THE RIPPLE EFFECT OF SCHEDULE CONTROL:

A SOCIAL NETWORK APPROACH

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Kristie Lynne McAlpine

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ABSTRACT

I propose a model of schedule control that investigates the potential ripple effects of the schedule control of an individual's direct ties and peers on his or her individual outcomes across two networks. Drawing on relative deprivation theory, I argue that individuals with relatively less schedule control than their direct ties and peers will be less satisfied and less committed to their organization. Data from a Midwestern manufacturing firm were used to test the hypotheses, drawing on social network methods to provide a fine-grained measurement of an individual's social contacts. The results indicate that higher schedule control among peers in an individual's job network is significantly negatively associated with an individual's job satisfaction and organizational commitment. Results are discussed in terms of their theoretical and practical significance for understanding the socialized aspects of schedule control.

BIOGRAPHICAL SKETCH

Kristie McAlpine received her Bachelor of Arts in Psychology, with a minor in Spanish Language and Literature and a concentration in Women's Studies, from Kalamazoo College in Kalamazoo, Michigan. She graduated Magna Cum Laude, with honors in Psychology, and was one of three students to receive honors on her thesis, entitled "Women and Leadership: A Qualitative Analysis of Female CEOs of *Fortune* 500 Companies." From there, Kristie went on to earn a Master's degree in Human Resources and Labor Relations from Michigan State University in East Lansing, Michigan. After graduating in 2011, she enrolled in the MS/PhD program in Human Resources at Cornell University's ILR school, seeking to continue researching in the fields of Human Resources and Organizational Behavior. Her research interests center on the work-family interface, or the boundary between the home and work domains. She is interested in better understanding how individuals manage these multiple roles and, in particular, the role that organizations play in this management, through things like formal and informal human resource policies and practices, such as flexible work arrangements.

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Introduction

Employee control over working time refers to “the ability of individual workers to increase or decrease their working hours and to alter their schedule" (Berg, Appelbaum, Bailey, & Kalleberg, 2004, p. 331-2). Researchers studying the role of flexibility (i.e. flexible work arrangements such as flextime, teleworking, etc.) in organizations posit that schedule control is a key mechanism through which flexibility affects important outcomes for individuals and firms, such as work-family conflict, job satisfaction, and organizational commitment. Flexible work arrangements yielding schedule control can be accessed through (e.g. Eaton, 2003; Hornung, Rousseau, & Glaser, 2008; Kelly & Moen, 2007). Despite progress in the study of schedule control, important questions persist.

One question regards the level of analysis of studies examining schedule control. The majority of research has focused on the individual level of analysis, considering individuals' flexible work arrangements and associated individual outcomes. For example, a worker who has control over his or her starting and stopping times is likely to be more satisfied with his or her job and less likely to leave the firm than a worker without such control. However, what effect does this worker's schedule control have on others around him or her? Is one worker's schedule control exclusively related to his or her own outcomes or does it also have an impact on the outcomes of his or her social contacts? The impact of schedule control beyond the individual is not well understood, and few datasets exist which can address this question.

Answers to this question can be found by examining the role of schedule control of an individual’s social contacts on his or her schedule control. Much is known about individual-level schedule control and outcomes, but little is known about whether the schedule control of an individual’s social contacts has an impact on his or her own outcomes. In this paper, I posit that

the workplace context in which individuals are embedded is an important component that shapes outcomes beyond an individual's own schedule control, and I propose that a social network perspective is a valuable approach to generate insight into the inter-individual effects of schedule control, as it empirically accounts for the relationships among workers in tests of social influence.

In an effort to shed light on the complexities of schedule control in organizations, I seek to provide the first empirical test of the role of social networks in the relationship between schedule control and two important organizational outcomes: job satisfaction and organizational commitment. Through this novel approach, I augment the typical focus on the individual level of analysis by considering whether an individual is affected by the schedule control of others to whom he or she is exposed. By considering effects beyond the individual level, I aim to contribute to research incorporating the role of context in organizational behavior by focusing on the impact of the social environment in which individuals are embedded (Johns, 2006).

