Formal Interdependence and the Reproduction of Informal Relations in Organizations

Abstract
The literature on the evolution of informal ties assigns a major role to formal organizational foci in tie creation. Once ties emerge, their persistence is usually explained by informal endogenous mechanisms such as the choice to collaborate or socialize. We offer the first natural experiment to show that interdependent activities have a stronger impact than independent activities on both the creation of new informal ties and the persistence of existing ties. Within an executive development program at a large Russian bank, we map the participants’ preexisting informal networks and trace their evolution over time. Random assignments to formally independent learning activities and project teams with interdependent outcomes place relational dyads to one of two experimental conditions. We find that formal interdependence increases the likelihood of tie formation and tie persistence, but that the effect of interdependence on tie persistence decreases with tie strength. As organizations seek to grow their social capital through teamwork across functional and geographic boundaries, they create new ties and renew existing ones. Both outcomes can be useful byproducts of managerial interventions, evidencing further the enduring organizational consequences of transitory project teams.

Key words: formal and informal structures, organizational foci, formal interdependence, social relations, network dynamics, field experiment, managerial intervention
Introduction

The interaction between formal organizational structure and informal social ties is one of the most basic issues in organizational theory that originated in the sociometric studies of the 1950s-1960s (e.g., Burns and Stalker 1961; Weiss and Jacobson 1955) and has received a new impulse over the last decade due to the availability of new data sources such as email exchanges (e.g., Diesner, Frantz and Carley 2005; Kleinbaum, Stuart, and Tushman 2013), email distribution lists (Srivastava 2015; Liu, Srivastava, and Stuart 2016), calendar planning (Bandiera et. al. 2011), and game play (Zhu, Huang, and Contractor 2013). Yet, important questions remain unanswered.

In particular, a recent comprehensive review of this research area calls for “understanding the extent to which informal interactions ‘follow’ from the formally designed and imposed organizational elements” (McEvily, Soda and Tortoriello 2014: 334). Formal structures alone rarely create relationships in modern organizations. One way or another, informally interacting organizational members eventually choose which relationships to establish and sustain. In turn, these relationships subsequently reshape seemingly formal structures such as work interdependencies. For example, informally connected organizational members may express preferences about team assignments and interactions. Because of this interplay between formal and informal, “disambiguating causal effects in the dynamics of relationship formation and dissolution remains an elusive goal” (Rivera, Soderstrom, and Uzzi 2010: 108).

We focus on formal work interdependence as a common impetus for the emergence of informal ties. Formal work interdependence is implemented in lasting hierarchies and temporary project teams within various organizational structures (Nahapiet and Ghoshal 1998, Wageman 1995). To the best of our knowledge, this paper is the first to assess the role that such imposed top-down interdependence plays in informal relationship formation and persistence without the
confounding bottom-up endogenous influences from employees themselves.

Our data came from a yearlong executive development program in a large Russian bank which provided an unusual research opportunity: Random assignments to classroom cohorts and high-stakes project teams served as a natural experiment in social capital creation and maintenance. Using the variation in formal work interdependence introduced by these assignments, we assess its effects on tie formation and tie persistence, which we monitored by mapping employees’ informal networks at the beginning (prior to the random assignments), during, and at the end of the executive development program.

We find that formal interdependence increases informal tie formation, and it does so to a much greater extent than socio-demographic homophily, the most studied mechanism of network emergence. Further, we find a positive effect of formal interdependence on tie persistence, which is smaller than on tie creation and decreases with the increase in tie strength. These findings are important theoretically for two reasons: First, the received wisdom in the field tends to juxtapose the mechanisms behind tie creation versus tie persistence, explaining the latter by endogeneity, such as parties’ engagement in new focused activities (Field 1981) or ongoing reevaluations of their relationships (e.g., Burt 2002; Dahlander and McFarland 2013). By contrast, we show that the formal structure has a role to play, particularly when informal ties are too weak to sustain the endogenous mechanisms. Second, while project teams are transitory, their ability to create and reproduce relationships through the inducement of formal interdependence indicates their enduring organizational consequences, which is a major theme in the growing literature on temporary organizations (for review, see Burke and Morley 2016).
Disentangling formal from informal

To understand this paper’s core contention, consider the following scenarios:

1) A software engineer is asked by the management to join a new project team with three strangers. After the engineer discovers hobbies shared with a teammate, they become friends.

Did the formal structure create this new relationship? It seems obvious that it did. Absent the imposed collaboration, the teammates might never have met, interacted, or formed mutual sympathies. And yet, even in this simple example, it is clear that the shared hobbies played a major role in forging the interpersonal bond. Thus, while the formal structure’s role in relationship formation seems clear, the outcome remains conditional on features of the informal structure, so the question of what caused the new relationship remains unresolved.

In the second scenario, the informal relationship precedes the mandate from the formal structure:

2) Two university friends practice law at different firms. When their firms join together to handle a large case, the old friends ask to be put on the team so that they can collaborate. In addition to the joint activities already being undertaken by these friends, successfully accomplishing the assignment reaffirms their friendship.

The ambiguity here is with the maintenance of the friendship rather than its origins. The formal structure obviously did not create the relationship, but did it play a role in maintaining it? If so, was this role significant? The formal structure created a great opportunity for collaboration, but the friends themselves decided to seize it. Even if they had not sought to collaborate, their relationship would have continued to prosper through other ongoing activities. Thus, we cannot
easily disentangle the formal and informal organizational structures in either tie creation or tie maintenance.

Questions about the relationship between formal and informal structure have a longer history than is often acknowledged. The earliest organizational theorists (Fayol 1949 [1919]; Weber 1978 [1922]) recognized the importance of the formal structure of explicitly mandated top-down positions, rules, tasks, goals, incentives, and work relationships. However, the notion of the informal structure, consisting of implicitly emerging bottom-up positions, norms, motives, and personal relationships, did not appear until more than a decade later with the rise of the human relations school (Barnard 1938; Roethlisberger and Dickson 1939). These scholars initially treated the informal structure as the product of the formal structure, assuming that these formal and informal arrangements would stay in alignment: “formal organizations, once established, in their turn also create informal organizations” (Barnard 1938: 123). By the 1950s, researchers began to challenge this alignment: Path-breaking case studies like Dalton’s (1959) *Men Who Manage* and Blau’s (1955) *The Dynamics of Bureaucracy* offered rich accounts of the decoupling between formal and informal relations in private and public organizations and thus posed the question of the extent to which the formal organization actually shapes the informal one.

