for the significance of the instrument in the first-stage regression shows that it is strongly significant and endorses the validity of the chosen instrument. Moreover, the role of the social interaction of the parent is statistically significant and of a similar magnitude to that found above, thereby providing further support for the robustness of our empirical findings. Specifically, whether the parent is predicted to be a member of three or more clubs is associated with a 15 percentage point higher probability of their child being a club member.[8]

Our final robustness check relates to the argument that, for $SOC^{parent}_{j(T-K)}$ to be exogenous in Eq. (2), the parent's behaviour should not be influenced by that of their offspring. To explore this, we re-estimate Eq. (2) for the subsample of observations, where we observe $SOC^{parent}_{j(T-K)}$ prior to their children being born. This yields a sample of 495 observations. The results of estimating Eq. (2), conditional on the parent not having offspring in 1981, are summarised in Table 3, where the outcome variable is the probability that the child is a member of a club in 1991. In Panel A, we include parental club membership in 1981, i.e. predating the child outcome and, in Panel B, we simultaneously control for parental social interaction in 1991. The estimates of γ in Eq. (2), which show the influence of parental social interaction on that of their child, can be compared to the results shown in Table 2 Panels B and C, i.e. the full sample which includes individuals who had children in 1981. Noticeably, the influence of parental so-

[8]The standard errors have been adjusted to allow for the inclusion of the predicted variable. It should also be noted that the estimated coefficient of the predicted variable might be inconsistent, see Wooldridge (2010). However, we are primarily concerned with only the sign and the significance of the effect in order to ascertain the robustness of our previous results.

cial interaction, measured prior to having children, has very similar effects on the social interaction of their offspring in 1991 in terms of statistical significance and magnitude. For example, whether the parent was a member of three or more clubs in 1981 increases the probability that their child is a member of a club in 1991 by 19 percentage points (see Table 3 Panel A), compared to 18 percentage points based upon the full sample (see Table 2 Panel B). Once we also control for the parent's social interaction in 1991, the influence of club membership is identical in terms of magnitude (see Table 3 Panel B and Table 2 Panel C), revealing that whether the parent is a member of three or more clubs in 1981 (1991) is associated with a 15 (16) percentage point higher probability that their child is a member of a club in 1991.[9]

3.2 The Panel Study of Income Dynamics (*PSID*)

In Tables 4 to 7, we present the findings related to the analysis of the U.S. *PSID*, where, in contrast to the *NCDS*, we are able to explore two different measures of parental social interaction, namely, the number of social activities that the parent engages in and the amount of time spent in those social activities. The social interaction of the child is initially proxied by the number of clubs that they were a member of in 2007 and is modelled via an ordered probit specification using the same covariates as employed with the British data set. Results based upon the number of clubs the parent is a member of are presented in Tables 4 and 6, whilst results based upon the intensity of parental social interaction, i.e. hours spent by the adult in social activities, are presented in Tables 5 and 7. In each of the tables we report marginal effects for the child being a member of: no clubs; one club; two clubs; and three or more clubs.

[9]We have also investigated the relationship between club membership and parents' employment status. It is conceivable that parents who work full-time have less time to participate in their own social activity, and may also have less time to assist their children to participate in their social activities. We are very grateful to a reviewer for highlighting this important point. In order to explore this issue, we have re-estimated the models including the following additional controls: father employed full-time; father employed part-time; mother employed full-time; and mother employed part-time. Interestingly, there are no effects from part-time employment but having a father (mother) working full-time increases (decreases) the probability of the child being a club member in 1991. The effect from parental social interaction remains in terms of statistical significance and magnitude. For example, re-estimating the model reported in Table 2 Panel A, the marginal effects (t-statistics) associated with parental club membership are as follows: member of one club 0.092 (3.01); member of two clubs 0.1295 (3.47); and a member of three or more clubs 0.1764 (3.90). Similar results are found for the US sample, and in both samples a joint test that the employment status controls are jointly equal to zero cannot be rejected.