The rationale for an investigation of the schedule control's ripple effects on coworkers invokes several of psychological and sociological approaches to organizational behavior, including social information processing (Salancik & Pfeffer, 1978) and relative deprivation (Stouffer, 1962). Further, it draws on social network theory concepts of structural cohesion and equivalence (Marsden & Friedkin, 1993). In a network effects model, the impact of workers' schedule control is viewed as far-reaching and dependent on the social context in which they are embedded. The extent to which workers are satisfied with their jobs and committed to their organizations will reflect socialized attitudes, in the sense that individual attitudes are not shaped in a vacuum, but rather reflect the thinking, behavior, and attitudes of other individuals to whom they are exposed in their workplace.

Theoretical Background

A network effects model tests whether individuals in a network are affected by the characteristics of their social relations (Marsden & Friedkin, 1993). The foundation of this approach rests on the assumption that individual outcomes are not only affected by individual-level attitudes and behaviors, but also the attitudes and behaviors of others in their social context. Individuals tend to look to their social context for cues that help them interpret their work environment and to re-interpret their own resources and needs (Salancik & Pfeffer, 1978). As such, social influence processes are likely to shape network effects, such as relative deprivation (Stouffer et al., 1949).

In the context of schedule control, the assumption is that individuals are aware of whether their friends and colleagues have control over their work schedules. The knowledge of others' work schedules serves as an important reference point to draw on when evaluating the quality of their own situation. The question is: does a person's schedule control affect more than just his or her own job satisfaction and organizational commitment? In other words, is there a ripple effect? If network effects are indeed at work, we would expect that an individual's job satisfaction and organizational commitment will be affected by not just his or her own schedule control, but also the schedule control of his or her social contacts.

Although job satisfaction and organizational commitment are the most commonly investigated outcomes in the workplace flexibility literature (Lyness et al., 2012), there have been few social network studies investigating organizational commitment and, in particular, job satisfaction in organizations (Brass, 2011). Baltes, Briggs, & Huff (1999) find in their meta-analysis that flexibility is positively related to job satisfaction and productivity, and negatively related to absenteeism. Other scholars (e.g. Ng et al., 2006) have established a strong, positive

link between schedule flexibility and organizational commitment. In this paper, I examine the network effects of schedule control on job satisfaction and organizational commitment. Both job satisfaction and organizational commitment are attitudes that employees hold about their job and their organization, respectively. Employees who are satisfied with their job and who feel psychologically attached to their organizations are better performers and remain with their organizations longer (Judge, Bono, & Patton, 2001; Mathieu & Zajac, 1990). In order to provide a more robust examination of the ripple effect of schedule control across more than one dependent variable, I investigate the pattern of relationships between the network effects of schedule control and two organizational outcomes that have been previously linked to the schedule control of individuals.

Schedule Control in Context

A typical individual-level approach to schedule control examines the effects of an individual's use of flexible work options or perceived schedule control on his or her own work outcomes. These approaches have been useful for identifying a positive link between schedule control and positive outcomes like job satisfaction and organizational commitment, yet they do not capture the reality that workers are embedded in an environment with coworkers to whom they compare themselves. The social information processing model (Salancik & Pfeffer, 1978) suggests that worker attitudes are shaped by information gathered from their surroundings. Salancik and Pfeffer argue that there are four main avenues through which social information effects operate: 1) through direct statements from coworkers, 2) through directing an individual's attention to aspects of the environment, 3) through the interpretation of environmental cues, and 4) by influencing a person's interpretation of their needs. In general, they argue that the

environment in which a worker is situated plays a critical role in influencing his or her attitudes and behaviors.

