What is the importance of social capital in Czech agriculture? An analysis of selected components

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Abstract: The paper examines the role of social capital in Czech agricultural sector. It is argued that social capital, just like economic capital, can be employed as a resource for the improvement of economic performance of agricultural enterprises. This hypothesis is tested on a sample of primary data and an analysis of the selected indicators of social capital is presented. These include personal social networks, membership in agricultural associations and access to sources of information. Following the results, it is argued that the presence of informal personal ties displays a stronger relationship to the entrepreneurial success than formal membership in agricultural associations. This outcome suggests a comparatively strong role of social capital in the dynamics of the sector.

Key words: social capital, social networks, agriculture, sociology, microeconomics

This paper is a part of the Research grant number MZe 0002725101 awarded to the Institute of Agricultural Economics and Information by the Ministry of Agriculture of the Czech Republic. One of the research topics addressed by the grant is the role of social capital in Czech agriculture. The paper deals with selected aspects of the topic which so far have not been examined in the Czech context. The first part of the paper will present a theoretical discussion of the notion of social capital and its usefulness for a sociological analysis of the agricultural sector. As a result, key theoretical issues and research questions will be introduced. The second part of the paper will address the methodology of the research, based on the authors' own empirical survey. The results of the survey will be presented in the third part and further elaborated on in the final discussion and conclusion of the paper.

The term social capital has become a buzzword in social sciences following the publication of the influential *Bowling alone: the collapse and revival of American community* (2000) by Robert D. Putnam and a preceding paper on the same topic. In the Putnam's view, social capital pertains to a set of qualities of a given social organisation, including trust, social norms and social networks (Putnam et al. 1993). As Putnam showed in his research of social capital in Italy and in the USA, these qualities facilitate organised conduct and thus contribute to the strengthening of democracy in the society and increasing its efficiency (Šafr and Sedláčková 2006). The notion of social capital as a boost factor for civic activity and social inclusion was introduced at a time when many Western countries had to face the challenges of rethinking their models of citizenship and solving the problems resulting from the coexistence of culturally different groups. This urgency may have contributed to the rise of interest in social capital and the related issues of trust, networking and inclusion.

Examining the role of social capital in agriculture, however, requires a different perspective. While the role of nation states and international organisations is embedded in the political discourse, and their legitimacy is rooted in the mechanisms of citizenship and social inclusion, agricultural sector is primarily an economic one and, as a part of the country's economic production, its fundamental roots and mechanisms are driven by an economic logic. Following this assumption, it is vital, in searching for factors influencing the performance of the agricultural sector, to look for economic factors rather than those pertaining to democracy, civil society and citizenship. Thus, the fundamental question is what is the influence of social capital on the performance of agricultural enterprises, and the performance of the agricultural sector itself. In order to answer this question, a different theoretical view has to be adopted.

This research is based mostly on the works of Pierre Bourdieu (1984, 1997) and James Coleman (1988). An approach shared by these two authors considers social capital not as a set of qualities of organisations, but rather as a sum of resources available to each specific actor (in the present case, the term "actors"

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refers to the respective agricultural entrepreneurs). Just as agricultural enterprises and their employees benefit from varying levels of economic capital or educational capital (in the form of qualifications and expertise), they can also employ their social capital, which is a sum of personal bonds and both formal and informal ties to other actors, that the entrepreneur can use for his or her own profit (Bourdieu 1984). The key assumption is that the various kinds of capital are mutually interchangeable (Bourdieu 1997). An entrepreneur, who has a rich network of personal ties and relationships to others, can utilise them to increase the economic profit of his or her enterprise. This assumption enables us to further specify the key question of the present research: to what extent do Czech agricultural entrepreneurs use their social capital (their personal ties, relationships and contacts) towards the achievement of better economic results?

Staying within the paradigm defined by Bourdieu, one can think of agricultural sector as a "field of production" which is structured in a specific way by specific forces. It can be assumed that there are forces and variables that contribute to the structuring of the actors' positions within the field and thus differentiate them according to certain characteristics. As noted above, the key characteristic for our research was that of economic success. Since the positions within a field are defined by the ownership of various kinds of capital and the related resources (Bourdieu 1984), our task was to find out what kinds of capital are responsible for the differentiation of actors (agricultural enterprises) into successful and unsuccessful. Obviously the key role is to be assigned to economic capital: an agricultural enterprise is successful if it can rely on a large and stable stock of economic capital. However, in accordance with the notion of interchangeability of various kinds of capital, we can assume that other kinds of capital have the power to influence the success of agricultural enterprises too. Our research has focused on some prominent features of social capital, discussed further on in the paper.