The initial measure of parental social interaction consists of a set of binary controls for the number of social activities that the parent engaged in measured at 2007. The results are shown in the first column of Table 4 Panel A. The covariates, which are statistically significant, generally have the same direction of influence on the child's club membership as found for the *NCDS*. For example, the extent of the child's club membership is increasing in: age, albeit at a decreasing rate; the number of friends that the child has; the number of books that the child owns; and the education of the parent. For example, an extra year of schooling completed by the parent increases the probability that the child is a member of three or more clubs by 0.6 percentage points. There are also some noticeable differences in the findings across the two data sets. Firstly, for the U.S. *PSID*, boys are less likely to belong to three or more clubs (although the effect is only statistically significant at the 10 percent level). Interestingly, housing tenure, which may be regarded as a proxy for the stock of wealth, is important in determining club membership for the U.S. *PSID* but played no role in the U.K. *NCDS*. Specifically, whether the parent owns the home decreases (increases) the probability that the child is a member of zero (three or more) clubs by 4.3 (5.3) percentage points. Similar effects are found from the control variables when we adopt the alternative measure of social interaction, see Table 5 Panel A.

Turning to the role of parental social interaction, the effects are statistically significant and have a positive influence. For example, whether the parent engaged in three or more social activities in 2007 increases the probability that the child is a member of three or more clubs in 2007 by approximately 13 percentage points. The role of parental club involvement has a monotonically increasing association with the number of clubs the child is a member of. In Table 5 Panel A, we estimate an equivalent model but replace the binary measures of parental social activity with the time spent by the parent's social activity in 2007. For every extra hour of parental social activity, the probability that the child is a member of three or more clubs increases by around 1.5 percentage points, highlighting the importance of the intensity of parental club participation.

We then explore the robustness of our empirical findings following the same approach as adopted with the British data, firstly, by measuring parental social interaction ex ante and, secondly, by ascertaining whether there is an effect from parental social interaction measured ex ante whilst simultaneously controlling for the concurrent social interaction of the parent. As with the U.K. *NCDS*, the measures of parental social interaction predate the child outcome by ten years, being measured in 1997. The results are summarised in Tables 4 and 5 Panel B, where the former table reports results based upon measures of parental social interaction proxied by a set of binary indicators for the number of social activities and the latter measures parental social interaction by the number of hours spent in social activity. As found with the U.K. data set, the extent of the social interaction of the parent has a positive influence on their offspring's social interaction. Specifically, whether the parent engages in three or more social activities measured in 1997 increases the probability that their child is a member of three or more clubs in 2007 by approximately 13 percentage points as can be seen from Table 4 Panel B. With respect to the alternative measure of parental social interaction, based on the average amount of time that the parent spent in the social activities in 1997, which is approximately two hours, this effect increases the probability that the child is a member of three or more clubs in 2007 by over 2 percentage points, see Table 5 Panel B. As found when parents' social interaction was measured concurrently with that of their offspring there is a monotonic influence of number of clubs attended by the child. In Tables 4 and 5 Panel C, we control for parental social interaction in 2007 and 1997. In accordance with the findings from the *NCDS*, the role of parental social interaction remains, which suggests that the analysis is not merely picking up a fixed effect.

The final robustness check that we undertake with the *PSID* is to re-estimate Eq. (2) based upon a sub sample of 1,020 observations, where the individuals did not have any children in 1997, i.e. the time when $SOC^{parent}_{j(T-K)}$ is measured. The results are summarised in Tables 6 and 7 Panels A and B, which can be compared to the results in Tables 4 and 5 Panels B and C. As above, the marginal effects relating to membership

of no clubs through to membership of three or more clubs in 2007 are presented for the two measures of parental social interaction. It is apparent that the social interaction of the parent, as measured prior to having children, has a statistically significant positive influence on the social interaction of their off spring in 2007. The estimated effects are also comparable in magnitude to those presented in Tables 4 and 6. Such findings further endorse the existence of intergenerational links between the social interaction of parents and their offspring.