Applying this model to the study of schedule control offers a number of insights that are useful for understanding the ripple effect of schedule control. First, it makes salient that workers are embedded in an environment in which they are exposed to others' work arrangements in addition to their own. Second, it outlines multiple ways in which workers may receive information from their surroundings. In order to understand and interpret their work environment, workers observe things like the structure of each other's jobs, including the times when coworkers arrive to and leave the workplace. Perhaps this occurs when they observe a coworker enter the workplace and begin his or her job later than the typical start time or when a worker notices that his or her friend has "punched out" earlier than the specified stop time. In addition to observing work structure, workers may directly communicate about their schedules to their friends or colleagues. For example, a worker may discuss with his or her friend that s/he will be leaving work early on a particular day in order to take a child to the doctor's office or to meet a repairperson at home. Or, a worker may mention that s/he will be coming in later to work on a particular day to a colleague while they are discussing a plan to carry out work-related tasks.

Regardless of the way in which workers receive information about the schedules of others in their workplace, they are able to interpret these cues to mean that some individuals have control over their schedules while others may not. In turn, this information is useful for workers to understand both the way work hours are structured in their environment and also to provide important frames of reference for interpreting their own work arrangement. For instance, workers may compare their work arrangement with that of their coworkers and find that it alters their perceptions of their own work schedule in ways that affect their job attitudes. Witnessing a

colleague come in early to work, for example, may make an individual think twice about his or her own work schedule and place differential value on it.

While the social information processing model outlines how workers are aware of and possibly influenced by the schedule control of other's in their work environment, relative deprivation theory (Stouffer et al., 1949) offers important insights about how workers might then react to the environmental cues they are exposed to. Stemming from foundational work by Stouffer, Merton, and colleagues (Stouffer et al., 1949; Stouffer, 1962; Merton 1957), sociologists have advanced the idea that individuals interpret their own resources through comparisons with others. They argue that people are less affected by their own *absolute* levels of resources or opportunities but rather the *relative* amount that they have in comparison to others. Individuals who have fewer resources or opportunities than others will experience negative outcomes due to the experience of deprivation relative to others. Burt (2010) refers to this notion of one's socially influenced perceptions of their own reality as "bent preferences."

Based on relative deprivation theory, the reactions that individuals have to the information they receive from others in their environment are based on how well their resources fare in comparison to others. In other words, it is not just whether an individual has control over his or her schedule that drives his or her job satisfaction or commitment to the organization, but rather whether those to whom s/he is connected have it too. Relative deprivation would predict that regardless of whether an individual has schedule control or not, s/he will experience negative outcomes when more of his or her social contacts have schedule control. On one hand, for individuals without schedule control, relative deprivation would predict that they would feel increasingly less satisfied with their jobs and less committed to their organizations the more that their social contacts have schedule control. Suddenly, not having a resource that others in the

work environment have is likely to lead to more negative outcomes than would otherwise be the case if no one had schedule control. On the other hand, individuals who have schedule control are likely to feel that the higher job satisfaction and organizational commitment they enjoyed due to their schedule control will *decrease* the more that their social contacts have control over their own schedules. In essence, no longer is the ability to control one's schedule a valued resource; if everyone has it, it becomes the baseline. In other words, individuals in the first case experience increased dissatisfaction while those in the second experience decreased satisfaction[1]. In sum, this suggests that when an individual's social contacts have more schedule control than s/he does, s/he will report lower job satisfaction and organizational commitment.