Following the operationalisations of other authors, basic dimensions for measurement of social capital have been identified. Harper (2002) describes the approach adopted by the National Statistics survey, which distinguishes between the network component, the normative-value component and the cooperative component of social capital. National Statistics also includes the indicators of life satisfaction and satisfaction with locality which display a strong statistical relation to social capital (Harper 2002) but cannot be considered as parts thereof. An attempt for a synthesis and translation of this as well as other approaches (most notably Paxton 1999 and Coleman 1988) has been presented by Czech sociologist Tomáš Potočný (2003). It is his work and a summary by Šafr and Sedláčková (2006) which form the backbone of our present operationalisation. Potočný suggests three ways of measuring social capital: the first one deals with informal networks, focusing on general sociability and specific relations to family, friends, neighbours and colleagues. The second way addresses generalised relations, including the participation in community, trust in others and the nature of local ties. The third way focuses on institutional relations and as such, it transgresses the aforementioned notion of social capital as a set of resources available to individual actor (Šafr and Sedláčková 2006). Following this, we have focused on specific and generalised relations, adhering to the methodological principle posited by Cote and Healy (2001) that every measurement of social capital should include both values and beliefs on the one hand and behaviour on the other.

The scope of this paper is limited to the selected indicators of social capital and their importance for the agricultural entrepreneurs. We analyse the role of personal relations to colleagues and business partners, the difference caused by the accessibility of information and usage of various resources and the entrepreneurial effect of membership in professional associations. The analysis is thus guided by the following three research questions (RQs):

1. What is the influence of personal relations to colleagues and business partners on the overall level of entrepreneurial success?
2. To what extent is entrepreneurial success influenced by the access to and usage of various sources of information?
3. What is the influence of membership in professional associations on the overall level of entrepreneurial success?

The topic of the third question has already been addressed by the previous research which enabled us to formulate a hypothesis. Bavorová et al. (2006) have shown that Czech agricultural workers participate in professional associations and organisations in order to improve the conditions for their business by taking part in a common lobby. Their conclusions suggest that membership in these organisations helps in achieving entrepreneurial success. In another study, Wolz et al. (2006) come up with a similar conclusion, albeit a differentiated one: the authors argue that the link between membership in associations and success works only for those businesses that play an active part in the associations, pushing ahead their

interests and making an active use of their influence. The link, according to Wolz and his colleagues, does not work for passive members.

In line with these results, we expected a positive relationship between the membership in associations and success (RQ3). As for the topics covered by the RQ1 and RQ2, there was no comparable empirical research available on these subjects. Our analysis presents a first attempt at a quantitative sociological analysis of the topics.

METHODS

The data were collected in winter 2009–2010 on a sample of 361 representatives of Czech agricultural enterprises. All respondents were members of the management, either as owners or as employees. The research technique used was one of a structured questionnaire, administered by a team of trained interviewers. The random sample was limited by two sampling quotas in order to account for the specific business structure of Czech agricultural sector with a very high share of natural persons enterprises[1] and more than a 50% share of businesses working on a land area smaller than 5 ha[2]. The first quota stated that at least 200 businesses of legal persons must be present in the sample (due to the data collection problems, this figure ultimately reached 197, the remaining 164 respondents were NPs). The aim of this quota was to prevent the over-representations of NP enterprises, whose share in the sector is substantially higher than their real importance for the economy (their total share in the sector exceeds 92%, yet the share of the land area they use for their business does not exceed 30%). The second quota had a similar function: to prevent the over-representation of small enterprises, in terms of land area. Following this, all NP enterprises with less than 50 ha of land area were excluded from the population (this accounts to almost 90% of all Czech agricultural NPs) and, regarding LPs, it was stated that at least 50% of them must have an area of more than 500 ha. This condition attempts to reduce the risk of a systematic sampling error, following from the data collection procedure: our experience with similar surveys suggests that it is generally easier for interviewers to approach the management of small companies rather than the large ones. As a result, the sample is often well saturated with small to medium enterprises, omitting the larger ones. Stating a quota of minimum 500 ha for a 50% of the LPs in the sample does not help in adjusting the sample structure to that of the population but it does give us more control over the sampling bias (Table 1).