Network analysis, which took off in the mid-20th century, offered tools to answer this question by mapping the emergent, or observed, social network and explaining its configuration by the formal hierarchy of explicitly prescribed work units and superior-subordinate relationships (Burns and Stalker 1961; Lincoln and Miller 1979; Shrader, Lincoln, and Hoffman 1989; Tichy and Fombrun 1979; Weiss and Jacobson 1955). Cross-unit interdependencies did not fit into such hierarchies and thus maintained informal status until other researchers singled
out a mandated component in them as well (Barley 1990; Brass 1981; Podolny and Baron 1997; Wageman 1995). Most recent studies of the effects of formal structures on informal networks equated the formality of ties with the formality of the membership in the underlying foci of activities, which are easier to observe empirically (Biancani, McFarland, and Dahlander 2014; Dahlander and McFarland 2013; Kleinbaum, Stuart, and Tushman 2013; Srivastava 2015; Liu, Srivastava, and Stuart 2016).

Feld (1981: 1016) defined a focus as “a social, psychological, legal, or physical entity around which activities are organized” and gave workplaces, voluntary organizations, hangouts, and families as typical examples. Explicitly established formal foci such as workplaces mandate membership, activities, and interactions. In turn, these activities and interactions produce sentiment and thus informal relationships (Homans 1950). Accordingly, the effect of the formal organization on the informal one is the extent to which two actors’ joint membership in a formal focus produces interactions and thereby establishes or sustains relationships. Note that joint membership does not necessarily imply interdependent activities. Nevertheless, doing something around the same theme, in close proximity, and at about the same time gives enough impetus to interactions. Over time, formal foci induce and reproduce informal networks.

Implementing this reformulation, researchers soon discovered that the notion of formal focus within organizations is not clear-cut. Project teams, task forces, research centers, or employees’ interest groups are defined by both formal and informal organizational mechanisms (Biancani, McFarland, and Dahlander 2014; Srivastava 2015). Biancani, McFarland, and Dahlander (2014: 1307) introduced the semiformal organization as “relationships and memberships in organizational units that are afforded, but not mandated,” in contrast to formal relationships and memberships in departments and other traditional, longer-lasting work-units.
Purely mandated organizational memberships are difficult to identify and study for two reasons. First, in most organizations, parties consent to formal roles that they play. Managers often consult their subordinates before assigning them to new collaborative relationships. Similarly, managers often think in terms of informal relationships when they first establish a formal organizational role (Miner 1987). At the recruitment stage, a manager evaluates the candidates for a formal position by multiple criteria including the candidate’s fit with future colleagues within the work unit and the organization as a whole. Likewise, candidates give consent to work for firms with some foreknowledge of a position’s relational demands and opportunities. Employees often play an active role in shaping their positions and choosing their workplace contacts (Wrzesniewski & Dutton 2001) and employees’ choice to leave jobs is informed by their assessments of colleagues and direct managers (e.g., Soltis, Agneesens, Sasovova, & Labianca 2013). A recent Gallup study found that about 50% of the 7,200 adults surveyed left a job because of a difficult relationship with the supervisor (Harter and Adkins 2015). Liu, Srivastava, and Stuart (2016) found the effect of individuals’ participation in multiple focused activities on their careers, but could not establish firmly its causality exactly because individuals could self-select into the mailing lists that represented the foci.

The second reason why purely mandated memberships are hard to find is because they are very likely to be socially embedded in preexisting relationships (Granovetter 1985). Employees rely on their interpersonal ties to enact memberships in existing foci and create new ones within the organization. Newly appointed managers bring their most helpful colleagues from the previous units in which they worked together; workers with positive experiences from previous joint assignments initiate new collaborations to maintain interactions that they enjoy. Hackman (2002: 28) suggests the high motivation of the members of a project team in
continuous collaboration as one of the key success criteria on par with meeting the project objectives and learning. Sosa (2011) shows that such motivation enhances employees’ learning from their contacts and leads to greater creativity. Building on Homans’s (1950) arguments about the overlap between task-related and affective motivations, Casciaro and Lobo (2008, 2015) show how interpersonal affect determines the parties’ intent to work together prior to mutual assessment of their competencies.

To summarize, the distinction between formal and semiformal foci looks as blurry as the distinction between formal and informal organizational structures. Because purely mandated foci are hard to identify, we still know little about how job assignments shape informal relationships. Contemporaneous unambiguous evidence comes from an experimental study (Kleinbaum 2017) but its educational setting does not translate directly into business organizations where mandated foci are often perceived to be less legitimate than voluntary workplace interactions.

To move this agenda forward, our study benefits from organizations’ current attempts to make themselves more innovative and agile, on the one hand, and to overcome functional and geographic barriers to collaboration and knowledge transfer, on the other. These motivations have legitimized managers’ right to assign employees to new, temporary units across functions and regions, thereby mandating focused activities and interdependencies.

The organizational literature distinguishes primarily between task interdependence and outcome interdependence. Two members are task interdependent to the extent that each member’s performance relies on the collaborator’s work; two members are outcome interdependent to the extent that one’s result and reward depend on the other’s performance (Wageman 1995). While technology often mandates relationships of task interdependence, studies showed that employees reshape such “hard-wired” ties (Brass 1984, Podolny and Baron
1997, Thompson 2003 [1967]). Wageman and Gordon (2005) argued that emergent, rather than prescribed, task interdependence is common in knowledge-based organizations where the managerial, institutional, and technological determinants of tasks are often ambiguous or not sufficiently specific. For this reason, formally assigning two members to the same focus of seemingly interdependent tasks does not ensure true interdependence unless the assignment presupposes interdependent outcomes, which are easier to mandate and enforce. Outcome interdependence is the kind of formal work interdependence induced in our study in order to test the hypotheses developed in the next section.

**Theory and testable hypotheses**

Our basic premise follows directly from Homans’s (1950) classical analysis of social groups. Homans identified three interrelated components: activities, interactions, and sentiments, which together constitute the externally prescribed and internally emergent systems of any human group. As employees pursue activities towards the same goal in close spatial or temporal proximity, they interact frequently within the organization’s external system. “Sentiments of liking grow up between them, and these sentiments will lead in turn to further interactions, over and above the interactions of the external system” (Homans 1950: 112). These “further interactions” belong to the emerging internal system; in our terms, they spill over into other domains unrelated to the mandated activities and thus constitute informal relationships.

