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ABSTRACT

Does Family Composition Affect Social Networking?

This paper analyzes the effect of family composition, and in particular the number of children, the age gap between the oldest and youngest child and the age of the youngest child, on parents' involvement in social networks. The predictions of a simple theoretical model are confirmed by an empirical analysis of Israeli Social Survey data for 2002-2006. The number of children has a *U*-shaped effect on parents' involvement in social networks, with substantial differences between fathers and mothers. The negative effect is dominant on the mothers' involvement in social networks, while the positive effect is dominant on the father's involvement in social networks. The age gap between children has a positive effect on both parents' involvement in social networks, while the age of the youngest child has a positive effect on the father's involvement in social networks. These results imply that social network considerations might be important for fertility decisions.

JEL Classification: J12, J13, D85

Keywords: social networks, family composition, children

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1. Introduction

Fertility decisions have been examined from many microeconomic points of view: the optimal number of children, the trade-off between quantity and quality of children, intergenerational transfers, old-age security and intra-family insurance, the effect of children on parents' labor supply, the effect of children on parents' marital stability, etc. (Browning, 1992). However, despite the emerging economic literature on the important role played by social networks in various aspects of economic behavior (Jackson, 2003; Birke, 2009), little is known about the effect of children, and family composition in general, on parents' involvement in social networks. The purpose of this paper is to fill this gap in the literature.

Alesina and Giuliano (2010) found that families with strong ties participate less in the labor market, but produce many more goods and services at home, including child care, home cooking, caring for the elderly, child education, etc. The sociological literature highlights another home-produced good provided by the family: building social networks (Bubolz, 2001). Social relationships are created both within and outside of the family. The internal and external social ties are interlinked, where a family member establishes new linkages via other family members' outside contacts.

An individual's social networks are rarely simple. They include various types of contacts such as friends, neighbors, relatives and workmates. The individual can benefit not only from direct links, such as friends or relatives, but also from indirect links, such as "friends of friends" or "friends of relatives". In many cases, social networks can overlap. For example, a friend of a friend may also be a friend of a relative. There is a difference between a direct link and an indirect one. It is plausible that as the path of the link increases, the strength of the link and the benefits that it can provide decrease. The benefits of social networks are wide and varied. For instance, social networks play a critical role in obtaining information on job and business opportunities, accommodation options, stock-market tips and product quality (Holzer, 1987; Montgomery, 1991).

In addition, social networks provide several basic non-economic services (Furman and Buhrmester, 1985): (a) attachment — affection, security and intimate disclosure, (b) reliable alliance — a lasting and dependable bond, (c) enhancement of worth — affirmation of one's competence or value, (d) social integration — companionship and the

sharing of experiences, (e) guidance — tangible aid and advice, and (f) opportunity for nurturance — taking care of another. When an individual becomes a parent, his/her demand for network support functions, such as assistance with child rearing and practical or emotional help, increases (Cochran et al., 1990, p. 60).

The literature provides extensive discussions on the influence of the parents' social network on the development of the child's social network. There are direct and indirect influences. Direct influences include face-to-face contact between the parents' network members and the child. Indirect influences are the effects of parents' characteristics on child behavior (Cochran et al., 1990, p. 17). Cardoso et al. (2010) showed that parents' time allocation decisions affect the child's preferences and may enhance personal interaction skills when the child grows up. Coleman (1988) argued that the parents' social network is important for their children's educational development. Regarding the children's effect on the parents' social networks however, the literature refers mainly to a negative indirect effect stemming from decreased leisure time for social activities in favor of child rearing (Fischer, 1982, p. 253). Nevertheless, we assume that children can also affect their parents' social network directly and positively, by exposing the parents face-to-face to new contacts. Thus, the number of children is assumed to be an important determinant of social networks.

Parents' involvement in their children's education has become so popular in the United States that it is referred to as an "institutional standard". Many schools spend considerable resources and effort on encouraging parents to become more active in their children's education. Studies show that parents' involvement increases their child's achievement in school, and this involvement has therefore been classified as parents' investment in their children (Sheldon, 2002). Parents' involvement reveals new linkages to them, such as teachers and other parents, and thus broadens their social network. However, when the age gap between the children in a family is small, there may be some overlap in the links that the parents obtain via the different children. Thus, the age gap between children is another likely determinant of parents' social networks.

Young children decrease their parents' involvement in social networks in two ways. First, they require more care and supervision than older children and therefore decrease the time that their parents can devote to social activities. Second, they affect

their parents' labor market participation (Angrist and Evans, 1998), and this affects social networks because the workplace is one of the main arenas for creating social networks. We therefore expect the age of the youngest child to affect parents' involvement in social networks.