Multiple Frames of Reference: Direct Contacts and Organizational Peers

In describing the theoretical underpinnings of the ripple effect of schedule control, I have referred to others in an individual's environment as his or her "social contacts," "friends," or "colleagues." The advantage of using a social network approach is the ability to separate the effects of different social contacts in an individual's environment. Rather than assuming that everyone in the social environment affects an individual equally, social network approaches enable us to examine the relative effects of different social contacts by explicitly measuring different networks of people in an individual's environment. Marsden & Friedkin (1993) outline two empirically distinct methods for defining relevant social contacts and for measuring the effect of their influence: (1) *structural cohesion* and (2) *structural equivalence*, both of which I outline in more detail in the following paragraphs. In an effort to explore a range of potential frames of reference for individuals, I draw on both methods to define relevant groups of social contacts that have the propensity to affect an individual's job satisfaction and organizational

[1] In this paper I consider satisfaction and dissatisfaction to be two ends of the spectrum of one construct rather than two orthogonal dimensions

commitment. I will use the term "direct contacts" to refer to structural cohesion and the term "organizational peers" to refer to structural equivalence effects.

The structural cohesion method for measuring influence focuses on the direct connections among individuals. An individual may have many different types of direct connections with others, ranging from those whom they rely on for information or resources for their jobs to those whom they consider close friends. The underlying assumption of cohesion is that by being in communication with others, individuals will make sense of objects, people, and behaviors differently than they would on their own (Burt, 2010). In extant studies of social influence, cohesion has often been used to examine contagion, with scholars arguing that the more individuals are exposed to others' attitudes and behaviors, the more likely that they will exhibit the similar attitudes and behaviors (Leenders, 2002). For example, an individual whose social contacts are satisfied with their jobs will, in turn, be more satisfied with his or her job. In contrast, rather than capturing a direct contagion of attitudes across a network, I am interested in drawing on an individual's direct contacts as an influential frame of reference that shapes how individuals interpret their schedule control. An individual's direct ties are assumed to be those with whom the individual communicates with most in the environment, making them a particularly salient source of information from which they can draw comparisons regarding their work structure. The more that an individual's direct ties have the ability to control their schedules, the less of a valued resource schedule control becomes to those who have it and the worse off individuals who do not have schedule control are in comparison to others to whom they are tied. Accordingly, I posit that the schedule control of others to whom an individual is directly tied is negatively associated with his or her job satisfaction and organizational commitment:

Hypothesis 1a: Direct contact effects. The schedule control of an individual's direct ties is significantly negatively associated with that individual's *job satisfaction*, controlling for his or her own schedule control.

Hypothesis 1b: Direct contact effects. The schedule control of an individual's direct ties is significantly negatively associated with that individual's *organizational commitment*, controlling for his or her own schedule control.

In contrast to the structural cohesion approach, the structural equivalence approach is focused on examining the influence of others who are structurally similar. The key distinction of this approach is that it is not concerned with direct ties to others, but rather in drawing comparisons to others who are similarly situated in the network. For example, two perfectly structurally equivalent individuals would share identical ties, and lack of ties, with the same people and are assumed to have similar experiences or opportunities (Burt, 2010). In other words, these two individuals could replace one another in the network of relationships. Consequently, if networks influence outcomes, two individuals in the network who are structurally equivalent should have the same network-related outcomes, regardless of whether the two equivalent individuals are directly tied. In reality, it is rare for any two individuals in a network to be *perfectly* structurally equivalent; instead, structural equivalence is better understood as the degree to which two individuals share the same ties (and lack of ties) with others in the network (Burt, 1976). Thus, the closer that individuals are to perfect equivalence, the more strongly they can be considered "organizational peers" in the network. I argue that, in addition to their direct ties, individuals draw on comparisons of structurally equivalent others to form attitudes about their own relative ability to arrive to and leave the workplace. Although individuals need not be directly tied to equivalent others, they should theoretically experience similar opportunities and resources as their peers, making them a particularly relevant

comparison group. Again, I posit that the schedule control of an individual's structurally equivalent peers will be negatively associated with his or her job satisfaction and organizational commitment:

> Hypothesis 2a: Organizational peer effects. The schedule control of structurally equivalent others in the network is significantly negatively associated with the individual's *job satisfaction* when controlling for his or her own schedule control.
>
> Hypothesis 2b: Organizational peer effects. The schedule control of structurally equivalent others in the network is significantly negatively associated with the individual's *organizational commitment* when controlling for his or her own schedule control.