Numerous studies show how workplace interactions evolve into friendships, advice ties, and other relationships that are not mandated by formal focused activities (e.g., Lincoln and Miller 1979; Sias and Cahill 1998). Dahlander and McFarland (2013) found that the joint affiliations of Stanford faculty with formal departments and semi-formal research centers as foci
of academic activities strongly increased the likelihood of new collaborations on publications and grant applications. Kleinbaum, Stuart, and Tushman (2013) found higher frequencies of email exchanges within business units, job functions, offices, and “quasi-formal” structures than across their boundaries. Notably, every one of these studies derived the formation of ties from the mere exposure of individuals to each other. Within focused activities, exposure is the mechanism producing interactions and relationships.

As we proposed above, formally interdependent activities are a particular kind of focused activity that implies formal outcome interdependence, i.e., mandates shared performance goals and rewards. Outcome interdependence often triggers disagreement, conflict, and mistrust (Casadesus-Masanell and Yoffie 2007, Davis 2016, Gimeno and Woo 1996, Lau and Murnighan 1998). Individuals’ ability to self-select into interdependencies mitigates these negative outcomes (Simmel 1950), but where managers make determinations about who will be formally interdependent with whom, self-selection is precluded. We contend that the emergence of informal relationships becomes a necessity in such situations. In a recent ethnographic study, Davis (2016) observed the ability of triads and larger groups to mitigate tensions and strengthen dyadic ties with dynamic mechanisms of collaboration. Likewise, we expect formally interdependent actors to embed their mandated interactions within informal relations that facilitate collaborative outcomes through trust and mutual understanding (Granovetter 1985, Powell 1990). Managers cannot create trust and mutual understanding by fiat, but they can place employees in situations where trust and mutual understanding serve as a solution to the problems that these situation presents. To highlight this seemingly voluntary but essentially obligatory character of emerging informal interactions, we use the term imposition for the underlying mechanism of tie formation under the condition of formal interdependence.
Hypothesis 1. Formal interdependence increases the likelihood of the emergence of an informal relationship.

The distinction between exposure and imposition has implications for homophily, another common mechanism in the emergence of new informal ties. Following previous studies, we define homophily as the matching of interaction partners on the basis of preexisting observable and unobservable similarities: socio-demographic characteristics, experiences, views, values, and so on (for review, see McPherson, Smith-Lovin and Cook, 2001; Rivera, Soderstrom and Uzzi, 2010). When exposure is at work, the homophily principle predicts who chooses whom for informal interactions, as individuals find it easier to relate to those who are similar to them (Lincoln and Miller 1979). Yet, this seemingly straightforward logic does not work under stronger pressure from the organizational structures.

Ingram and Morris (2007) found that managers who participated in a networking event did not follow the homophily principle when choosing interaction partners, and instead socialized with colleagues from their everyday work setting. The authors explained this finding by referring to the studies that show how organizational structures rather than individual choices bring similar people together (Brass 1985; Feld 1982; Ibarra 1992; Marsden 1990; Reagans 2011); since corporate mixers do not segregate people by socio-demographic or other characteristics, homophily does not emerge. This is consistent with Feld’s [1981: 1019] claim that under some conditions “…the selective effects [of social similarities] on tie formation will be overwhelmed by structural features that do focus the interaction.” Although Feld never specified what such conditions might be, imposition exemplifies the overwhelming structural features he described.

Lincoln and Miller (1979) found that homophily, specified by race and gender, is weaker for instrumental ties than for friendship ties. Marsden (1990) argued that organizational
interdependencies force informal interactions across gender, racial, and religious boundaries; observable socio-demographic homophily might be lower when “the formal organization limits the agency and opportunities of members to move across sets of intra-organizational ties” (McEvily, Soda and Tortoriello: 324). Kleinbaum, Stuart, and Tushman (2013) showed that the formal organizational structure enervates the power of socio-demographic homophily. “The discretion to select communication partners occurs within an organizationally defined choice set;” these choice sets are scale-dependent such that “employees often must interact with specific others to complete the task requirements of their jobs” within smaller organizational units whereas they may have more choices within larger groups (Kleinbaum, Stuart, and Tushman 2013: 3). Where formal interdependence imposes interaction, homophily is reduced.

Group interdependence also creates a context in which individuals begin to work together across their differences. Kalev (2009) described a process whereby interdependent work “alters the type of intergroup contact and interaction, from segregated to collaborative; these more collaborative relations weaken stereotypes and group boundaries” eventually resulting in more network inclusion. Ordanini, Rubera, and Sala (2008) showed how the project format helped overcome traditional conflicts and integrate in a purposeful way marketing and creative people. Thus, interdependence forces group members to seek mutual understanding, which forms a basis for value homophily. While a group-level mutual understanding is far from assured, it is reasonable to expect that more pairs of members are likely to forge it under interdependence than independence, when they do not need it in the first place. As new and often unobservable value homophily emerges, preexisting similarities become less important for the formation of social ties.
**Hypothesis 2.** Formal interdependence decreases the effect of preexisting similarities on the emergence of an informal relationship.

Though controlled experiments are rare, a number of studies tested various versions of our hypotheses about tie emergence with survey data. At the same time, few studies explored the effect of new foci of activities on the persistence of preexisting informal ties. This omission is difficult to explain, given the omnipresence of such ties among members of established organizations and their enduring consequences for individual and organizational performance.

The only study available hypothesized the correlation between joint membership in an organizational focus and tie persistence but did not insist on a causal effect since “the underlying mechanism is one of exposure” (Dahlander and McFarland 2013: 73). Because connected members are presumed not to need such exposure, the joint membership in a new focus should not influence tie persistence. Dahlander and McFarland’s research context partially explains this logic. They studied specialized work ties of repeated collaborations on publications and grant applications rather than general informal ties; the persistence of these collaborative ties implies repetition of the initial activities rather than spillovers into new activities. However, it is precisely the cross-contextual versatility of connections that motivates researchers’ interest in social ties. This cross-contextual versatility is the essence of social embeddedness.

Despite methodological limitations, previous studies put forth some evidence indicating that formal interdependence might have a causal effect on preexisting ties. Dahlander and McFarland (2013) reported that some formal foci, such as academic departments, did show a small positive effect on the persistence of work-related ties. The managers in Ingram and Morris’s (2007) study arrived to a formal networking event with the goal of expanding their network but ended up engaging with their preexisting ties and thus unintentionally contributing
to their persistence. This finding points to a way in which exogenously induced formal foci become venues for the endogenous reenactment of preexisting relationships: instead of spending time and effort on finding new foci themselves, individuals benefit from the opportunities as they present themselves. Foci of formal interdependence go beyond an opportunity and create a necessity to reconnect in order to smooth and resolve the tensions imposed by formal work interdependence and thus improve task performance (Jehn and Shah 1997).