4 Conclusions

In this paper, we have explored the relationship between the social interaction of parents and their offspring from an empirical perspective. Using two data sets covering the U.K. and the U.S., we find robust evidence of intergenerational links between the social interaction of parents and their offspring, which is consistent with the findings of Duncan *et al.* (2005) and Okumura and Usui (2010). Moreover, these links exist after controlling for an extensive set of factors covering family background including income and wealth as well as attempting to control for issues related to reverse causality and endogeneity in a variety of ways. Specifically, our empirical evidence indicates that higher levels of social interaction of the parent are associated with higher levels of social interaction of the child. Hence, it would appear that positive intergenerational effects exist in social interaction. Our findings contribute more generally to the existing literature on intergenerational influences on economic outcomes, such as earnings (e.g Solon, 1999), formal educational outcomes (e.g. Blanden *et al.*, 2007) and test scores (e.g. Brown *et al.*, 2011b). Given the positive relationship generally found in the existing literature between educational attainment and social interaction, our findings identify a potential avenue whereby the social interaction of children may be influenced, which may ultimately have positive consequences for their educational attainment. One possible area for future research, as additional panel data sets become available, is the complex interaction between educational attainment, the social capital of parents especially that of mothers and early childhood experiences.

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Table 1A: Summary Statistics - Social Interaction Measures

	SAMPLE MEAN			
	NCDS		PSID	
	FULL SAMPLE	NO KIDS	FULL SAMPLE	NO KIDS
Dependent variable - child social interaction SOC_{iT}^{child}				
Member of a club in 1991 {0,1}	0.6256	0.7030	-	-
Member of a club in 2007 $\{0, \geq 3\}$	-	-	1.6599	1.6451
Dependent variable - parent social interaction $SOC_{j(T-K)}^{parent}$				
Member of 1 club in 1991 {0, 1}	0.3799	0.3677	-	-
Member of 2 clubs in 1991 {0, 1}	0.1726	0.2545	-	-
Member of 3 or more clubs in 1991 {0, 1}	0.0862	0.1010	-	-
Member of 1 club in 1981 {0, 1}	0.3048	0.3414	-	-
Member of 2 clubs in 1981 {0, 1}	0.1684	0.2646	-	-
Member of 3 or more clubs in 1981 {0, 1}	0.0898	0.1697	-	-
Number of social activities in 2007: 1 {0, 1}	-	-	0.3058	0.2990
Number of social activities in 2007: 2 {0, 1}	-	-	0.1498	0.1412
Number of social activities in 2007: 3 or more {0, 1}	-	-	0.0805	0.0706
Number of social activities in 1997: 1 {0, 1}	-	-	0.1756	0.1725
Number of social activities in 1997: 2 {0, 1}	-	-	0.1491	0.1471
Number of social activities in 1997: 3 or more {0, 1}	-	-	0.0581	0.0539
Number of hours spent in social activity 2007	-	-	1.3081	1.2265
Number of hours spent in social activity 1997	-	-	1.9842	1.991
OBSERVATIONS	1,437	495	1,429	1,020

Notes: 'NO KIDS' refers to a subsample of observations where we observe the social interaction of the parent prior to their children being born.

Table 1B: Summary Statistics - Independent Variables

	NCDS		PSID	
	MEAN	STD	MEAN	STD
Child characteristics				
Age of child	9.14	2.80	14.46	2.19
Age of child age squared	91.38	53.35	214.09	64.09
Child male {0, 1}	0.49	0.50	0.51	0.50
Child in good health {0, 1}	0.53	0.34	0.51	0.50
Child has siblings {0, 1}	0.90	0.29	0.89	0.30
Number of schools child attended	1.70	0.96	-	-
Moved school {0, 1}	-	-	0.46	0.50
Number of friends child has	3.53	1.50	2.58	1.19
Number of books owned by child	3.82	1.25	3.35	0.94
Child in single parent family {0, 1}	0.43	0.50	0.48	0.50
Child white {0, 1}	0.97	0.16	0.71	0.46
Parent characteristics				
Male {0, 1}	0.32	0.47	0.43	0.49
O levels highest qualification {0, 1}	0.38	0.49	-	-
A levels highest qualification {0, 1}	0.10	0.30	-	-
Diploma highest qualification {0, 1}	0.11	0.31	-	-
Degree highest qualification {0, 1}	0.04	0.20	-	-
Number of years of schooling	-	-	10.16	2.92
Log benefits	3.75	1.11	2.06	3.63
Log non labour income	2.56	1.50	3.59	4.18
Log labour income	3.35	2.34	3.79	3.10
Own house {0, 1}	0.69	0.46	0.63	0.48
OBSERVATIONS	1,437		1,429	