Finally, in addition to investigating multiple forms of influence (cohesion and equivalence), I also seek to explore different types of relationships among individuals, namely differences between an individual's job network and social network. Researchers studying social networks in organizations have long recognized distinctions among different types of relationships. For example, Ibarra (1992) noted differences between instrumental job ties and social support or friendship ties among men and women in an advertising firm, finding that they resulted in differential returns. In addition, Brass (1984) found differences between friendship and workflow networks and their impact on perceptions of influence and rates of promotion. Given the lack of extant literature on the socialized effects of schedule control, we have little theory to draw on to explain why there might be differences across the two different types of networks in this case. In an effort to be inclusive in my exploration of the ripple of effects of schedule control, I investigate these effects across both a job network and a social network within the same organization. My aim is to provide the first empirical test of these effects in multiple contexts rather than to provide an *a priori* hypothesis about the differences between the two distinct types of ties on both outcomes variables.

Methods

Sample

The current study draws on a full network dataset used in previously published studies (Fernandez, 1994; Fernandez, 2001; Fernandez, 2008). The sample consists of 337 workers employed at a food processing manufacturing facility located in the Midwestern United States. Data were collected through close-ended face-to-face interviews with workers, who were paid $15 for their participation in the study. Interviews with 279 workers were completed, yielding a 83% response rate.

On average, employees were 39 years old (SD = 10.3 years) and 63% were male. Approximately 64% were White, 25% were Black or African American, and the remaining percentage consisted of Native American, Hispanic, or "other." Workers had been employed by the firm for an average of 9 years (SD = 7.7) and worked an average of 43 hours (SD = 5.3) a week.

Measures

I introduce the variables used in this study in the following section, beginning with the measurement of individual schedule control and the network effects of schedule control. Rather than focusing primarily on explaining variance in the dependent variables, I seek to examine the relative versus absolute effects of schedule control among workers at the firm. Thus, the main variables in the study are the four network variables that examine the ripple effects of schedule control.

Schedule control.

The data used for the focal individual variable of interest, schedule control, was based on a one-item measure asking participants to indicate the level of control they have in setting their

work schedules: "can you decide when to come to work and when to leave, either officially or unofficially?" This measure is consistent with past work examining control over work schedules (Lyness, Gornick, Stone, & Grotto, 2012). Participants answered 1 for "yes" or 0 for "no." Responses were then reverse coded for ease of interpretation, with higher values indicating control over one's schedule.

Ripple effects of schedule control.

An advantage of this study is that it employs full network data, with data from every single member of the firm used to construct the network, rather than egocentric data, which draws on a single person's responses to construct the network. Full network data allows us to capture structure properties of the social network, which are necessary for conducting tests of the two hypothesized measures of social influence.

Participants completed two questions that were used to construct the two social networks analyzed. For the *job network* (Figure 1), workers provided responses to the following question: "who have you helped learn new job skills and who has helped you learn new job skills?" The workers named by each respondent received a "1." All other respondents received a "0." Ties in the job network represent workers who depend on each other, or are tied to one another, through their job responsibilities at the firm. This measure of job ties is advantageous in that it allows us to capture both formal and informal job ties between workers. Workers who help one another on the plant floor are captured in this network, as well as those who are formally connected through the structure of their jobs. For the *social network* (Figure 2), or friendship network, workers responded to the question "Who are your close friends in the plant?" Consistent with the job network, workers identified as a close friend received a "1," while unnamed workers received a

"0." In contrast to the job network, the social network represents informal connections among workers that are *not* necessarily task related.