**Hypothesis 3.** Formal interdependence increases tie persistence.

On average, the effect predicted by Hypothesis 3 might be low in magnitude relative to the effect of formal interdependence on tie creation. There are two reasons for this: First, preexisting relationships have other formal and informal foci for interactions; second, the parties to such relationships tend to self-select into a new focus, which is a major mechanism behind tie persistence (Rivera, Soderstrom, and Uzzi 2010). Indeed, positive mutual sentiments make individuals appreciate additional opportunities for interaction (Homans 1950) and, in particular, to seek new activity foci of mutual interest (Feld 1981). Granovetter brought this insight into the organizational context by arguing that the emergence of new formal organizations is often “the effect of internalization” of preexisting informal ties; the organization’s role “is to provide a focus for an even denser web of social relations” (Granovetter 1985: 502). Granovetter did not explicitly describe who forms new organizations by internalizing established social relations, but his insight is directly applicable to entrepreneurs who have already worked together by the time they create a new firm (cf., Ruef 2010). Indeed, it is hard to imagine that some external actor could assemble an effective entrepreneurial team and impose collaboration upon them; entrepreneurs’ own choices and actions are decisive.

The scale and scope of alternative venues should depend on tie strength. Stronger
preexisting ties are stronger exactly because of the greater amount of shared work and leisure activities that continuously inspire new ways to keep the relationship going. This is the endogenous mechanism of network maintenance explicited in previous studies (Burt 2002; Dahlander and McFarland 2013; Feld 1981; Granovetter 1985; Homans 1950; Rivera, Soderstrom, and Uzzi 2010) and discussed at length above as a departure point for our arguments. As endogeneity becomes more prominent, the relative contribution of one instance of formal task interdependence becomes less consequential.

Hypothesis 4. The effect of formal interdependence on the likelihood of informal tie persistence decreases with tie strength.

Data and method

We focus on formal organizational structures at the intersection of working and learning activities in a large Russian bank. This organization routinely brings together employees across functions and regions to form project teams that work on company-wide initiatives. One of the key contexts in which this occurs is the year-long executive development program where we collected our data from all the participants of the 2011-2012 cycle. The dual work-and-learning setting allows managers to assign employees to project teams without their consent.

The participants of the program, some of whom knew each other personally beforehand, came from the bank’s branches throughout Russia, and one of the program’s stated goals was to facilitate the production and exchange of knowledge and experiences across the bank’s functions, branches, and territories. To this end, the bank’s managers randomly divided the participants into eight classroom cohorts of 50-60 people and, within those, randomly assigned them to 64 project teams of 6-8 people, exactly 8 teams per cohort.
The classroom cohorts introduced members to each other, but members were free to pursue their own individual performance goals and rewards, and to make their own choices of partners with whom they would learn and socialize. In our terms, classroom cohorts constituted formal foci of independent activities. In contrast, the second random assignment to goal-oriented project teams within the classroom cohort induced formal interdependence. The goal of project teams was to apply the knowledge and skills learned within the program to some of the important practical challenges that the bank faced at the time, such as optimization of business processes, introduction of lean production, and innovation in products and business models. Each team’s project was sponsored and supervised by a senior manager of the bank. The best projects were presented to the bank’s board, where senior executives decided whether to implement them. The cross-functional and geographical diversity of the membership further increased the projects’ complexity and stakes.

The described two-step random assignment, to cohorts of independent activities first and to project teams second, is an unusual experimental design. Typically, some subjects are assigned to a control condition and others to an experimental condition. Our control and treatment groups are nested. All dyads are assigned to the control condition, focused independent activities. Project team dyads are also assigned to the experimental condition, focused interdependent activities. The nested assignment might have induced less interdependence in comparison with the assignment exclusively to project teams, but this is a matter of degree rather than substance. We still accomplish our goal of moving beyond previous studies, which looked at organizational foci’s network consequences without discriminating between the effect of formal interdependence and formal independence. This design should produce lower and more
conservative estimates than if dyads were assigned to un-nested interdependent and independent activities, which is important to keep in mind when interpreting the results below.

We are not aware of any other social network studies that are based on a random mandatory assignment of organizational members to work units. We believe that this is a reflection of researchers’ access to businesses rather than the state of business practice. Today’s large businesses routinely engage in experimentation and promote cross-functional and cross-regional interaction in order to learn and innovate. The fusion of everyday activities with learning legitimizes the random mandatory assignments to project teams and makes the diffusion of this practice all but unavoidable. Our study sheds light on this innovative organizational practice. As the first experiment on the impact of the formal structure on informal relations in a large business organization, it complements a contemporary study in an educational setting (Kleinbaum 2017).

The population for the analysis in this paper was determined in three steps: (1) We considered only those 469 individuals who completed the program; any reasons for dropping out of the program, such as departures from the company or family circumstances, were not related to the study outcomes. (2) We excluded 8 individuals who had missing personal data on gender, region, or stock of human capital assessed after the first face-to-face session of the program. (3) The remaining 461 individuals generated 13,527 dyads, from which we kept 11,281 with at least one party participating in each of the three stages of our network survey. In other words, 2,246 dyads were excluded because we had no information about their relational status on one or more stages. Condition (3) reduced our individual-level sample to 451 people whose descriptive
statistics are reported in Table 1. Women were a minority in this development program, representing only 38% of the population. The participants represented 20 regional branches.

**Tables 1 about here**

The talent development program consisted of three week-long face-to-face sessions held at the bank’s Moscow training center in August 2011, January 2012, and June 2012. In addition, 32 virtual sessions conducted via WebEx over the whole program cycle between August 2011 – June 2012. To collect longitudinal social capital data, we designed a network survey and repeatedly administered it prior to each face-to-face session. The participation in the survey remained stable at 77-79% throughout the three stages. While only 251 respondents, or 55.7% of the sample, participated in all three stages, the questions that were repeated across stages about the origins and longevity of the reported ties allowed us to restore a significant amount of missing information retrospectively. We explain this procedure below for specific variables of interest.

To test our arguments about the emergence and persistence of social ties under formal interdependence, we use a within-cohort dyad as a unit of analysis. As a robustness check for missing data, we compared observable characteristics for dyads with complete data to characteristics for dyads with missing data. The excluded dyads did not look different on any observable characteristics. Table 2 contains descriptive statistics for the variables of interests for the 11,281 within-cohort dyads that were included in the analysis.

