

**Causes and Consequences of Time Investment
in Friendship Networks:
A Dynamic Analysis of the Polish Panel Survey
POLPAN 1988-2013**

Kazimierz M. Slomczynski

Irina Tomescu-Dubrow

*Cross-National Studies: Interdisciplinary Research and Training Program –
The Ohio State University and the Polish Academy of Sciences*

consirt.osu.edu

Theoretical background (1)

One's friendship network involvement depends on the utility function:

$$U_i = \alpha \log Y_i + (1 - \alpha) \log O_i$$

Y_i – Involvement in one's friendship network

α - social tie parameter (the i-th actor's propensity to bond with friends), $0 \leq \alpha \leq 1$

O_i – other leisure time activities

Theoretical background (2)

Theoretically, the utility of involvement in friendship network should be reflected in the invested time:

$$T_i = N_i * D_i * F_i$$

T_i – time spent with friends

N_i – number of friends

D_i – density of contacts

F_i – frequency of contacts

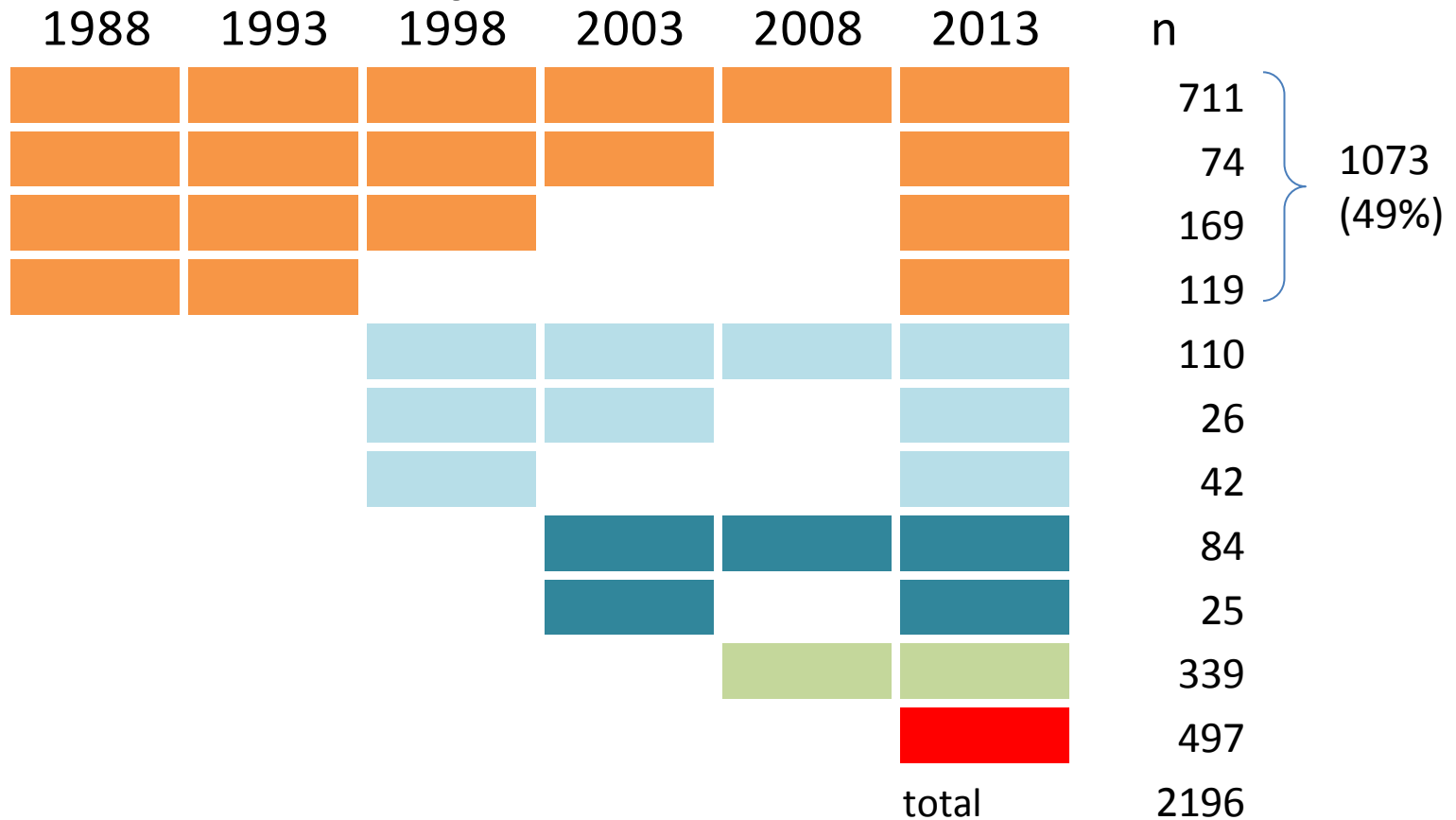
The estimable regression equation:

$$\log T_i = a + b_1 * \log N_i + b_2 * \log D_i + b_3 * \log F_i + e_i$$

POLPAN is a panel survey conducted in 1988, 1993, 1998, 2003, 2008 and 2013, originally on a national sample of men and women aged 21-65.