The structure of the paper is as follows. In section 2 we suggest a simple theoretical model to motivate the subsequent empirical analysis. Section 3 describes the data that we use. Section 4 outlines the empirical methodology, and the results are reported in section 5. Section 6 contains a discussion of the results and some concluding comments.

2. A simple theoretical model

We assume that parents' social networks can be expanded and strengthened in two ways: (1) through allocation of time to social activities (such as parties and social events, hobby groups or garden clubs, religious or sport groups, literary or art discussions, fraternal groups, school fraternities or sororities, study groups, etc.), where new acquaintances can be made. It has been shown that the number of organizations in which a person is a member can be a good measure of his/her social capital (Glaeser et al., 2002); (2) parents can expand and strengthen social networks by being involved in their children's social life, and establishing contacts with other children's parents, teachers and other school personnel. Denote the level of social networks created by social activities by NET_S and the level of social networks created via the children by NET_C. The cumulative level of the parent's social networks is:

$$NET_T = NET_S + NET_C \quad (1)$$

It makes sense to assume that spending more time in social activities, T_S, increases the level of social networks, NET_S, i.e. $\frac{\partial NET_S}{\partial T_S} > 0$. The level of the social network created via the children, NET_C, is affected by two elements. The first is the time that the parent spends with his/her children and their friends (and possibly with those

friends' parents), T_f. This includes time spent in the playground, at parent-teacher meetings, or visiting with the child at a friend's home. The second element is the number of members in the network that the parent forms via his/her children, A. Therefore:

$$NET_c = NET_c\left(T_f, A\right), \text{ with } \frac{\partial NET_c}{\partial T_f} > 0, \frac{\partial NET_c}{\partial A} > 0 \tag{2}$$

We assume for simplicity that the parent's work time is fixed. The parent therefore allocates a given amount of free time between social activities, T_s, and caring for children, T_c. Hence, the parent's time constraint is given by:

$$T_s + T_c = \bar{T} \tag{3}$$

We also assume that the time allocated to child care increases as the number of children, N, increases, i.e. $\frac{\partial T_c\left(N\right)}{\partial N} > 0$. Child care time includes many kinds of activities and situations. Kimmel and Connelly (2007) raised the question whether the time mothers spend caring for children is best categorized as home production time or leisure. They suggested that it is somewhere in between. We distinguish between two components of the time taken to care for children, T_c: (1) private time — time that the parent spends with the child (or children) privately (e.g., feeding, washing, putting to bed, reading a story, helping with homework); (2) social time — time that the parent spends with the child (or children) and their friends. The latter is denoted as T_f, and is measured as a fraction α $(0 < \alpha < 1)$ of T_c. We assume that this fraction depends on the age of the youngest child, AGE. This is because the youngest child becomes more independent with age and requires less of the parent's time for routine activities such as feeding and washing. At the same time, the child's demand for social activities, which are more consuming in terms of parents' time, is assumed to increase. This means that $\frac{\partial \alpha}{\partial AGE} > 0$

(Hofferth and Sandberg, 2001; Folbre et al., 2005). Altogether, the parent's social time with the child can be expressed as follows:

$$T_f = \alpha(AGE)T_c(N) \tag{4}$$

We now move to the second element that determines the level of social networks created via the children, A. Denote the group of people that the parent knows via each child i by A_i and the intersection of the child-specific groups by A^* (i.e., $A^* = \bigcap_{i \in \{1..N\}} A_i$). As the age gap between the oldest and youngest child decreases, there is a larger likelihood of overlap between the members in each child-specific social network; in other words, friends that the parent knows via child i may also be the friends that the parent knows via child $j \forall\ j \neq i$. This means that $\frac{\partial A^*}{\partial GAP} < 0$.

Figure 1 illustrates this point. The parent has three children, each of whom links the parent to three individuals. The age gap between child 1 and child 2 is relatively large, whereas the age gap between child 2 and child 3 is relatively small. Child 2 and child 3 therefore have two common friends: individual no. 5 and individual no. 6. Thus the number of individuals that the parent knows via his/her children decreases from 9 to 7 due to the overlap. More generally, the number of contacts acquired by the parent via his/her children can be expressed as:

$$A = \sum_{i=1}^{i=N} A_i - A^*(GAP) \tag{5}$$

It is easy to see that:

$$\frac{\partial A}{\partial N} = \frac{\partial \sum_{i=1}^{i=N} A_i}{\partial N} \geq 0, \tag{6}$$

and

(7) $$\frac{\partial A}{\partial AGE} = -\frac{\partial A^{*}\left(GAP\right)}{\partial GAP} > 0$$

Let us now examine the overall effect of the number of children on the parents' level of social networks. From equations (1) - (4) and (6), we obtain:

(8) $$\frac{dNET_T}{dN} = -\frac{\partial NET_S}{\partial T_S}\frac{\partial T_c}{\partial N} + \alpha\left(AGE\right)\frac{\partial NET_c}{\partial T_f}\frac{\partial T_c}{\partial N} + \frac{\partial NET_c}{\partial A}\frac{\partial A}{\partial N}$$

There are three components on the right-hand side. The first is negative, while the other two are positive. The overall effect of number of children on parents' level of social networks is thus ambiguous. On the one hand, the number of children decreases the parents' time allocation to social activities with their own friends. On the other hand, the parents spend more time with the children and broaden their social networks indirectly.