Table 1. Sample composition with regard to area and legal status

		Legal status of the respondent		
		NP	LP	total
Land area	0–49 ha	0	7	7
	50–499 ha	149	61	210
	500–999 ha	13	54	67
	1 000–1 999 ha	1	38	39
	2 000 ha +	1	37	38
	total	164	197	361

Source: Empirical survey Social capital in Czech agriculture (Rok?)

The data was coded and analysed using the SPSS for Windows.

The first research question was operationalised into the following indicators. The respondents were presented with a question "Do you believe you know many important people in your trade?" with a supplementary question regarding the actual use of this knowledge. Two questions were aimed at the overlaps of professional and personal relationships: respondents were asked to estimate the share of other agricultural employees and, in the second case, business partners (customers and suppliers) whom they know on a friendly basis. Two more questions measured the frequency of meeting with other actors in the trade, both on formal and informal basis and, finally, the respondents were asked to express their concert with two hypothetical statements: "If I did not know other agricultural entrepreneurs personally, I would face more difficulties at my work" and "If I did not know my business partners personally, I would face more difficulties at my work".

In order to answer the second research question, the respondents were asked to list the sources of information they use for their work. The open question sought to find out the sources of the following kinds of information: information about the market

[1]The terms natural persons (fyzické osoby) and legal persons (právnické osoby) will be throughout the text abbreviated into NPs and LPs

[2]According to the Report on Czech Agriculture (Zpráva o stavu zemědělství v ČR), there were 44 028 agricultural NP enterprises and 3 536 LPs. Of the 45 989 enterprises owning agricultural land, 24 066 owned a land area smaller than 5 ha.

situation, information regarding accounting and farm economy, information regarding the changes in legislation, information about new trends in agriculture and its future and information about subsidy programs. Supplementary questions measured the level of interest in new information ("Do you consider yourself actively interested in the news in your trade?") and the access to them ("Compared to other entrepreneurs in agriculture, do you think that you learn about the changes in the trade sooner than they do or rather later?").

The third question was operationalised into two indicators. The respondents were asked to name the organisations (both professional associations and other kinds of organisations too) they were members of and to state their opinion about whether they consider their membership helpful in terms of business.

The information from these three sets of indicators was then related to the level of economic success, measured by a subjective self-assessment of the respondents. It was impossible to measure economic success using numeric/income indicators, due to the heterogeneity of the sample and the specific problems of measuring income in a survey (most notably the varying nature of the respondents' income, the inability to state one's income exactly and a high level of non-response in general) (Stejskal and Stávková 2010).

RESULTS

Unless stated otherwise, the analysis and the calculations were performed on weighted data. The weighting was applied in order to neutralise the effect of the aforementioned quota requirement of 200 LPs in the sample. The land area quotas were kept. The effect of the weighting was to re-adjust the share of NPs and LPs to the present in the actual population (239 NPs : 120 LPs). This was done in order to establish the possibility of statistical inference which would otherwise not have been possible on quota-sampled data.

Personal relations with colleagues and business partners

The results suggest a positive link between the number of personal relations with others and entrepreneurial success. There is a strong, statistically significant relationship between success and the knowledge of important factors in the trade (Table 2).

The measures of association reach 0.38 (Goodman-Kruskall Gamma) or 0.25 (Kendall tau-c). Upon introducing legal status as a third variable (with legal status being significantly related to the independent variable), the association strength decreases for LPs to between 0.3 (gamma) and 0.2 (tau-c). For NPs, on the contrary, the association measures increase up to 0.4. Yet, a relatively strong relationship remains present in both these groups. A supplementary question inquired about the usage of these networks by the actors. Of the valid percent (N = 129), 64.6% claimed that they have used these bonds to their own benefits in the past three years.

The shares of personal friends among colleagues and business partners were measured by two other indicators. Both these variables display a statistically significant relationship to entrepreneurial success. In the first case of relations to colleagues and other entrepreneurs, the correlation measures vary between 0.25 (gamma) and 0.15 (tau-c), in the second case of relations to business partners, the values were slightly lower (0.23 or 0.14). An elaboration of the relationship by introducing legal form as a third variable suggests somewhat more interesting results (Table 3).