In addition of following many of the original respondents for 25 years (n = 1073), since 1998 POLPAN also contains renewal samples of young cohorts.

POLPAN 1988-2013: Histories of 2013 respondents



Questionnaire items on friends in POLPAN

	1988	1993	1998	2003	2008	2013
Friends network	10	3	4	6	2	5
# of friends	yes	yes	yes	yes	yes	yes
Density	(yes) ^a	no	yes	yes	yes	yes
Frequency	no	no	no	no	no	yes
Time	no	no	no	no	no	yes
Closest friend	12 ^b	-	-	3 ^b	1 ^b	2 ^b
Other	2	-	-	-	2	12

^a Different formulation than in other waves

^b Includes item regarding friend's occupation/education

Basic characteristics of POLPAN respondents' friendships networks

	1988	1993	1998	2003	2008	2013
No friends, %	(20.3)	5.8	3.9	4.2	5.9	7.2
Missing cases, %	0.3	5.5	4.9	2.8	2.2	5.4
Mean number of friends ^a	9.0	15.1	16.2	13.6	11.4	7.4
Mean density ^b	0.84	-	0.80	0.79	- ^c	0.74

^a Mode for 1993-2003 ca. 9; for 2013 ca. 5

^b On the basis of responses to the following item: *Among your friends:*

(a) *all know each other well* (coded 1.0)

(b) *almost all know each other well* (coded 0.75)

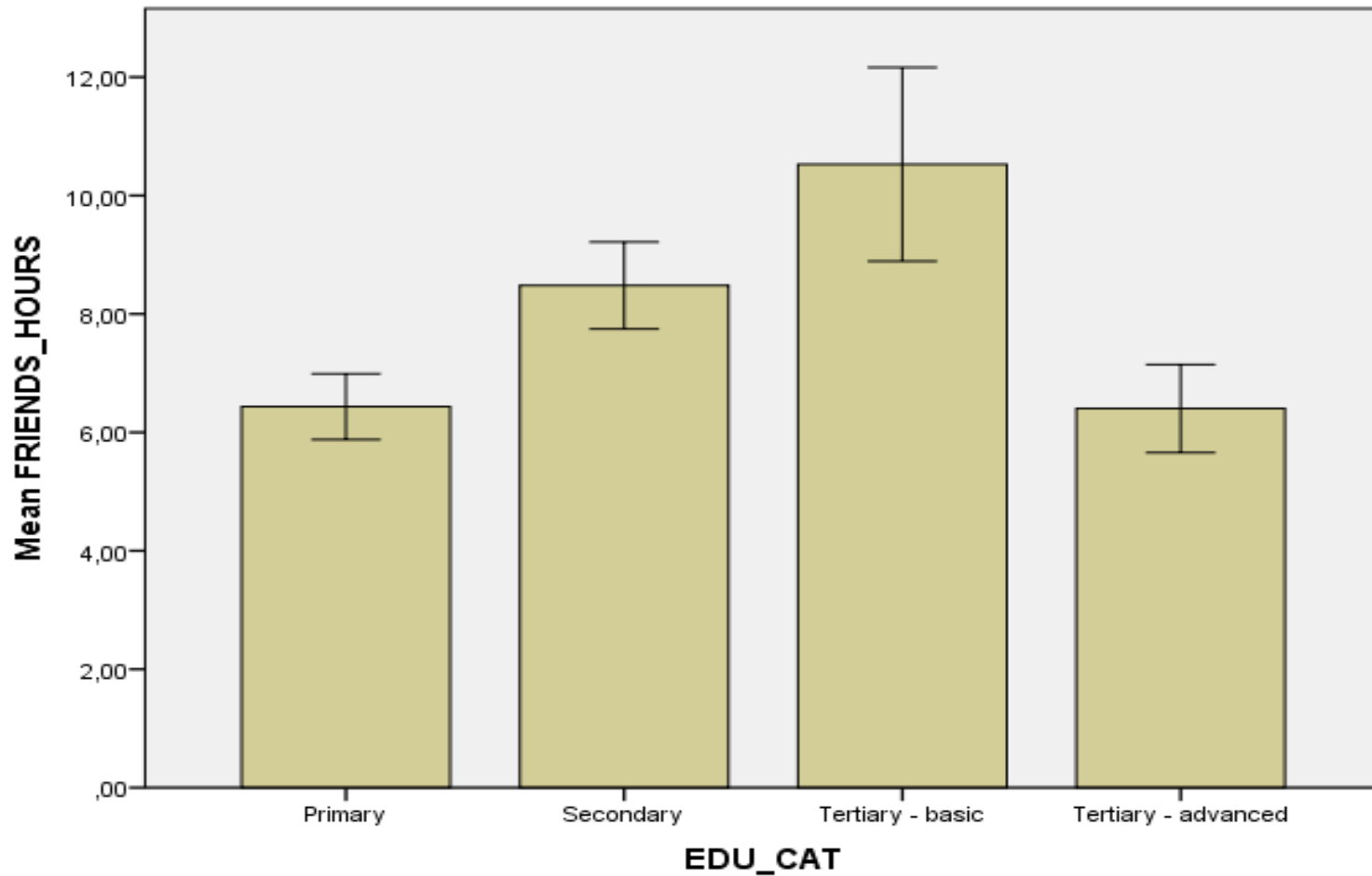
(c) *half know each other well and half not* (coded 0.50)