Using equations (1), (2) and (4), we obtain that the effect of age of the youngest child on the parents' level of social networks is equal to:

(9) $$\frac{dNET_T}{dAGE} = \frac{\partial NET_c}{\partial T_f}\frac{\partial \alpha\left(AGE\right)}{\partial AGE}T_c\left(N\right)$$

Since $\frac{\partial NET_c}{\partial T_L} > 0$ and $\frac{\partial \alpha\left(AGE\right)}{\partial AGE} > 0$, we conclude that $\frac{dNET_T}{dAGE} > 0$.

Finally, we compute the effect of the age gap between the children on the parents' level of social networks:

(10) $$\frac{dNET_T}{dGAP} = \frac{\partial NET_c}{\partial A}\frac{\partial A}{\partial GAP}$$

Since $\frac{\partial NET_c}{\partial A} > 0$ and $\frac{\partial A}{\partial GAP} > 0$, we conclude that $\frac{dNET_T}{dGAP} > 0$.

It should be noted that if the parents' child-rearing time decreases with the age of the youngest child, i.e. $\frac{\partial T_C(N, AGE)}{\partial AGE} < 0$, the results are not changed.

The following proposition summarizes the results:

Proposition:

The effect of the number of children on the parents' level of social networks is ambiguous, whereas the age gap between the children, as well as the age of the youngest child, have positive effects on the parents' level of social networks.

Technically, the age gap increases with the number of children. For example, the age gap could be as low as one year in the case of two children, but not if there are more than two children (excluding the case of twins). Therefore, we assume that the age gap depends on the number of children, i.e. $GAP = GAP(N)$. Then:

$$(11)\quad \frac{dNET_T}{dN} = -\frac{\partial NET_S}{\partial T_S}\frac{\partial T_C}{\partial N} + \alpha(AGE)\frac{\partial NET_C}{\partial T_f}\frac{\partial T_C}{\partial N} + \frac{\partial NET_C}{\partial A}\left(\frac{\partial A}{\partial N} - \frac{\partial A^*}{\partial GAP}\frac{\partial GAP}{\partial N}\right)$$

This does not change the earlier result of ambiguity of the effect of the number of children on the parents' level of social networks (equation 8).

3. Data

The data for this research were taken from the Israeli Social Surveys for the years 2002-2006. These surveys are conducted by the Central Bureau of Statistics, and are based on intensive one-on-one interviews. The sampling unit is a person rather than a household, although information about other members of the respondent's household is also collected. The questionnaire is exceedingly comprehensive, including hundreds of questions. It collects personal and socioeconomic details and covers various facets of life, such as self-defined national and religious identities, education, employment status,

employment history, income, housing, health status and illnesses, habits of computer and internet use, relations with family and friends (satisfaction from the relations and frequency of meetings), and engaging in volunteer activities and leisure activities. The survey also collects personal information on the respondent's family, including age, gender, education, relationship to the respondent, and marital status.

About 7,000 questionnaires are administered annually, so that the original data set for the five years that we used included 36,562 records. We focused on households with the following characteristics: (a) Jewish; (b) married parents; (c) up to 50 years of age; (d) up to five children; (e) no children over 18 years of age. We decided to focus on Jewish households because Israeli Muslims tend to live in villages with their extended families and thus the distinction between "friends" and "family relatives" is not always clear. We focused on married parents because we have information only on children who live with their parents. In the case of a divorced or widowed parent, the children sometimes do not live with the parent but can still affect the parent's social networks. We did not include households with more than five children, because almost all of them are ultra-orthodox ("haredim") and their number is very small.[1] The age limitations are also a result of the fact that we only have information on children who live in the parents' household, whereas adult children who have left the house can also affect their parents' level of social networks. Overall, these constraints reduced the number of observations that we used to 7,192, including 3,553 males and 3,639 females.