Table 2: U.K. (NCDS) - Probability Child is a Member of a Club in 1991: Full Sample

	CHILD OUTCOME 1991 - probability club member	
PANEL A - Concurrent club membership	M.E.	TSTAT
Child characteristics		
Age of child	0.1051	(4.31)
Age of child age squared	-0.0065	(5.09)
Child male	-0.0374	(1.41)
Child in good health	-0.0210	(0.52)
Child has siblings	0.0549	(1.12)
Number of schools child attended	0.0049	(0.28)
Number of friends child has	0.0162	(1.90)
Number of books owned by child	0.0113	(1.94)
Child in single parent family	0.0875	(2.64)
Child white	0.0816	(0.93)
Parent characteristics		
Male	0.0304	(0.83)
O levels highest qualification	0.1512	(5.11)
A levels highest qualification	0.1102	(2.58)
Diploma highest qualification	0.2157	(5.76)
Degree highest qualification	0.1948	(3.63)
Log benefits	-0.0031	(0.24)
Log non labour income	-0.0035	(0.39)
Log labour income	-0.0089	(1.46)
Own house	0.0259	(0.33)
Member of 1 club in 1991	0.0855	(2.82)
Member of 2 clubs in 1991	0.1298	(3.52)
Member of 3 or more clubs in 1991	0.1812	(4.07)
LR chi squared (32)	172.02 p=[0.000]	
PANEL B - Timing difference in club membership	M.E.	TSTAT
Parent characteristics		
Member of 1 club in 1981	0.0413	(1.33)
Member of 2-3 clubs in 1981	0.0749	(2.94)
Member of 4 or more clubs in 1981	0.1807	(4.18)
LR chi squared (32)	170.73 p=[0.000]	
Controls	As in Panel A	
PANEL C - Timing difference and concurrent club membership	M.E.	TSTAT
Parent Characteristics		
Member of 1 club in 1991	0.0739	(2.38)
Member of 2 clubs in 1991	0.1118	(2.91)
Member of 3 or more clubs in 1991	0.1566	(3.29)
Member of 1 club in 1981	0.0260	(0.82)
Member of 2 clubs in 1981	0.0456	(2.13)
Member of 3 or more clubs in 1981	0.1456	(3.08)
LR chi squared (35)	176.05 p=[0.000]	
Controls	As in Panel A	
PANEL D - Predicted club membership (IV)	M.E.	TSTAT
Parent Characteristics		
Member of 1 club in 1991	0.1618	(5.55)
Member of 2 clubs in 1991	0.2652	(4.74)
Member of 3 or more clubs in 1991	0.1489	(2.93)
LR chi squared (32)	184.67 p=[0.000]	
Wald chi squared (1), first stage	13.67 p=[0.000]	
Controls	As in Panel A	
OBSERVATIONS	1,437	

Notes: regional dummies included; standard errors bootstrapped in Panel D.

Table 3: U.K. (NCDS) - Probability Child is a Member of a Club in 1991: Sample=Parents' Social Interaction Measured Prior to having Children

	CHILD OUTCOME 1991 - probability club member	
PANEL A - Timing difference in club membership	M.E.	TSTAT
Parent characteristics		
Member of 1 club in 1981	0.1616	(3.22)
Member of 2 clubs in 1981	0.1298	(2.40)
Member of 3 or more clubs in 1981	0.1867	(3.64)
LR chi squared (32)	77.52 p=[0.000]	
Controls	As in Table 2 Panel A	
PANEL B - Timing difference and concurrent club membership	M.E.	TSTAT
Parent characteristics		
Member of 1 club in 1991	0.1336	(2.65)
Member of 2 clubs in 1991	0.1086	(1.90)
Member of 3 or more clubs in 1991	0.1625	(2.03)
Member of 1 club in 1981	0.1482	(2.88)
Member of 2 clubs in 1981	0.0951	(2.64)
Member of 3 or more clubs in 1981	0.1525	(2.66)
LR chi squared (32)	82.76 p=[0.000]	
Controls	As in Table 2 Panel A	
OBSERVATIONS	495	

Notes: regional dummies included.