**Table 2 about here**

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1 See Appendix A.
Dependent variables

On Stage 1 of our network survey, carried out in August 2011, we used name generators to map retrospectively a respondent’s advice and friendship ties. Advice and friendship name generators are conventional measures of an informal organizational structure. These name generators covered participants within a given respondent’s assigned classroom cohort in the six months leading up to the first face-to-face session of the program. Stages 2 and 3 of the survey were carried out prior to the second and third face-to-face sessions, in January 2012 and June 2012, correspondingly. These stages allowed us to trace the evolution of the cohort networks over time. The name-generating questions on all the stages were identical: “To whom did you go for advice over the previous six months?” for advice ties, and “With whom did you socialize over the previous six months?” for friendship ties.

As the descriptive statistics in Table 1 show, the average number of ties nominated by a respondent (see “Out-ties” in the table) gradually increased from 2.7 in Stage 1 to 5.3 in Stage 2, and 7.1 in Stage 3. The average number of received nominations (see “In-ties” in the table) evolved in a similar fashion with smaller averages, since both participants and non-participants could have received nominations.

The dependent variable Advice Tie is equal to 1 if at least one dyad member reported an advice tie in Stage 3 of the survey, i.e., at the end of the executive development program; members of 694 dyads or 6.2% of the sample did so. A similar number of 686 dyads or 6.1% of the sample reported friendship ties in Stage 3, and for these dyads the second dependent variable, Friendship Tie, is equal to 1. Note that the advice tie is asymmetric: advice often runs in one direction because the adviser is likely to have more knowledge and experience than the advisee. The general definition of friendship ties assumes symmetry. We assumed that a friendship tie
exists if at least one party acknowledges such a tie. This allows us to retain dyads in which the network information from one party is missing. We controlled for the existence of a missing party in all of the models below. Finally, we define a dichotomous dependent variable, Social Tie, which is equal to 1 if at least one party to the dyad reported either an advice or friendship tie in Stage 3. According to Table 2, there are 951 social ties among the participants, which is 8.4% of the sample of all the relationships within classroom cohorts.

*Independent variables*

In accordance with the specified hypotheses, we introduce five independent variables. The main one is called Formal Interdependence and is equal to 1 if the parties received a random assignment to the same project team. 1,391 dyads out of the 11,281 analyzed, or 12.3%, belonged to one of the 64 project teams and thus were coded as formally interdependent.

Following previous studies, the independent variable Same Gender is our first measure of socio-demographic homophily. 5,933 homophilous ties constitute 52.6% of the sample. Simple calculations show that this proportion is perfectly consistent with the 62:38 male/female ratio in the sample of the participants.² This is a strong indicator of the representativeness of the sample of dyads despite the attrition described above.

We treat the variable Same Region as capturing another dimension of homophily. Common regional origins become a salient shared social characteristic whenever interacting individuals discover them outside that region (cf., Reagans 2011). Russian regions are large; employees who work in Siberia could easily be sitting in offices that are hundreds of miles apart.

² Indeed, it is easy to show that the share of gender-homophilous ties in a large population is close to 1-2p(1-p), where p is the proportion of either male or female population members. This formula yields 52.9% for p=.62 in our case.
from each other. Nevertheless, when such individuals get together in Moscow, their joint regional affiliations become salient for tie formation and maintenance since they induce an emotional bond and hold out the promise of valuable professional interactions in the future. In 639 dyads, or 5.7% of our study’s population, the two parties are from the same region.

We used the grades from the exams in Economics, Finance, Statistics, and Operations administered before the second face-to-face session to construct an aggregate measure of the human capital similarity – HC Similarity - for an Ego-Alter dyad.\(^3\) Because the grading scales varied among the subjects (see Table 1), we converted the grades into z-scores. Next, we calculated the absolute value of the difference between Ego’s and Alter’s z-scores for each subject. Our measure of HC Similarity is the additive inverse of the sum of these values; the higher it is, the more similar the human capital endowment profiles of the parties to the dyad. As reported in Table 2, HC Similarity varies from -2.52 to 0.00, with a mean of -0.13 and standard deviation of 0.39.

The independent variable Prior Tie is equal to 1 if the parties to the dyad had an advice or friendship tie before the start of the program. 497 of these ties were identified in Stage 1 of the network survey before the first session in Moscow. At the same time, to collect as complete a data set as possible to maximize statistical power, we imputed the prior existence of 109 dyads from the duration of friendship or advice ties reported at the 2\(^{nd}\) and 3\(^{rd}\) stages of the survey. Thus, we identified 606 prior ties in total, which is equal to 5.4% of the sample.

To measure a preexisting tie’s strength, we use the respondents’ characterizations of their ties in terms of frequency of interactions and emotional closeness, which constitute two out of

\(^3\) Our measure is symmetric, and the Ego and Alter here are interchangeable; we use these terms to distinguish between the parties.
three components of the original definition (Granovetter 1973), as well as tie longevity. The exploratory factor analysis of these three characteristics yielded one underlying factor whose scores across the dyads were distributed normally with the mean and standard deviation equal to zero and one, accordingly. By adding the factor’s minimal value to each dyad’s score, we obtained the independent variable Tie Strength equal to 0 if the dyad did not have a preexisting tie and varied between 0 and 20 if it did. As it is shown in Table 2, the average tie strength is about 3.5.

Among the coefficients reported in Table 2, correlations with the variable Formal Interdependence allow us to assess how well the bank’s management implemented the randomization of the participants across the project teams. Under perfect randomization, Formal Interdependence should not correlate with any independent variable, which is not the case here. The statistically significant correlations of .05 and .02 with the variables Prior Tie and HC Similarity, correspondingly, are substantively very small and might be noise in the data. More troublesome are the negative correlations of -.08 with the variable Same Region on the whole sample and of -.24 with the variable Tie Strength on the subsample of prior ties. This indicates managers’ desire to eliminate the joint team membership among those participants who had worked with each other before. However, this would imply a conservative estimate of the effect of formal interdependence on tie persistence and thus would not undermine our arguments.

Control variables

Three variables control for the effects of only Ego or Alter reporting the status of the relationship in each of the three stages of the network survey. The random assignment of individuals to cohorts and project teams assuages concerns about unobserved individual variations. Cohort fixed effects control for possible interdependencies among dyads due to their common origins
within the same cohorts. By clustering standard errors within individuals and teams, we take care of the same possibilities within individuals and teams; the next section describes the statistical procedure that we use for this purpose.