In the following analyses, I have chosen to construct the two networks using the intersection of these responses, such that if at least one individual reports a tie between him or herself and another worker, the two are considered connected. The final result consisted of two row-normalized (i.e. each row of ties was divided by the total number of ties in that row to standardize) adjacency matrices with diagonals of zeroes, indicating that a worker cannot be connected to him or herself. Of over 113,000 possible ties among the 337 members of each network, the job network consists of 2,059 ties present among individuals, whereas the social network is comprised of 997 ties. Thus, the density (or number of ties present divided by total possible ties) of the job network was 1.7% and the density of the social network was less than 1%. The average size of individuals' job networks was 12 people, with considerable variation among individuals (SD = 10). In contrast, the average size of individuals' social networks was 6 people, with similarly high variation among networks (SD = 5). Finally, the social network included a total of 36 isolates, or people with no ties to anyone else in the network, whereas the job network had just one isolate. Isolates were excluded from the analyses since they do not provide a test of network effects of schedule control. Visual representations of these networks can be found in the sociograms presented in Figures 1 and 2 in Appendix A.

The network variables used to represent the two social influence effects, cohesion and equivalence, were constructed using both of the job and social networks. Cohesion is represented by multiplying the vector of individual schedule control values by the adjacency matrices specified above. The result of this calculation is a value that represents the average schedule control of an individual's social contacts.

Equivalence is represented by the weighted average of the schedule control scores of an individual's ties, with the weight based on the degree to which individuals hold similar positions in the network. Conceptually, equivalence can be understood by invoking the notion of distance, with two individuals being closer together when they are more structurally equivalent. Mathematically, this is captured using Euclidean distance (Wasserman & Faust, 1994). Thus, the network parameters included in the hypothesized models represent the weighted average of schedule control based on a person's direct ties (cohesion) or their structurally similar peers (equivalence).

Dependent variables.

The first dependent variable of interest was job satisfaction, which was measured by a composite index of items included in the original survey administered by Fernandez (1994). While a one-item measure asked respondents directly to rate their job satisfaction ("all in all, how satisfied would you say you are with your job"), I opted to create a composite scale with other theoretically relevant items in order to bolster the validity of the scale. First, I identified items representing job satisfaction that have been included in the most widely-used measures of job satisfaction (e.g. the MSQ; Minnesota Satisfaction Questionnaire), such as those measuring both extrinsic (i.e. pay, promotions) and intrinsically satisfying aspects of the job (i.e. the ability to learn and to apply skills and abilities on the job). A total of 15 items were identified, including the one-item measure of job satisfaction. Sample items include: "the chances of promotion are good on my job," "my job does not let me use my skills and knowledge" (reverse coded), and "my job makes me keep learning new things." This set of items showed high intercorrelations, as well as a sound single-factor structure that was indicated by a principle factor analysis. Of the 15 items, 11 items were taken from a measure of job characteristics,

which were then collapsed into a scale and included with 4 single items to create the final scale. Because the single items were measured using scales that ranged from 1-4 and the job characteristics items used scales that ranged from 1-5, items were first standardized within scale to ensure meaningful comparisons. Overall, the 5 components consisting of 15 standardized items were combined into one scale with a Cronbach's alpha of .83, which exceeds the accepted cut-off criteria for reliability (Cortina, 1993).

The second dependent variable, organizational commitment, was measured by 7 items asking employees to report their level of connection and loyalty to the firm. Sample items include: "I feel very little loyalty to [the company]" (reverse coded), "I am proud to be working for [the company]," and "I really care about the future of [the company]." The items closely correspond to the widely-used affective commitment sub-dimension of the Allen and Meyer (1990) organizational commitment measure. All seven items loaded onto one factor in a principle factor analysis and showed a high alpha reliability of .81.

Control variables.

In addition to controlling for individual schedule control, I also include several other control variables. To control for possible differences in network contacts and position, I include sex (1 = female; 0 = male), race (1 = white; 0 = non-white), and age in my analyses. In addition, I include job position to capture whether workers are hourly (0) or salaried (1). The nature of hourly manufacturing jobs is often quite different from salaried jobs, such that the general job design is more structured and potentially allows for much less schedule control. Finally, I include a continuous variable to capture the potential effect of tenure or seniority on access to schedule control, with higher values indicating that individuals had been working for the organization longer.