The values of Gamma, as seen in the tables, have increased for the strength of relationship between success and personal ties to colleagues in the NPs and

Table 2. The relation between personal ties in agriculture and economic success

			Generally speaking, try to evaluate how successful your business is (on a scale from 1/not at all/ to 5 /very successful/)					
			1	2	3	4	5	total
Do you believe you know many important people in your trade?	Yes	count	1	7	52	55	19	134
		%	0.7	5.2	38.8	41.0	14.2	100.0
	No	count	5	28	81	54	10	178
		%	2.8	15.7	45.5	30.3	5.6	100.0
	total	count	6	35	133	109	29	312
		%	1.9	11.2	42.6	34.9	9.3	100.0

Source: Empirical survey Social capital in Czech agriculture

Table 3. The relation between the share of friends among colleagues and economic success: rank correlations

		Symmetric measures							
		colleagues and economic success				business partners and economic success			
		value	asymp. std. error	approx. T	sig.	value	asymp. std. error	approx. T	sig.
NP enterprises	Kendall tau-b	0.213	0.051	4.12	0.000	0.125	0.055	2.275	0.023
	Kendall tau-c	0.186	0.045	4.12	0.000	0.107	0.047	2.275	0.023
	Gamma	0.303	0.071	4.12	0.000	0.181	0.079	2.275	0.023
	N of valid cases	238				238			
LP enterprises	Kendall tau-b	0.118	0.077	1.525	0.127	0.17	0.076	2.213	0.027
	Kendall tau-c	0.102	0.067	1.525	0.127	0.147	0.066	2.213	0.027
	Gamma	0.17	0.111	1.525	0.127	0.244	0.109	2.213	0.027
	N of valid cases	118				122			

Source: Empirical survey Social capital in Czech agriculture

decreased in the LPs. The same is true vice versa: the role of personal ties to business partners seems to increase in the LPs and decrease in the NPs. Following this, it appears that for the NP enterprises, it is more important to maintain personal relationships with other agricultural entrepreneurs, while for the representatives of the LP enterprises, personal relationships with business partners (customers and suppliers) seem to play a more important role in achieving success than for their NP counterparts.

A correlation level of minor importance was measured between entrepreneurial success and the frequency of both formal and informal meetings with other actors in the sector. However, since the variance of both the independent variables is partly explained by the enterprise size (number of employees) and legal form, it can be assumed that introducing these intervening variables will prove the correlation untrue.

The Tables 4 and 5 summarize the answers to the hypothetical questions regarding the perceived importance of personal relationships to the aforementioned groups. When compared to other relationships (to family members, municipality inhabitants and municipal council members) measured by the same hypothetical questions, the importance of these ties appears to be relatively higher.

Sources of information

The analysis of the sources that agricultural entrepreneurs employ in order to gain information necessary for their business was performed on unweighted data, since the frequency of usage of the respective sources has been measured separately for NPs and LPs. This approach was based on an assumption that the NP entrepreneurs have a different institutional background than the managers of the LP enterprises

Table 4. Frequency tables for level of agreement with a statement

To what extent do you agree with the following statement: "If I did not know other agricultural entrepreneurs personally, I would face more difficulties at my work."					
		count	%	valid (%)	cumul. (%)
Valid	completely disagree	37	10.2	11.7	11.7
	mostly disagree	63	17.5	20.2	31.9
	neither agree nor disagree	96	26.8	30.8	62.7
	mostly agree	82	22.7	26.1	88.8
	completely agree	35	9.7	11.2	100.0
	total	313	87	100.0	
Missing	–1	47	13		
Total		360	100		

Source: Empirical survey Social capital in Czech agriculture

Table 5. Frequency tables for the level of agreement with a statement

To what extent do you agree with the following statement: "If I did not know my business partners personally, I would face more difficulties at my work."					
		count	%	valid (%)	cumul. (%)
Valid	completely disagree	13	3.6	4.4	4.4
	mostly disagree	39	10.8	13.2	17.6
	neither agree nor disagree	116	32.1	39.2	56.8
	mostly agree	78	21.6	26.4	83.1
	completely agree	50	13.9	16.9	100.0
	total	296	82	100.0	
Missing	–1	65	18		
Total		361	100.0		

Source: Empirical survey Social capital in Czech agriculture

and often they are members of different professional associations, which play an important role in the dissemination of information.