Table 4: U.S. (PSID) - Probability Child is a Member of a Club in 2007 Conditional on Parental Social Activity: Full Sample

	CHILD OUTCOME 2007 - probability of							
	ZERO CLUBS		ONE CLUB		TWO CLUBS		$\geq$ 3 CLUBS	
PANEL A - Concurrent club membership	M.E.	TSTAT	M.E.	TSTAT	M.E.	TSTAT	M.E.	TSTAT
Child characteristics								
Age of child	-0.0482	(1.99)	-0.0245	(1.99)	0.0113	(1.98)	0.0614	(1.99)
Age of child age squared	0.0016	(1.98)	0.0001	(1.98)	-0.0004	(1.97)	-0.0021	(1.98)
Child male	0.0311	(1.67)	0.0158	(1.66)	-0.0073	(1.63)	-0.0397	(1.67)
Child in good health	0.0016	(0.16)	0.0001	(0.16)	-0.0004	(0.16)	-0.0020	(0.16)
Child has siblings	0.0261	(1.11)	0.0145	(1.02)	-0.0052	(1.35)	-0.0354	(1.04)
Moved school	0.0203	(1.29)	0.0103	(1.29)	-0.0048	(1.25)	-0.0258	(1.29)
Number of friends child has	-0.0264	(3.84)	-0.0134	(3.72)	0.0062	(3.35)	0.0336	(3.86)
Number of books owned by child	-0.0291	(3.32)	-0.0148	(3.23)	0.0068	(2.97)	0.0371	(3.33)
Child in single parent family	-0.0019	(0.10)	-0.0001	(0.10)	0.0004	(0.10)	0.0024	(0.10)
Child white	-0.0212	(1.11)	-0.0112	(1.07)	0.0047	(1.18)	0.0277	(1.09)
Parent characteristics								
Male	-0.0093	(0.49)	-0.0048	(0.48)	0.0022	(0.49)	0.0119	(0.48)
Years of schooling completed	-0.0047	(1.96)	-0.0024	(1.65)	0.0011	(1.61)	0.0060	(1.96)
Log benefits	0.0019	(0.63)	0.0001	(0.63)	-0.0004	(0.63)	-0.0024	(0.63)
Log non labour income	0.0001	(0.05)	0.0001	(0.05)	-0.0001	(0.05)	-0.0002	(0.05)
Log labour income	0.0023	(0.80)	0.0012	(0.80)	-0.0005	(0.80)	-0.0029	(0.80)
Own house	-0.0430	(2.27)	-0.0208	(2.36)	0.0108	(2.05)	0.0529	(2.35)
Member of 1 club in 2007	-0.0744	(4.53)	-0.0424	(3.97)	0.0134	(4.05)	0.1034	(4.19)
Member of 2 clubs in 2007	-0.1006	(5.99)	-0.0685	(4.54)	0.0071	(1.48)	0.1621	(4.82)
Member of 3 or more clubs in 2007	-0.0799	(3.62)	-0.0539	(2.78)	0.0065	(1.54)	0.1273	(2.90)
LR chi squared (50)	166.05 p=[0.000]							
PANEL B - Timing difference in club membership	M.E.	TSTAT	M.E.	TSTAT	M.E.	TSTAT	M.E.	TSTAT
Parent characteristics								
Member of 1 club in 1997	-0.0401	(2.06)	-0.0221	(1.85)	0.0072	(2.52)	0.0549	(1.91)
Member of 2 clubs in 1997	-0.0203	(1.91)	-0.0106	(0.86)	0.0041	(1.03)	0.0268	(1.88)
Member of 3 or more clubs in 1997	-0.0784	(3.10)	-0.0519	(2.36)	0.0056	(2.18)	0.1247	(2.46)
LR chi squared (50)	139.51 p=[0.000]							
Controls	As in Panel A							
PANEL C - Timing difference and concurrent club membership	M.E.	TSTAT	M.E.	TSTAT	M.E.	TSTAT	M.E.	TSTAT
Parent characteristics								
Member of 1 club in 2007	-0.0742	(4.53)	-0.0426	(3.97)	0.0135	(4.06)	0.1033	(4.19)
Member of 2 clubs in 2007	-0.1001	(5.98)	-0.0687	(4.53)	0.0072	(1.52)	0.1616	(4.81)
Member of 3 or more clubs in 2007	-0.0742	(3.30)	-0.5000	(2.57)	0.0072	(1.98)	0.1176	(2.68)
Member of 1 club in 1997	-0.0355	(1.82)	-0.0200	(1.65)	0.0069	(2.18)	0.0486	(1.89)
Member of 2 clubs in 1997	-0.0181	(1.82)	-0.0098	(0.78)	0.0039	(0.91)	0.0241	(1.79)
Member of 3 or more clubs in 1997	-0.0768	(3.07)	-0.0526	(2.35)	0.0062	(1.32)	0.1233	(2.44)
LR chi squared (53)	174.36 p=[0.000]							
Controls	As in Panel A							
OBSERVATIONS	1,429							