(d) *only a few know each other well* (coded 0.25)

(e) *nobody or almost nobody knows each other well* (coded 0.10)

^c Uncomparable item

How much time people spend with friends



Error bars: +/- 2 SE

Utility function

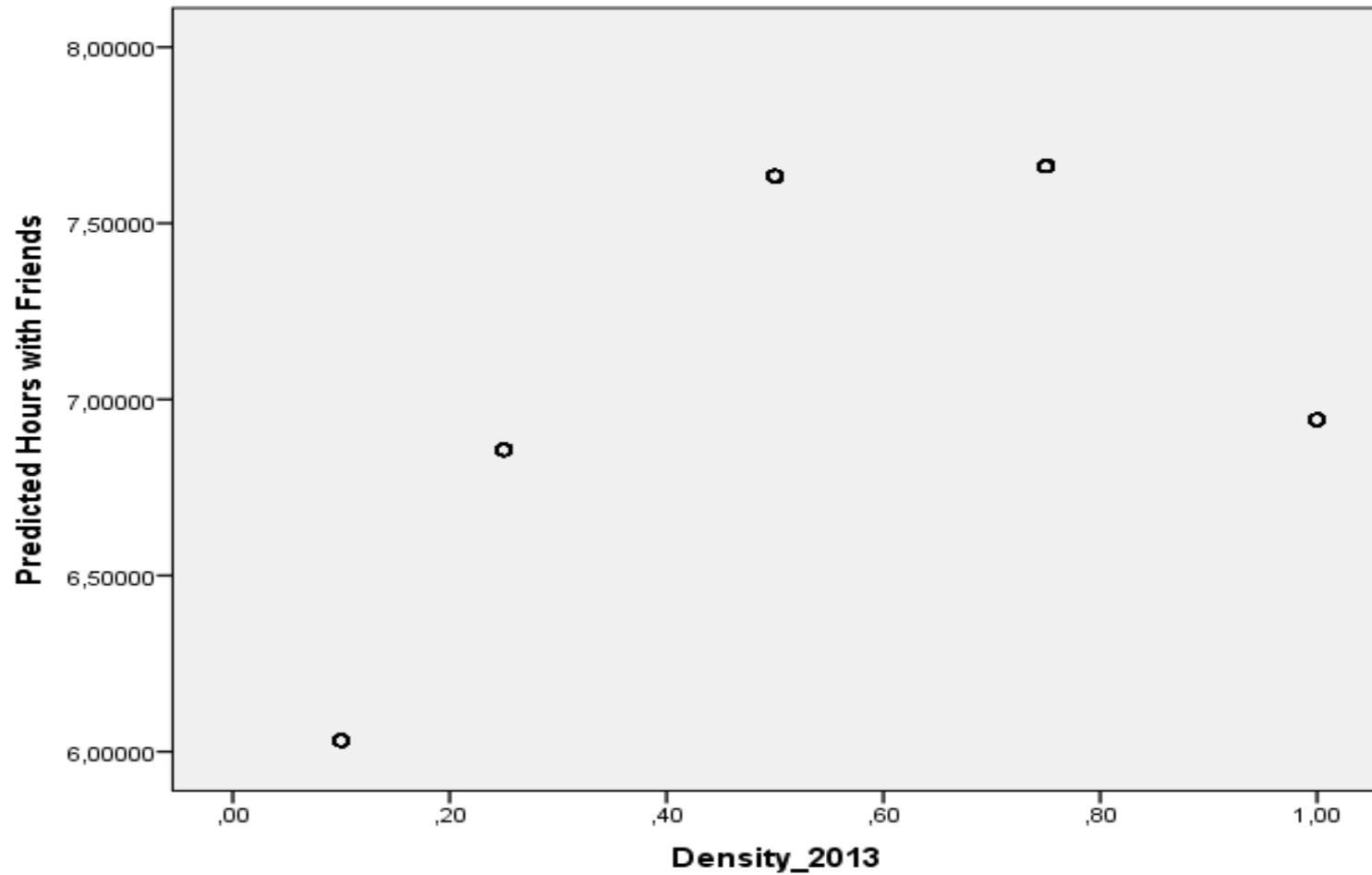
Estimating α , a social tie parameter, requires information on other activities that potentially compete with time spent with friends. We have to rely on data from other sources – special study NON-WORK.