**Statistical Methods**

The experimental nature of the data allowed us to test the hypotheses about formal interdependence by comparing the fractions of independent and interdependent dyads that formed new ties or maintained preexisting ones after the executive development program. To compare the effects on tie formation and tie persistence, we estimated a series of logit models with dyads as our unit of analysis for all possible dyads formed between respondents within the eight study cohorts. Since each respondent entered multiple dyads, their corresponding observations were not independent and standard errors of the model’s coefficient estimates had to be adjusted for clustering by each party to a dyad. Similar adjustments were needed for clustering induced by the formal foci: classroom cohorts and project teams. One study that we built on above (Kleinbaum, Stuart, and Tushman 2013) developed an algorithm that accommodates multiple sources of clustering by running the corresponding regression model for each of the clustering variables and combining the resulting cluster-based covariance matrices. This statistical technique was also applied by Dahlander and McFarland (2013). We used it as well, enhancing comparability between our results and those of these recent studies.

**Findings**

Figure 1 reports the basic findings from our natural experiments. For the 10,675 dyads without prior social ties, formal interdependence exerts a dramatic effect on tie formation, whichever type of tie we consider. Formally independent dyads rarely form relationships: only about 1%
did so. By contrast, approximately 26% of formally interdependent dyads form an advice tie and about 23% of the same dyads form a friendship tie. These findings offer clear support for Hypothesis 1. The right-hand panel of Figure 1 shows that the corresponding differences regarding tie persistence varies between 6-8% depending on the type of tie, which is consistent with Hypothesis 3. To the best of our knowledge, this is the first empirical evidence of a causal effect of formal interdependence on the reproduction of preexisting social ties.

**Figure 1 about here**

To explore these findings further and test the remaining hypotheses, we ran a multivariate regression analysis for Social Tie as the dependent variable. Table 3 summarizes its results for tie formation in Models 1 and 2, and for tie persistence in Models 3 and 4. The controls for the parties’ participation in the network surveys in Models 1 and 2 show that we undercount newly formed and persistent social ties in those cases where only one party takes part in Stage 3 of the survey, which is not surprising, since it is exactly the stage on which we measure the existence of a relationship. For tie persistence in Models 3 and 4, the negative and statistically significant effect of attrition in Stage 2 suggests that there might be some underreporting of preexisting ties that go dormant.

**Table 3 about here**

As another test of Hypothesis 1, Model 1 shows that formal interdependence increases the log-ratio of the probability of social interactions between previously disconnected parties by a factor of about 4.7. Model 1 also reveals the positive effect of members’ homophily by gender and region, while the effect of the endowments of human capital pertinent to the focused activities in project teams is also positive but statistically insignificant. Overall, the coefficient
estimates for the independent variables in Model 1 replicate Feld’s and others’ findings regarding observable homophily as a mechanism of social tie formation in foci of activities.

Model 2 adds the interaction terms between the variable Formal Interdependence and the variables for social similarity. The effect of the interaction with Same Region is the only one of statistical significance. Thus, Hypothesis 2 about the constraining effect of formal interdependence on social homophily is only partially supported.

In Models 3 and 4, we test the two hypotheses about tie persistence. In support of Hypothesis 3, we find that formal interdependence increases the log-ratio of the probability of tie persistence by a factor of 0.9. This is much smaller than the effect of formal interdependence on tie formation. This is not surprising. Following Feld (1981), a few researchers argued that preexisting ties persist, first and foremost, endogenously, through the parties’ mutual assessments and self-selection into repetitive and new activities (Burt 2002, Dahlander and McFarland 2013).

At the same time, as we argued in the justification for Hypothesis 4, the low average effect should vary by Tie Strength. Model 4 shows that Tie Strength has a non-trivial positive effect on the probability of tie persistence. This indicates the presence of endogenous self-reproduction and, most importantly, implies the decrease of the interdependence effect with tie strength. One can prove the latter formally by manipulating the formula for probabilities predicted by our logit model, but a graphic illustration is simpler and sufficient for our purpose. Figure 2 plots the predicted probabilities of tie persistence with their 95% confidence intervals for formally interdependent and independent dyads as a function of tie strength.

Figure 2 about here
Formally interdependent relationships of strength within the [0,5] interval are significantly more likely to persist than their independent counterparts. The magnitude of the difference in the estimated probabilities of tie persistence at the low end of tie strength is about 50%. It steadily decreases as tie strength increases to 5 and becomes statistically indistinguishable from zero afterwards. This finding gives a credible support to Hypothesis 4.\(^4\)

**Discussion and conclusions\(^5\)**

A few recent studies worked towards disentangling the roles of formal structures and personal discretion in the formation and maintenance of social relationships in work organizations (Biancani, McFarland, and Dahlander 2014; Dahlander and McFarland 2013; Kleinbaum, Stuart, and Tushman 2013). Yet, the progress has been limited in three ways. First, the relationships of interest in these studies are work-related and therefore the impact of organizational structures on them might be stronger than on informal ties. Second, organizational members give their consent to membership in the formal structures and thus exercise their individual discretion in this case as well. Third, preexisting social ties often drive employees’ choice of organization and work unit, as the vast literature on getting a job through social networks persuasively shows. Our study overcomes these limitations by focusing on friendship and advice ties, which define an organization’s informal structure, and by using a natural experiment that randomizes the positions in the formal structure of individuals and thus preexisting relationships among them.

We find that formal interdependence has a causal effect on both the creation and persistence of informal ties. The tie persistence effect, albeit relatively small on average,\(^4\) To be absolutely transparent, this finding is based on two things: the positive effect of tie strength on the probability of tie persistence and the logit specification of our model for this probability. A probit model would reproduce this finding.\(^5\) For robustness checks and limitations of our analysis, see Appendix B.
increases the likelihood of social interactions by a factor of 1.5 for weak ties and decreases gradually to zero as tie strength increases. While the finding of the tie creation effect is merely an accurate replication of prior findings in the format of a natural experiment, the effect on tie persistence sheds a new theoretical light on the interplay between emergent bottom-up and imposed top-down organizational structures. First, it attracts researchers’ attention to the reproduction of preexisting ties within new formal foci of activities, which the extant literature defines and treats as merely informal and thus endogenous. Second, previous studies proposed exposure as the only mechanism that drives the effect of new foci on social interactions. We emphasize imposition of formal relationships as a mechanism which applies to the creation of new informal ties as well as to the maintenance of existing ties.