Overall, the advantages of this data are threefold: the existence of data on the full network of workers, access to multiple dependent variables, and an individual measure of worker schedule control. In order to calculate structural effects like equivalence, full network data, rather than data on one network reported by a single individual (known as "egocentric" data) is needed. In this dataset, I have access to two full networks, the job and social network, as well as a very high response rate from each individual regarding his or her job characteristics and attitudes. In addition, I am able to test network effects across two dependent variables, job satisfaction and organizational commitment. Finally, I have a measure of the focal variable in these analyses, schedule control, from almost all workers. Despite its advantages, several limitations to the dataset bear mention, particularly regarding the measurement of key variables. Since the data was collected a number of years ago, the dataset lacks current, widely-used scales measuring job satisfaction and organizational commitment. Likewise, because the dataset was collected by another researcher without the intent to do an in-depth study of schedule control, the schedule control variable is low resolution; it does not capture variation in schedule control beyond a binary measure, nor schedule control beyond starting and stopping times. Yet, despite these limitations, the notable strengths of the dataset enable me to conduct the first analysis of the network effects of schedule control.

Analytic Strategy

I tested the outlined hypotheses with a sample of workers employed at a manufacturing facility. While their work hours are quite structured in this context, we do observe variation in control over schedules among workers, such that some workers are able to decide when they come into and leave work. If network influence processes are observed, then we would expect to see that social network parameters explain variance in job satisfaction and organizational

commitment above and beyond that which is explained by the individual-level schedule control variable. That is, we would expect to find both an individual and structural component of the effect of schedule control on job satisfaction and organizational commitment. Theoretically, this would imply that researchers are missing an important predictor when examining flexibility phenomena in organizations by focusing solely on the individual level.

To test each hypothesis, I draw on a network effects model, which allows me to overcome the independence assumption associated with regression analysis. In network analyses, two individuals are, by definition, connected to one another which makes their responses non-independent. Thus, scholars modeling network influences have drawn on models that account for each observation, or tie, being reported by each member of the tie. The network effects model is useful for capturing both structural and individual influences in the same model (Leenders, 2002; Marsden & Friedkin, 1993).

$$(1)\quad Y = \mu + \alpha WC_{1\text{-}4} + X\beta + \varepsilon$$

In equation 1, Y is a column vector with observations of the response variable (job satisfaction, organizational commitment), μ is the intercept, ε is a column vector of errors (normally distributed with mean zero), W represents the four social influence, or "weight," matrices used to investigate the ripple effects [1) direct job ties (cohesion), 2) direct social ties (cohesion), 3) job peers (equivalence), 4) social peers (equivalence)], C is a column vector of individuals' schedule control, X is a matrix of individual-level control variables (sex, race, age, tenure, job position), and α and β represent the estimated coefficients of the network and individual parameters, respectively. Figure 3 in Appendix A includes a table illustrating the four ripple effects that correspond to the four weight matrices in the equation.

Despite the fact that the weight matrix is the heart of the network effects model, Leenders (2002) points out that researchers have placed a surprisingly small amount of attention on its specification. At its core, the construction of the weight matrix should be driven by the two methods of representing social influence, equivalence and cohesion, outlined above. Leenders (2002) outlines several steps in the specification of the weight matrix, which I follow in these analyses: 1) specify the mechanism underlying the influence process (i.e. cohesion versus equivalence), 2) decide which alters the influence comes from, and 3) indicate how much influence is exerted (i.e. the value of the weight). In this analysis, I investigate both mechanisms of social influence, relying on binary indicators of a tie (with the cohesion approach) and continuous distance measures (with the equivalence approach), across both job and social networks.