Preliminary results show that between 2008 and 2013 there is a decline in this parameter, paralleled by the declining number of friends.

Dependence of Time Spent with Friends on Number of Friends, Frequency of Contacts, and Density of the Network, 2013

	Unstandardized		β	T	P <
	b	SE			
Constant	0.908	0.047	-	19.22	0.001
Ln(Number of friends)	0.137	0.022	0.128	6.30	0.001
Ln(Frequency of contacts)	0.290	0.015	0.382	18.78	0.001
Ln(Network density)	-0.451	0.099	-0.231	-4.54	0.001
Ln(Network density squared)	-0.273	0.055	-0.252	-4.96	0.001
R² = 0.183, N = 2070					

Hours spent with friends and network density



Social Determinans of Time Spent with Friends

	Unstandardized		β	T	P <
	b	SE			
Constant	1.618	0.058	-	28.13	0.001
Gender (female = 1)	-0.058	0.039	-0.031	-1.51	ns
Age (centered)	-0.015	0.001	-0.319	-12,06	0.001
Age squared (centered)	0.001	0.000	0.077	3.04	0.002
Working hours	-0.003	0.001	-0.067	-2.86	0.004
Married (yes = 1)	-0.193	0.047	-0.104	-4.10	0.000
Children	-0.124	0.040	-0.079	-3.09	0.002
Large houshold	0.082	0.045	0.043	1.820	0.070
R² = 0.154, N = 2070					

Consequences of having a large number of non-redundant friends (1)

Friendship Patterns & Individuals' Resources for Upward Mobility: A Theoretical Argument

Friends as Social Capital

Relevant Properties of Friendship Networks

- 1) The number of all friends
- 2) The density of ties among friends

Burt's (2001) concepts of *network constraints* and *structural holes* in networks.

Main theoretical argument pertains to the opportunity structure.

Consequences of having a large number of non-redundant friends (2)

Hypothesis: Having a large number of non-redundant friends is conducive to upward mobility in terms of achieving higher income or assuming higher occupational position