The relatively small effect of the formal structure on tie persistence is insufficient for control over preexisting ties, but is consistent with other recent studies that stress a guiding, stabilizing, and regenerative role of the static formal structure in shaping informal intraorganizational networks; the modest effect size is exactly what allows members to learn from their experiences and improve their relational performance (e.g., Clément and Puranam 2016; Lazega, Lemercier, and Mounier 2006). Moreover, since the project team dyads in our study engage in both independent and interdependent activities, our analysis likely yielded conservative estimates of the interdependence effect’s true size.

Among the four hypotheses that we put forward, Hypothesis 2 received the least empirical support. The moderating effect of formal work interdependence on homophily was only partially supported. Neither gender nor human capital similarities decrease homophily’s effect on tie creation under interdependence; shared region is the only similarity that does so. This calls into question our theoretical treatment of the shared region exclusively as a form of
socio-demographic similarity. These doubts strengthen if we take into account the high correlation between the shared region and preexisting tie reported in Table 2, and the drastic drop in the effect of the shared region on tie persistence when the tie strength is introduced in Model 4 of Table 3. Apparently, the shared region often implies real lasting relationships and thus reveals the underlying propinquity mechanism in addition to homophily.

Overall, our results help to refine Feld’s (1981) theory of focused organization of social ties. Many recent studies cited above use focus as a basic element of the formal structure and stop there. These studies do not attempt to differentiate among foci or to identify the characteristics that make a given focus more conducive to the development of social ties. We take the first step in this direction by distinguishing between independent and interdependent foci and showing their varied propensity to create and maintain informal relationships. These are two extremes on the continuum of focus constraint, defined as the degree to which focus members are forced to interact with each other (Feld 1981: 1019). Our results show that the full range of focus constraint deserves a closer look: How do the density and other characteristics of ego-centric networks induced by foci vary with the foci’s constraints? How do an organizational network’s global characteristics, such as clustering or characteristic path length (Watts 1999) depend on the constraints of overlapping foci? These are important questions for future studies to address.

Persuaded of the benefits of social networks, today’s managers attempt to increase their organizations’ social capital through strategic top-down direction of focused activities (e.g., Baker 2000, Davis 2015, Small 2009). One popular method is to use new foci to bring together employees from different functional and geographic locations. Our study implies that this not
only creates new ties but also renews existing ones, which is an oft-ignored but useful outcome of a managerial intervention.

While using the dyad as a unit of analysis is a substantively informative way of assessing the impact of formal interventions on relational outcomes, future research on this topic should engage other levels of analysis, since managers usually intervene at the level of group, work unit, or organization as a whole. Network parameters, such as density or diameter, could be potential outcome variables in such cases.

Our analysis also contributes to the literature on organizational project teams, which traditionally has treated teams as endogeneous to employee-shaped interdependencies: Teams are embedded in a “dense fabric of lasting ties and networks that provide key resources of expertise, reputation and legitimization” (Grabher 2004: 104). Reagans, Zuckerman, and McEvily (2004) showed the advantages of using network criteria rather than socio-demographic variables in the formation of project teams. The underlying intraorganizational network in their study took shape as a byproduct of employees’ joint participation in prior projects. This participation usually required related knowledge and expertise and helped to assure employees’ consent to the new assignment. It is also likely that some colleagues’ joint participation in a new project reflected their satisfaction with their peers’ performance on previous projects. Likewise, Sosa and Marle (2013) proposed that managers explicitly take into account the history of prior interactions when putting together creative teams. Kozlowski and Ilgen (2006) emphasized that teams are an emerging phenomenon that develops as members interact over time.

The outcome of our natural experiment shows that project teams not only benefit from preexisting intraorganizational networks but also bring benefits to them by inducing new ties and, most importantly, reviving existing ones. These benefits occur despite the random top-down
assignment to project teams in the experiment. Though the actual implementation of the assignment appears to depart from randomness, it does so in the direction away from preexisting similarities and relationships, and thus yields conservative estimates of the propensity of formal work interdependence to create and reproduce social capital. This capacity of short-lived project teams to support lasting relationships gives additional impetus to the current growing interest in temporary organizations. Studies of temporary organizations evolved somewhat independently from the literature on social networks and have tended to give more credence to formal, role-driven coordination mechanisms relative to relational ones (for review, see Burke and Morle 2016).

That said, one qualitative study of project teams as temporary organizations referred to projects as "focusing devices" that overcome disagreements and conflicts by synchronizing the activities of experts in diverse fields and promoting joint decision-making (Ordanini, Rubera, and Sala 2008: 18). This explicit and unintended linking of the temporary organizations literature with the theory of focused organization of social ties points to a very promising agenda for future research. We plan to examine the intersection of temporary organizations and organizational networks by exploring more closely the tradeoffs between formal and informal team formation, the productive life cycle of project teams, the impact of time pressure, team conflict, and other factors on the effectiveness of formal versus informal coordination mechanisms. Project teams and processes are pushed to the forefront of organizational and managerial innovation in the wake of management’s pursuit of agility, leading to the proliferation of holacratic, teal, and other innovative organizational forms (Bernstein et. al. 2016) and blurring the boundary between temporary and permanent organizations. This presents opportunities for cross-fertilization between the studies of the two, and directs researchers’ attention to the scale, scope, and
nestedness of formal interdependent activities from small short-lived project teams to large permanent organizations as determinants of both economic performance and social networks.

The natural experiment in this paper also makes methodological contributions. First, it takes place in a work organization and includes managers, which is rare in the literature on intraorganizational networks. Second, it imposes a real organizational structure that is mandatory, unlike any formal structures in previous studies. While mandatory assignments to project teams are still rare, we believe that it is a quickly diffusing practice facilitated by companies’ growing interest in the fusion of everyday business activities with learning and experimentation. Third, the randomization of the assignments to cohorts prior to project teams minimizes the possibility of individuals’ endogenous selection into formally independent focused activities and thus establishes a proper baseline for assessing the effects of interdependent ones.

The paper puts into new perspective semiformal organizational foci that, in contrast to formal foci, afford social interactions rather than mandate them (Biancani, McFarland, and Dahlander 2014). Our conceptual discussion shows that even mandated focused interactions are implicitly chosen if members join the focus voluntarily and thus give their implicit consent to the prescribed task interdependence. The consent might become explicit, for example, when a job seeker joins an organization through his or her social network or when an employee leaves an organization because of a dysfunctional relationship with a supervisor. Thus, seemingly formal foci suddenly exhibit semiformal characteristics. Our study demonstrates that the opposite is also possible: Project teams are often listed among semiformal structures (e.g., Biancani, McFarland, and Dahlander 2014; Srivastava 2015) but these teams are formal in our setting because their membership is mandated. The root cause of these inconsistencies lies in treating semiformality as another category somewhere along the formal – informal continuum. Instead, we need to
capitalize on the whole continuum by observing variation in the degree to which the foci of interest mandate membership and interaction.