For analytical purposes, the question regarding the subjective level of entrepreneurial success was dichotomised into two categories of "successful" and "unsuccessful" enterprises. Consequently, the information sources used by these two groups were compared. The aggregate results are presented in the following tables with the five types of information merged. One unit in the Table 6 presents one answer (for each type of information, respondents were allowed to name more than one source).

In case of the NP enterprises, it seems that the difference between the successful and the unsuccessful lies in the employment of two kinds of sources: the successful entrepreneurs seem to rely more on the media information, while the unsuccessful tend to rely on authorities and institutions, including professional associations. This relation was not found in the LPs, where relying on the information from authorities and professional associations does not present a handicap. Successful managers of the LP enterprises were found to rely on media and on information available through meetings with other actors in the trade. The fact that these meetings, unlike meetings organised by authorities and other organisations, are often informal, again highlights the importance of social capital.

The different results for successful and unsuccessful NPs suggest that the width of the scope of sources used does not have a positive economic outcome, since unsuccessful NPs report a larger number of information sources than their better off counterparts (in Table 6, this pseudo-total figure is printed in italics and marked by a star). However, on a general level, the results should be interpreted with caution, due to the comparably small size of the segments of the unsuc-

Table 6. Sources of information, grouped by legal form and economic success

Sources of information	Unsuccessful NPs		Unsuccessful LPs		Successful NPs		Successful LPs	
	count	%	count	%	count	%	count	%
Friends	23	17.7	15	21.4	63	21	115	22.3
Media	45	34.6	19	27.1	127	42.3	206	40
Meeting other colleagues in trade	52	40	16	22.9	114	38	252	48.9
Authorities and institution (incl. PAs)	72	55.4	33	47.1	96	32	270	52.4
Paid advisers	19	14.6	12	17.1	36	12	95	18.4
Internet	11	8.5			15	5	13	2.5
Family members	2	1.5					2	0.4
Total	*224*	**172.3*	*96*	**137.1*	*451*	**150.3*	*955*	**185.4*

Source: Empirical survey Social capital in Czech agriculture

Table 7. The relation between speed of access to information and economic success

Compared to other entrepreneurs in agriculture, do you think that you learn about the changes in the trade sooner than they do or rather later?	Generally speaking, try to evaluate how successful your business is (on a scale from 1/not at all/ to 5 /very successful/)						
		1	2	3	4	5	total
Usually sooner	count	0	4	19	25	10	58
	%	0.00	6.90	32.80	43.10	17.20	100
More or less the same	count	3	17	119	75	20	234
	%	1.30	7.30	50.90	32.10	8.50	100
Usually later	count	3	15	19	15	1	53
	%	5.70	28.30	35.80	28.30	1.90	100
Total	count	6	36	157	115	31	345
	%	1.70	10.40	45.50	33.30	9.00	100

Source: Empirical survey Social capital in Czech agriculture

cessful: only 26 NP enterprises and 14 LPs chose to describe their economic standing as unsuccessful.

Two more indicators were employed to measure the access to information: one is aimed at the level of interest in new information, the other at the speed of obtaining it. In the first case, the bivariate results suggest a statistically insignificant relationship between the interest in new information and entrepreneurial success. This unexpected result may be partly caused by an uneven distribution of cases in the contingency table: on a five-point scale measuring the level of interest, more than 73% of respondents identified themselves with two categories "very interested" and "mostly interested", with only 23 cases falling into the two "not interested" categories. Due to the nature of the question, it was not possible to recode the categories in a different way in order to see if a finer division would yield statistically significant results.

On the contrary, a substantial and strong bond seems to exist between entrepreneurial success and the speed with which managers of agricultural enterprises learn new information (Table 7 and 8).

The value of Gamma reaches 0.37 which indicates a moderately strong correlation. In order to validate this finding, legal form was introduced into the relationship as a possible intervening variable. The elaboration has shown that for the LPs the strength of association falls below 0.2 and the relationship loses its statistical significance (this being partly caused by $N = 120$). On the other hand, the Goodman-Kruskall Gamma for the NPs has risen to 0.42. Thus, the relationship can be considered proven for the NP enterprises.