Table 1 presents descriptive statistics of the dependent and explanatory variables by gender. The dependent variable is the level of social networks. Between 6 and 7% of the individuals in our sample declared that they do not have any friends at all, whereas more than a third have strong social networks — meeting with their friends daily or almost daily. The difference between the levels of social networks for males and females does not seem to be quantitatively significant. The variables representing family composition are also quite similar for males and females, on average. The average number of children is about 2.3. The average gap between the oldest and youngest child is about 5.5 years.[2] The average age of the youngest child is about 4.5 years.

[1] Our results did not change qualitatively when we included larger families.
[2] The age gap was computed only when there was more than one child.

Males in our sample are slightly older than females (37 versus 35 years on average), but the difference is statistically significant. This may be a consequence of women's lower age at marriage. About 15% of our sample individuals are new immigrants.[3] We distinguished between old immigrants from Asia-Africa and old immigrants from America-Europe because of the differences in their cultural backgrounds which might affect social behavior. Between 9% (males) and 11% (females) of our sample individuals are ultra-orthodox ("haredim"), while about 11% are religious.[4] About 11% of our sample individuals live in rural communities.

Females are more educated than males in our sample. Almost 35% of the females have academic education, versus only 30% of the males. More of the females are in low-income households (under NIS 10,000 per month) — 45% versus 40% of the males. About 93% of the sample individuals declared that their health is very good. Internet usage is much higher among males — 62% versus 54% among females. Hobby group membership is much higher among females — 29% versus 18% among males. Females have a higher tendency to meet their family frequently — 30% versus 25% for males.

4. Empirical methodology

We used the variables of having friends and frequency of contact with friends as proxies for level of social networks.[5] Specifically, we used two questions: "Do you have friends that you meet with or talk to on the phone (including fax and email)?" and "(If you have friends) how often do you meet these friends, or talk to them on the phone?" The respondents answered the latter question on a 1 to 4 scale with 1 = daily, or almost daily; 2 = once or twice a week; 3 = once or twice a month and 4 = less than once a month. Based on the two questions, we created the variable "level of social networks" which includes four categories: 1 – Does not have any friends; 2 – Meets with friends

[3] 1990 marks the beginning of the massive immigration wave from the former USSR to Israel. Hence, we define "new immigrants" as those who immigrated since 1990. Pre-1990 immigrants are defined as "old immigrants".

[4] While haredim are definitely religious, the Social Survey questionnaire uses religious as a distinct category, meaning "religious but not haredim". We keep this terminology here.

[5] Frequency of contact is one of the ways to measure social networks (e.g., Jennings et al., 1991; Allen, 2000). Another possible proxy is the size of the social network, but we do not have this information. It should be noted that these proxies are positively correlated.

once or twice a month or less; 3 – Meets with friends once or twice a week, and 4 – Meets with friends daily, or almost daily.

The Ordered Logit model was used to estimate the relationship between the level of the parent's social networks and a set of explanatory variables. An Ordered Response Model, of which the Ordered Logit is a special case, models the probability of observing outcome i as the probability that a linear function of the explanatory variables plus a random error is within the range of two corresponding cutoff points:

$$(12) \qquad \Pr(outcome_j = i) = \Pr\left(k_{i-1} < \beta_1 x_{1j} + \beta_2 x_{2j} + ... + \beta_k x_{kj} + u_j \le k_i\right), i = 1,..., I$$

The coefficients $\beta_1, \beta_2, ..., \beta_k$ along with the cutoff points, k_1, k_2, k_{I-1} were estimated jointly using Maximum Likelihood, where I is the number of possible outcomes, k_0 is taken as $-\infty$ and k_I as $+\infty$.

We estimated the model separately for males and females, because the literature points to essential differences in the time that fathers and mothers devote to child rearing. For example, Folbre et al. (2005) found that children spend 81% of their time spent with one parent with their mother and only 19% of that time with their father.

5. Results

The estimation results are presented in Table 2. We start by presenting the coefficients of the variables describing family composition. The profiles of social network levels for the mothers and fathers are quite different. As the theoretical model predicted, the effect of the number of children on the parent's level of social networks is not monotonic. The level of social networks decreases with the number of children up to the third child (for fathers) or the fourth child (for mothers), and then increases, resulting in a U-shaped effect.[6] Moreover, the level of social networks of fathers with four children is similar to that of fathers with one child, all else being equal, but mothers with

[6] Because the coefficient of the variable "has five children" is relatively large while the number of such observations is rather small, we reexamined those results without the fathers who have five children. The main results did not change.

more than one child always have lower levels of social networks than mothers with only one child. This finding is in agreement with the vast amount of literature which has found that children restrict their parents' social involvement, especially that of their mothers (Cochran et al., 1990, p. 11).