Notes: state dummies also included.

Table 5: U.S. (PSID) - Probability Child is a Member of a Club in 2007 Conditional on Intensity of Parental Social Activity: Full Sample

	CHILD OUTCOME 2007 - probability of							
	ZERO CLUBS		ONE CLUB		TWO CLUBS		≥ 3 CLUBS	
PANEL A Concurrent measurement: hours spent in social activity	M.E.	TSTAT	M.E.	TSTAT	M.E.	TSTAT	M.E.	TSTAT
Child characteristics								
Age of child	-0.0445	(1.91)	-0.0221	(1.91)	0.0102	(1.90)	0.0564	(1.91)
Age of child age squared	0.0015	(1.90)	0.0007	(1.90)	-0.0003	(1.90)	-0.0019	(1.90)
Child male	0.0295	(1.57)	0.0147	(1.56)	-0.0067	(1.54)	-0.0375	(1.57)
Child in good health	-0.0018	(0.19)	-0.0009	(0.19)	0.0004	(0.19)	0.0023	(0.19)
Child has siblings	0.0254	(1.07)	0.0137	(0.98)	-0.0049	(1.30)	-0.0342	(1.01)
Moved school	0.0238	(1.49)	0.0117	(1.50)	-0.0055	(1.45)	-0.0300	(1.50)
Number of friends child has	-0.0300	(4.36)	-0.0149	(4.18)	0.0069	(3.66)	0.0381	(4.38)
Number of books owned by child	-0.0325	(3.69)	-0.0161	(3.57)	0.0074	(3.22)	0.0412	(3.70)
Child in single parent family	-0.0038	(0.19)	-0.0019	(0.19)	0.0009	(0.19)	0.0048	(0.19)
Child white	-0.0135	(0.70)	-0.0069	(0.69)	0.0030	(0.73)	0.0174	(0.69)
Parent characteristics								
Male	-0.0092	(0.48)	-0.0046	(0.48)	0.0021	(0.48)	0.0117	(0.48)
Years of schooling completed	-0.0051	(1.91)	-0.0025	(1.80)	0.0012	(1.75)	0.0065	(1.91)
Log benefits	0.0018	(0.62)	0.0009	(0.62)	-0.0004	(0.62)	-0.0023	(0.62)
Log non labour income	0.0001	(0.01)	0.0001	(0.01)	-0.0001	(0.01)	-0.0001	(0.01)
Log labour income	0.0018	(0.64)	0.0001	(0.64)	-0.0004	(0.64)	-0.0023	(0.64)
Own house	-0.0515	(2.69)	-0.0241	(2.81)	0.0128	(2.38)	0.0628	(2.81)
Number of hours spent in social activity 2007	-0.0116	(3.76)	-0.0057	(3.63)	0.0026	(3.28)	0.0147	(3.77)
LR chi squared (48)	144.80 p=[0.000]							
PANEL B Timing difference in hours spent in social activity	M.E.	TSTAT	M.E.	TSTAT	M.E.	TSTAT	M.E.	TSTAT
Parent characteristics								
Number of hours spent in social activity 1997	-0.0091	(2.02)	-0.0045	(2.00)	0.0020	(1.93)	0.0115	(2.02)
LR chi squared (48)	134.55 p=[0.000]							
Controls	As in Table 4 Panel A							
PANEL C Timing difference and concurrent hours spent in social activity	M.E.	TSTAT	M.E.	TSTAT	M.E.	TSTAT	M.E.	TSTAT
Parent characteristics								
Number of hours spent in social activity 2007	-0.0114	(3.71)	-0.0057	(3.58)	0.0026	(3.25)	0.0145	(3.72)
Number of hours spent in social activity 1997	-0.0086	(1.92)	-0.0043	(1.90)	0.0020	(1.84)	0.0109	(1.92)
LR chi squared (49)	148.50 p=[0.000]							
Controls	As in Table 4 Panel A							
OBSERVATIONS	1,429							

Notes: state dummies also included.