Finally, our results invite us to take a fresh look at the familiar problem of embeddedness (Granovetter 1985). Uzzi’s (1996, 1997) theoretical and empirical elaborations cast this problem as a causal effect of an actor’s social network on the same actor’s individual economic action. Interdependent economic actions are social by Weber’s definition: they are necessarily directed towards others (Weber 1978[1922]) and, moreover, create and maintain social relationships. To understand whether embeddedness operates in a given setting, it is not enough to show that a social network has a positive effect on an economic action. One needs to show that the social network persists as a result of the economic action. If a social network weakens or dissolves through focused activities, the activities may not have been embedded in the network relationships at all. Embeddedness must be assessed by both social and economic outcomes, as the emerging literature on the reproduction of social networks in organizations is now beginning to indicate.

References


between formal organization and informal social structure.” *Academy of Management Annals*, 8(1), 299–345.


36


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Table 2. Descriptive Statistics for Symmetric Dyads
11,281 within-cohort dyads among the managers enrolled in a yearlong executive development program

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<th>3</th>
<th>4</th>
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<td>0.01</td>
<td>1.00</td>
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<td>4 Same Region</td>
<td>639</td>
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<td>0.29*</td>
<td>-0.08*</td>
<td>-0.02*</td>
<td>1.00</td>
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<td>5 Prior Tie</td>
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<th>Std. Dev.</th>
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<th>Max</th>
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<td>3.46</td>
<td>2.56</td>
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¹ All the statistics for this variable are calculated on the sample of the 606 prior ties.
* p<0.05 significance level
Table 3. Logit Models for the Likelihood of a Social Tie Formation and Persistence
451 managers randomly assigned to 8 cohorts and 64 project teams

<table>
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<tr>
<th>Independent variables</th>
<th>Tie Formation</th>
<th>Tie Persistence</th>
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<tr>
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<td>Model 1</td>
<td>Model 2</td>
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<td>Same Gender</td>
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<td>HC Similarity</td>
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<td>Same Region</td>
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<td>Formal Interdependence</td>
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<td>Interdepend. * HC Sim.</td>
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<td>0.309</td>
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<tr>
<td>Interdepend. * Region</td>
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<td>0.934</td>
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<td>Tie Strength</td>
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<tr>
<td>Only one party on Stage1</td>
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<tr>
<td>Only one party on Stage2</td>
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<tr>
<td>Only one party on Stage3</td>
<td>-1.066***</td>
<td>0.207</td>
</tr>
<tr>
<td>Constant</td>
<td>-4.665***</td>
<td>0.339</td>
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| Cohort fixed-effects  | Yes           | Yes            | Yes           | Yes           |
| LL-Ratio chi2 (df)    | 1,789 (14)    | 1,798 (17)     | 92 (14)       | 151 (15)      |
| Sample size           | 10,675        | 606            |

Notes: 1. The standard errors are multi-way cluster robust (see the Statistical Methods section for details)
2. *** p<0.01, ** p<0.05, * p<0.1 (two-tailed test)
Figure 1. The Effect of Task Interdependence on Tie Formation and Persistence
10,656 Dyads without Prior Tie; 606 Dyads with Prior Tie

Tie Formation

Task-Independent: 0.01173, 0.07881, 0.0681
Task-Interdependent: 0.363352, 0.262334, 0.234926

Tie Persistence

Task-Independent: 0.621551, 0.46748, 0.52439
Task-Interdependent: 0.666667, 0.5, 0.561404

Graphs by SocialPrior

Figure 2. Tie Persistence as a Function of Tie Strength

Probability of Tie Persistence

0 0.4 0.6 0.8 1

0 5 10 15 20

Tie Strength

Task Interdependence
Task Independence
95% confidence interval
Appendix A

Table. The Distribution of the Sample by Region
451 managers enrolled in a yearlong educational program in a major Russian retail bank

<table>
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Appendix B: Robustness Checks and Limitations

Our analysis rests on a few critical features of the research design that could influence our results and therefore require robustness checks.

First, we included in the analysis any dyad within which at least one party participated in each stage of the network survey. This allowed us to minimize attrition but could introduce biases in coefficient estimates. In addition to the control variables for dyads with missing network data that we used in all the models, we reproduced the same analysis with only those dyads in which both parties participated in all the stages of the survey. This reduced our sample to 251 individuals and 3,860 dyads but did not change any of our results.

Second, we accepted a broad definition of tie as any dyad within which at least one party reported the relevant interactions (friendship or advice), which is consistent with keeping a dyad in the sample even though one of the parties did not participate in the network survey at some stage. With the small sample described in the previous paragraph, we reproduced the analysis under a narrow definition of tie as a dyad within which both parties reported the relevant interaction. Overall, 273 such narrowly defined social ties were registered at the end of the executive development program, which constitutes 7.7% of the small sample and thus is about equal to the share of reproduced ties in the large sample. Our findings remained essentially intact but the Same Gender effects lost statistical significance.

Although it would be theoretically interesting to survey the participants about their cross-cohort relationships, such a survey would be extremely time-consuming and would yield a much lower response rate. Using electronic data, such as emails or intranet interactions, would remove that obstacle but would make it more difficult to infer truly social ties for which an offline component is essential in an intraorganizational setting. Our theory implies a stronger role of homophily and preexisting ties between participants from different cohorts simply because
learning activities across the cohorts were formally independent. As the possibilities for unobtrusive collection of longitudinal data on intraorganizational interactions increase both on and offline (Waber 2013), we are researching opportunities to replicate our study on a comparably large scale without submitting respondents to an exhaustive network survey.

Our data were collected in one organization in Russia, and therefore it is appropriate to ask about the extent in which our findings capture some specificity of the Russian context. For example, Kharkhordin (2011) argued that the Russian public discourse was extremely underdeveloped after the collapse of the state socialist system. Essentially, post-Soviet individuals had one language for talking to family and friends and another for talking to bosses and subordinates. Imposed horizontal interactions within organizational or professional settings would quickly transform any tension into an interpersonal conflict. We can only speculate if this is another reason why preexisting ties are not more persistent under formal interdependence in our study context. Studies in other cultural contexts and, in particular, in multinational companies, would help shed light on this issue and specify scope conditions for our arguments.