As the theoretical model predicted, we found that the age gap between the oldest and youngest child has a positive and significant effect on the parents' level of social networks. Because of the presumed dependence of the age gap on the number of children, i.e., a parent with four children is likely to have a larger age gap than a parent with three children, we also computed the "full derivative" of the level of social networks with respect to the number of children. We did this by adding to the coefficient of, say, four children, -0.011, the coefficient of the age gap, 0.038, multiplied by the average age gap in families with four children, 9.04 (i.e. -0.011+0.038*9.042=0.33). The profiles of social network levels as a function of the number of children are shown in Table 3 and Figure 2, where the "full derivative" is compared to the base results. Because of the positive effect of the age gap, the "full derivative" with respect to the number of children is always larger than the base results. Nevertheless, the *U* shape of the effect is still there, although the decline in the level of social networks with the first child is less pronounced.

We also estimated the model with interactions between age gap and number of children. The results are presented in the appendix. It is easy to see that the main results are not changed. Moreover, the effect of the number of children in this extended version of the model is identical to the "full derivatives" given in Table 3.

The age of the youngest child had a positive and significant effect on the father’s level of social networks. This result is in agreement with the theoretical model, based on the assumption that older children require less caring for and therefore leave their parents with more time to devote to their own social activities. An alternative explanation is that the child's circle of friends expands with age, so that parents of older children may, through them, obtain more linkages. The age of the youngest child was not included in the females’ model because of the high correlation between mother’s age and the age of the youngest child, which follows from the biological limit on the age of childbearing which applies only to mothers.

Let us now discuss the coefficients of the other explanatory variables. As expected, the parent's age had a negative and significant effect on the level of social networks, meaning that the strength of the social networks deteriorates with age. New immigrants had significantly lower levels of social networks compared to native Israelis. Old immigrants from Asia-Africa had lower levels of social networks compared to native Israelis, but higher levels of social networks compared to new immigrants. There was no significant difference between the social network levels of old immigrants from America-Europe and native Israelis.[7]

Religious beliefs did not have a significant effect on the mothers' level of social networks, but this was not the case for fathers. Ultra-orthodox men had higher levels of social networks than non-religious men, whereas religious men had lower levels of social networks than non-religious men. Ultra-orthodox men pray in the synagogue three times a day and meet for other religious activities, thereby strengthening their social networks. Ultra-orthodox females are largely excluded from public religious activities (Berman, 2000). Religious families, as opposed to the ultra-orthodox, are much more integrated in the non-religious society. The religious borders (such as eating only Kosher food, not traveling or taking part in social activities on the Sabbath, restricting males and females from dancing together) negatively affect their levels of social networks. We do not have a good explanation for the fact that this affects religious men but not religious women.

Living in rural communities increased the level of social networks (more for females than for males), reflecting the common belief that relationships in large cities are less personal (e.g., Coleman, 1988). We also tried to distinguish between larger and smaller cities, to examine the hypothesis that living in larger and more densely populated cities increases the level of social networks because of the greater opportunities of creating social contacts (Wahba and Zenou, 2005). However, we could not find any significant difference.

The effect of academic education on the individual's level of social networks can be ambiguous. Many researchers have found that less educated people obtain much more help from friends in finding a job than more educated people, whereas educated people

[7] We also tried to distinguish natives whose parents came from America-Europe from natives whose parents came from Asia-Africa, but did not find any significant differences.

use mostly formal job-seeking channels and depend less on friends (e.g., Holzer, 1987). Moreover, the leisure time of more educated people is more expensive, so they might spend less time on social activities. These arguments lead to the expectation of a negative effect of academic education on the level of social networks. On the other hand, years spent in school are a prime period for creating social connections, and this may lead to a positive effect of academic education on the level of social networks. We found that academic education has a significantly negative effect on the fathers' level of social networks, but a significantly positive effect on the mothers' level of social networks.

Low-income parents had significantly lower levels of social networks. This could be because of the income effect on the demand for costly social events. Researchers have found a positive relationship between health status and the level of social networks (e.g., Cattell, 2001). We found that mothers who reported being in good health also reported significantly higher levels of social networks, but no significant differences were found for fathers. We found that internet usage affects the level of social networks positively and significantly, meaning that the internet is not a substitute for friends, but rather complements them. Contacts made online may lead to subsequent face-to-face social relationships. As expected, participation in hobby groups also affected the level of social networks positively and significantly.

Parents who have frequent meetings with family also had higher levels of social networks. This means that family contacts are complementary to, rather than a substitute for social contacts. This could be because people make new contacts through family members. Alternatively, strong family contacts may be associated with some unobserved sociability of the individual, which affects social contacts as well.