Table 8. The relation between the speed of access to information and economic success: rank correlations

Symmetric measures				
	value	asymp. std. error	approx. T	sig.
Kendall tau-c	–0.188	0.044	–4.289	0.000
Gamma	–0.37	0.079	–4.289	0.000
N of valid cases	345			

Source: Empirical survey Social capital in Czech agriculture

Association membership

The analysis of membership in associations was performed on unweighted data, since we wanted to obtain accurate figures regarding the actual membership rates in professional associations. The respondents were asked to name all organisations they belong to, either personally or as representatives of their company. In a second step, they were asked to rate the usefulness of the membership for their economic profit. The answers included a vast number of civil society organisations, NGOs, sports, culture and business clubs. Among them, three professional associations were the most prominent: Agrární komora (Agrarian Chamber) (142 members out of 361 respondents), Zemědělský svaz (Agricultural Association of the Czech Republic) (44 members) and Asociace soukromého zemědělství (Association of Agricultural Entrepreneurs) (11 members). Some entrepreneurs were members of multiple associations simultaneously. The subjective evaluation of the importance of association membership is presented in Table 9.

The results indicate that a majority of respondents consider their membership in professional associations only partly helpful. This vague finding may have been partly caused by a known survey bias, whereby the respondents tend to prefer middle categories. In

Table 9. Membership in professional associations and its effect on economic performance

Association name		Very helpful	Partly helpful	Not helpful	Missing	Total
Agrární komora	count	23	101	17	1	142
	valid (%)	16.3	71.6	12.1		100
Zemědělský svaz	count	9	30	3	2	44
	valid (%)	21.4	71.4	7.1		100
Asociace soukr.zemědělců	count	3	6	1	1	11
	valid (%)	27.3	54.5	9.1		100

Source: Empirical survey Social capital in Czech agriculture

order to elaborate on the result, a relationship between the membership in the Agrární komora and level of entrepreneurial success was measured (the other two associations were omitted due to low *N*). The results showed a statistically insignificant relationship with a very weak correlation coefficient, decreasing further with the introduction of intervening variables.

CONCLUSION

The present analysis measured the role of social capital in agricultural sector using three of its components: personal relations to colleagues and business partners, access to sources of information and membership in professional associations. Three separate research questions were conceived, one for each component.

In answering the first question, an important role of personal relations to other actors in the trade was found. On a general level, agricultural entrepreneurs benefit from personal knowledge of important people (this is especially true for the NP enterprises) and they tend to use these networks actively for their profit. The analysis has shown that the managers of the NP enterprises tend to ascribe a higher value to relations with their colleagues (other entrepreneurs), while their LP counterparts find relations with business partners (customers and suppliers) more important. Regarding the nature of the network relationships, it appears that the quality of the network ties is more important than the frequency of contact with others.

The second research question was aimed at the role of access to information. It seems that the fine line separating the more and less successful is also partly defined by the information sources. Successful entrepreneurs report a higher usage of media and, in the case of LPs, a higher use of information gained from meetings with other colleagues. Among the NPs, those who rely on information provided by authorities, including professional associations, tend to be less successful. Furthermore, there is a significant relationship between success and the speed of access to information: a faster access to information brings more profit, which is particularly true for the NP enterprises. Obviously, although beyond the level of the present analysis, there is a likely link between the participation in social networks and access to information (Demiryüek 2010).

In the third part, we were not able to confirm the findings of Bavorová et al. (2005) regarding the importance of membership in professional associations. The respondents in the sample consider their membership in these bodies as only a minor advantage and a bivariate analysis of the relationship between it and the level of success did not prove them wrong.

Overall, perhaps the most important result stems from the contrast of the answers to the research questions 1 and 3. While the traditional, "fixed" ties and bonds (represented by membership in professional associations) seem to play a minor role, the "soft" informal ties and networks present a potential for a substantial boost in economic performance for agricultural enterprises. These findings largely echo Hubík's (2007) call for a networked understanding of the actor relations and at the same time, stress the importance of social capital for the field of agricultural production, whose performance is given not only by the economic and production-based determinants but also by the subtle yet powerful threads of the social ones.

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