Table 6: U.S. (PSID) Probability Child is a Member of a Club in 2007: Sample=Parents Social Interaction Prior to having Children

	CHILD OUTCOME 2007 - probability of							
	ZERO CLUBS		ONE CLUB		TWO CLUBS		$\geq$ 3 CLUBS	
PANEL A Timing difference in club membership: No children in 1997	M.E.	TSTAT	M.E.	TSTAT	M.E.	TSTAT	M.E.	TSTAT
Parent characteristics								
Member of 1 club in 1997	-0.0527	(2.35)	-0.0317	(2.03)	0.0100	(2.90)	0.0742	(2.11)
Member of 2 clubs in 1997	-0.0135	(0.51)	-0.0073	(0.49)	0.0032	(0.54)	0.0176	(0.49)
Member of 3 or more clubs in 1997	-0.1086	(4.33)	-0.0868	(2.94)	0.0074	(1.60)	0.1961	(3.03)
LR chi squared (50)	118.36 p=[0.000]							
Controls	As in Table 4 Panel A							
PANEL B Timing difference and concurrent club: No children in 1997	M.E.	TSTAT	M.E.	TSTAT	M.E.	TSTAT	M.E.	TSTAT
Parent characteristics								
Member of 1 club in 2007	-0.0746	(3.95)	-0.0453	(3.44)	0.0155	(3.67)	0.1044	(3.63)
Member of 2 clubs in 2007	-0.0900	(4.42)	-0.0640	(3.40)	0.0108	(2.37)	0.1434	(3.58)
Member of 3 or more clubs in 2007	-0.0825	(3.13)	-0.0607	(2.34)	0.0082	(1.52)	0.1350	(2.44)
Member of 1 club in 1997	-0.0507	(2.27)	-0.0314	(1.97)	0.0103	(2.80)	0.0718	(2.04)
Member of 2 clubs in 1997	-0.0124	(0.47)	-0.0069	(0.45)	0.0064	(0.50)	0.0162	(0.46)
Member of 3 or more clubs in 1997	-0.1083	(4.43)	-0.0901	(3.00)	0.0311	(1.50)	0.1991	(3.07)
LR chi squared (53)	142.04 p=[0.000]							
Controls	As in Table 4 Panel A							
OBSERVATIONS	1,020							

Notes: state dummies also included.

Table 7: U.S. (PSID) Probability Child is a Member of a Club in 2007: Sample=Parents Intensity of Social Interaction Prior to having Children

	CHILD OUTCOME 2007 - probability of							
	ZERO CLUBS		ONE CLUB		TWO CLUBS		$\geq$ 3 CLUBS	
PANEL A Timing difference in hours spent in social activity: No children in 1997	M.E.	TSTAT	M.E.	TSTAT	M.E.	TSTAT	M.E.	TSTAT
Parent characteristics								
Number of hours spent in social activity 1997	-0.0099	(2.90)	-0.0051	(2.88)	0.0025	(2.82)	0.0126	(2.90)
LR chi squared (48)	108.71.36 p=[0.000]							
Controls	As in Table 4 Panel A							
PANEL B Timing difference and concurrent hours spent in social activity: No children in 1997	M.E.	TSTAT	M.E.	TSTAT	M.E.	TSTAT	M.E.	TSTAT
Parent characteristics								
Number of hours spent in social activity 2007	-0.0118	(3.16)	-0.0061	(3.06)	0.0030	(2.82)	0.0149	(3.17)
Number of hours spent in social activity 1997	-0.0097	(2.85)	-0.0050	(1.83)	0.0025	(1.77)	0.0122	(2.85)
LR chi squared (49)	118.88 p=[0.000]							
Controls	As in Table 4 Panel A							
OBSERVATIONS	1,020							

Notes: state dummies also included.