Research has found that women with high earnings rely more on formal child-care services (e.g., Rosenbaum and Ruhm, 2005), and thus spend less time with their children and are less exposed to social contacts through their children. We examined this hypothesis, but could not find different effects of children on the level of social networks of mothers with higher earnings compared to other mothers.

6. Discussion and conclusion

In this paper we offer a theoretical and empirical analysis of the effect of family composition on parents' level of social networks, using a sample of Jewish married parents derived from the Israeli Social Survey for 2002-2006. We focus on the effects of three variables which represent family composition: the number of children, the age gap between the oldest and youngest child, and the age of the youngest child. The richness of our data enables us to control for a wide range of explanatory variables, including age, belonging to a minority group, belonging to a religious group, place of residence, education, income, health status, internet usage, taking part in hobby groups and relationship with other family members.

Our main finding, as predicted by the theoretical model, is a positive effect of the age gap between children on the level of social networks. This is because the overlap between the social links created through the different children decreases as the age gap increases. The theoretical model also predicted an ambiguous effect of the number of children on the parents' level of social networks, because children decrease the parents' time for leisure activities but increase the number of new linkages made through them. We found that the effect of the number of children on the parents' level of social network is U-shaped, i.e., the parents' level of social networks initially decreases with the number of children, but increases after a certain number of children. However, the negative effect of the number of children on the father's level of social networks is lower than the negative effect on the mother's level of social networks, whereas the positive effect of the number of children on the father's level of social networks is higher than the positive effect on the mother's level of social networks. This might follow from the fact that mothers dedicate relatively more time to physical activities of child rearing and less time to social activities with the children than fathers.

A considerable amount of economic literature exists on the effects of family composition on varied outcomes, including wealth and needs, parents' time allocation between child care and market work, children's education, abilities and outcomes, etc. (e.g., Gong and van Soest, 2002; Kalenkoski et al., 2007). There is also a well-established body of economic literature on the role played by social networks in communicating valuable information (Montgomery, 1991). This paper represents the first attempt to

combine these two important lines of research by examining the relationship between family composition and social networks. Specifically, our finding that family composition matters for social networks implies that social networks may be an additional consideration in fertility decisions.

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Table 1. Descriptive statistics

Variable	Male	Female
Level of social network (%)		
Does not have any friends	6.47	6.84
Meets with friends once or twice a month or less	15.09	15.14
Meets with friends once or twice a week	42.33	39.49
Meets with friends daily, or almost daily	36.11	38.53
Number of children (%)		
1 child	23.64	23.14
2 children	37.12	37.62
3 children	26.68	26.49
4 children	9.37	9.29
5 children	3.18	3.46
Mean	2.31	2.32
Age gap between the youngest and oldest child (mean)	5.64	5.54
Age of the youngest child (mean)	4.31	4.70
Age (mean)	37.31	34.88
Ethnic group (%)		
New immigrants (1990+)	14.83	15.50
Old immigrants from Asia-Africa	4.90	3.90
Old immigrants from America-Europe	6.19	6.05
Other	74.08	74.55
Religious group (%)		
Ultra-orthodox	9.32	10.74
Religious	11.40	10.80
Other	79.28	78.46
Rural communities (%)	11.12	11.27
Academic education (%)	30.14	34.73
Low income (%)	39.77	45.15
Good health (%)	93.19	93.47
Internet usage (%)	62.48	54.38
Hobby (%)	18.24	28.66
Meets with family frequently (%)	25.42	29.82
Number of observations	3,553	3,639

Table 2. Ordered Logit results of the level of social networks

Explanatory variables	**Males**		**Females**	
	Coefficient	Z value	Coefficient	Z value
Number of children				
2 children	-0.170*	-1.77	-0.197**	-2.07
3 children	-0.189	-1.39	-0.285**	-2.13
4 children	-0.011	-0.06	-0.572***	-3.12
5 children	0.560**	2.14	-0.415*	-1.65
Age gap between the children	0.038**	2.53	0.028**	1.96
Age of the youngest child	0.044***	3.85	-	-
Age	-0.059***	-7.31	-0.138**	-2.43
Ethnic group				
New immigrant	-0.408***	-4.30	-0.406***	-4.52
Old immigrant from Asia-Africa	-0.296**	-1.98	-0.369**	-2.28
Old immigrant from America-Europe	-0.081	-0.62	-0.212	-1.59
Religious group				
Ultra-orthodox	0.691***	4.98	-0.112	-0.94
Religious	-0.264**	-2.50	-0.028	-0.26
Rural communities	0.168*	1.64	0.347***	3.41
Academic education	-0.204***	-2.63	0.214***	3.05
Low income	-0.292***	-3.86	-0.256***	-3.60
Good health	0.156	1.17	0.381***	2.90
Internet usage	0.136**	1.78	0.387***	5.55
Hobby	0.440***	5.24	0.369***	5.17
Meets with family frequently	0.486***	6.51	0.214***	3.05
LR χ^2 (p-value)	277.13 (0.0000)		266.78 (0.0000)	
Pseudo R^2	0.0327		0.0305	
Number of observations	3553		3639	

Note: ***, **,* denote significance at 1%, 5% and 10%, respectively.