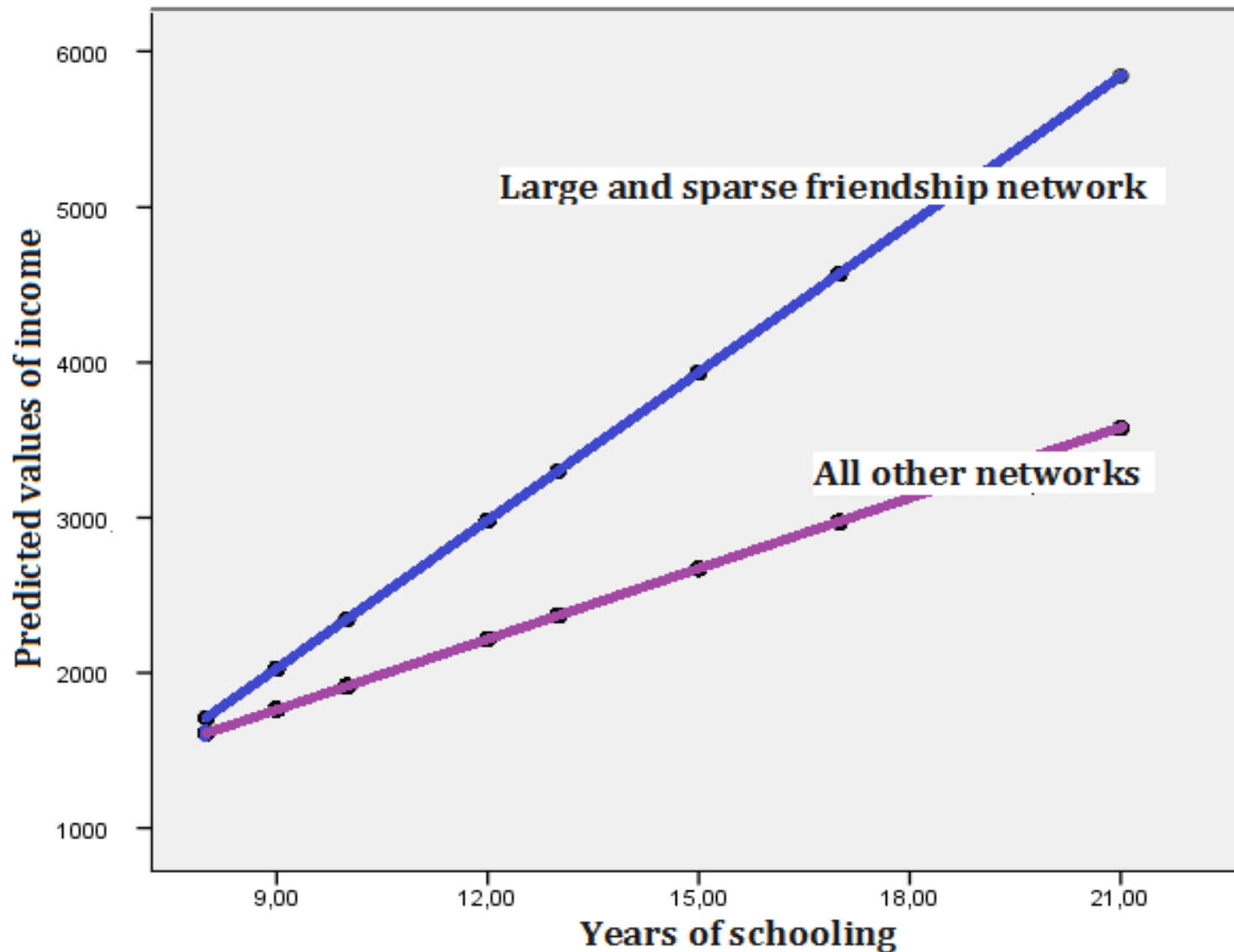
Initial test: K. M. Slomczynski and I. Tomescu-Dubrow. 2005. Friendship Patterns and Upward Mobility: A Test of Social Capital Hypothesis, *Polish Sociological Review* 151, pp. 221-235.

Current test:

Large number of non-redundant friends:

- (a) Number of close friends > 12**
- (b) Sparse network: the proportion of friends who know each other < .50**

Effect of large and sparse friendship network on individual income for different years of schooling



Model

Basic substantive modification:

What counts for changes in income is a particular pattern of friendship, M: medium number of friends (5-15) and medium density (from 50 to 75 percent of friends know each other)

$$\ln(Y_{2013}) = a + b_1 * \ln(Y_{2008}) + b_2 * M + b_3 * Edu + b_4 * Gender + b_5 * Age + e$$

Y is income. A 1% change in income in 2008 is associated with a $b_1\%$ change in income in 2013, so b_1 is the elasticity of income, a measure of change.

For other variables, a one unit change is associated with a $100 * b_i\%$ change in Y.

Regression of Ln(income2013) on Ln(Income2008) and Friendship Pattern M, Controlling for Years of Schooling, Gender, and Age

	Unstandardized		β	T	P <
	b	SE			
Constant	5.610	0.195	-	28.79	0.001
Ln(Income2008)	0.096	0.020	0.188	4.85	0.001
Friendship Pattern M	0.142	0.057	0.094	2,48	0.015
Years of Scholling	0.084	0.009	0.401	9.77	0.001
Gender (female = 1)	-0.317	0.055	-0.225	-5.77	0.001
Age (centered)	-0.001	0.002	-0.019	-0.47	ns
Age squared (centered)	-0.001	0.000	-0.177	-40.57	0.001
R² = 0.262					

Conclusions

Sparse networks positively impact individual income. , even controlling for social characteristics traditionally used in status attainment research..

In circumstances such as movement to the categories of winners, the effect of the number of structural holes in one's informal network is nonlinear.

Certain characteristics of the “quality” of one's friends are important in socioeconomic attainment.