Table 3. Effect of children on parent's level of social networks under different specifications

	Base model		**Full derivative**		**Extended model**	
	Male	Female	Male	Female	Male	Female
1 child	0.00	0.00	0.00	0.00	0.00	0.00
2 children	-0.17	-0.20	-0.04	-0.10	-0.04	-0.10
3 children	-0.19	-0.29	0.08	-0.09	0.08	-0.10
4 children	-0.01	-0.57	0.33	-0.32	0.33	-0.31
5 children	0.56	-0.42	0.92	-0.13	0.94	-0.11

Figure 1. Illustration of the overlap in social networks due to different children

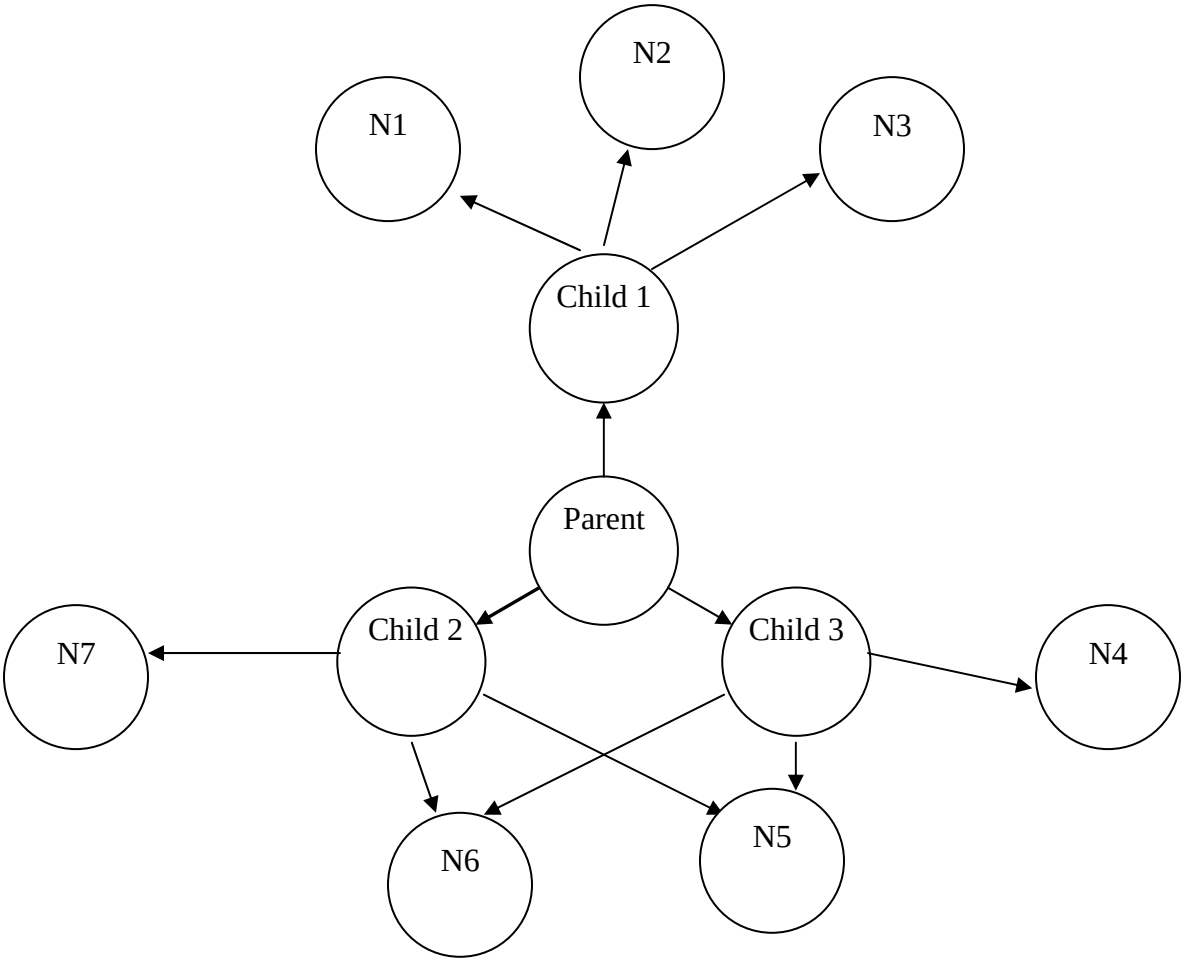
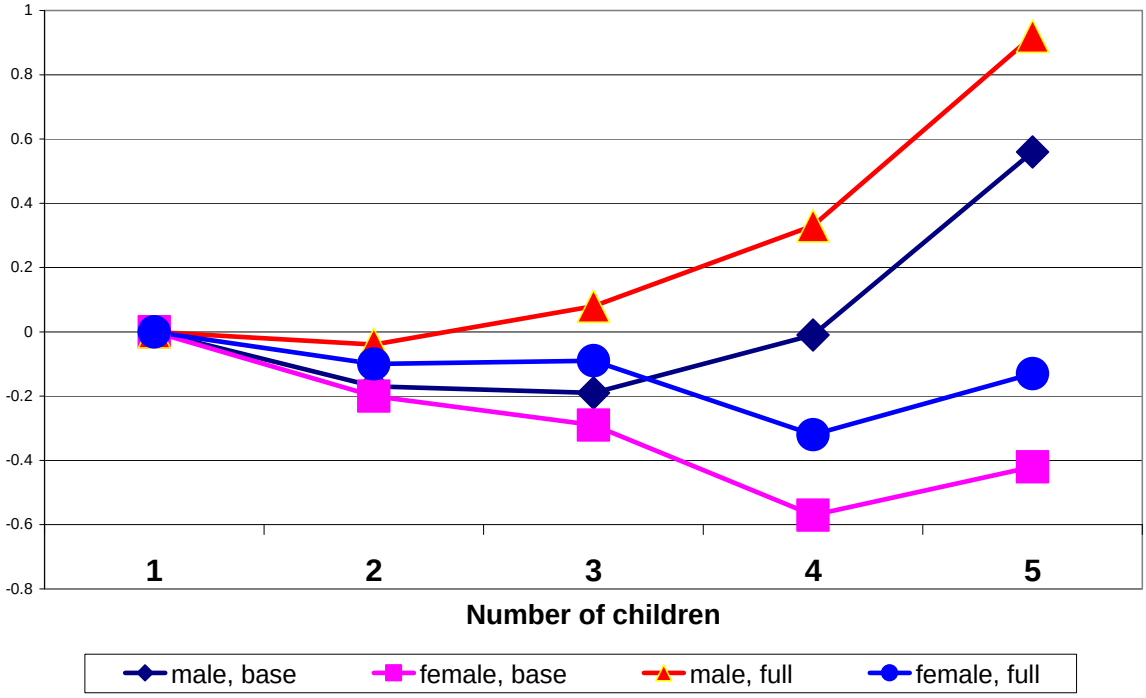


Figure 2. Profiles of social network level as a function of number of children



Appendix: Ordered Logit results of the level of social networks with interactions of age gap with number of children (extended model)

Explanatory variables	**Males**		**Females**	
	Coefficient	Z value	Coefficient	Z value
Number of children				
2 children	-0.084	-0.74	-0.270**	-2.34
3 children	-0.301*	-1.69	-0.354**	-2.04
4 children	-0.440	-1.27	-0.231	-0.71
5 children	1.525**	2.22	0.491	0.78
2 children*age gap	0.013	0.59	0.050**	2.06
3 children*age gap	0.054**	2.44	0.038*	1.77
4 children*age gap	0.085**	2.38	-0.009	-0.28
5 children*age gap	-0.063	-0.94	-0.061	-1.04
Age of the youngest child	0.044***	3.87	-	-
Age	-0.058***	-7.28	-0.014**	-2.46
Ethnic group				
New immigrant	-0.387***	-4.04	-0.419***	-4.63
Old immigrant from Asia-Africa	-0.296**	-1.99	-0.353**	-2.18
Old immigrant from America-Europe	-0.081	-0.61	-0.209	-1.56
Religious group				
Ultra-religious	0.707***	5.06	-0.131	-1.09
Religious	-0.254**	-2.40	-0.031	-0.29
Rural communities	0.167	1.63	0.352***	3.45
Academic education	-0.204***	-2.64	0.204***	2.83
Low income	-0.293***	-3.87	-0.258***	-3.62
Good health	0.158	1.18	0.391***	2.97
Internet usage	0.137*	1.80	0.382***	5.47
Hobby	0.444***	5.28	0.370***	5.18
Meets family frequently	0.480***	6.42	0.216***	3.09
LR χ^2 (p-value)	283.11 (0.0000)		271.44 (0.0000)	
Pseudo R^2	0.0334		0.0310	
Number of observations	3553		3639	

Note: ***, **,* denote significance at 1%, 5% and 10%, respectively.