Results

Table 1 in Appendix A shows the means, standard deviations, and correlations for the individual and network parameters included in the models. Recall that schedule control was coded as a binary, with individuals who have schedule control receiving a "1" and those without receiving a "0." Summary statistics of the individual schedule control variable indicate that the average worker does not have control over his or her work schedule, but that there is considerable variation in schedule control across the entire sample of workers. The means and standard deviations of the network terms indicate that there is variation in the schedule control of individuals' network ties and that the nature of the network itself (i.e. whether it is based on social ties or job ties) appears to be more distinct than the differences between the influence parameters, as evidenced by the high intercorrelations between the two effects in both of the networks. Among the four network parameters, there is greater variation of schedule control

among individuals' direct job and social ties (i.e. cohesion terms) than their equivalent peers in both networks. In general, the range of schedule control among an individual's equivalent job and social peers was low.

To test all hypotheses, I followed the network effects model procedure, regressing the dependent variables on both the vector of schedule control at the individual level, as well as the product of the row normalized ties (cohesion) or the Euclidean distance values (equivalence) and vector of schedule control for each network. Tables 2-5 in Appendix A provide the results of four regression models predicting job satisfaction and organizational commitment in both the job and social networks.

Hypothesis 1a predicted direct tie effects, specifically that exposure to the schedule control of an individual's direct ties would be negatively associated with that individual's job satisfaction, controlling for his or her own schedule control. Results from Tables 2 and 3 do not provide support for this hypothesis for either the job (β = -0.04, n.s.) or the social network (β= -0.03, n.s.). Similarly, Hypothesis 1b predicted a significant cohesion effect on organizational commitment. Results from Table 4 provide no support for this hypothesis for the job network, (β = -0.03, n.s.). However, results from Table 5 provide support for the social network (β = 0.14, p = .04). Thus, in the social network, the cohesion term is significantly associated with organizational commitment, providing mixed support for the hypothesis that the schedule control of direct network ties predicts individual job attitudes.

Hypothesis 2a predicted equivalence effects, such that the schedule control of structurally equivalent others would be negatively associated with the individual's job satisfaction when controlling for his or her own schedule control. Results from Tables 2 and 3 provide partial support for this hypothesis, with a significant finding for job ties (β = -0.19, $p < .01$) but not for

social ties (β = -0.06, n.s.). As hypothesized, when equivalent job network peers had higher schedule control, individuals were *less* committed to the organization. Similarly, Hypothesis 2b predicted the same inverse relationship between the schedule control of structurally equivalent others and an individual's organizational commitment. The results in Tables 4 and 5 provide partial support for the hypothesis, with a significant relationship between equivalent job network peers (β = -0.19, $p < .01$) but not social network peers (β = 0.02, n.s.). In addition to testing the main effects of the four social network variables, I also tested the interaction of schedule control with each of the network variables and found no evidence of a significant interaction with any of the four variables.

Of the four network parameters tested across both outcomes, the job network organizational peer variable was significantly associated with both job satisfaction and organizational commitment, while the social network direct tie variable was significantly associated with only organizational commitment. Due to the exploratory nature of the analyses, I took a conservative approach to interpreting the results by utilizing the Bonferroni correction, which involves dividing the statistical significance level (.05) by the number of tests (4 in this case) to yield a more conservative test in the case of simultaneous inference. The job network organizational peer variable remained significant at below the p =.01 level across both outcomes, providing convincing evidence of a true effect in this case. In addition, the finding of a consistent pattern across both dependent variables gives confidence of a true effect. However, the relationship between the social network direct tie variable and organizational commitment was not robust to the Bonferroni correction, providing weak evidence of a true effect. Overall, the results allow us to confidently conclude that there is a ripple effect of schedule control and that it is present across one of the four ties (job network organizational peers). This suggests that

an individual's job network peers may be the most relevant social contacts for the comparison of schedule control. In both cases, the addition of the job network organizational peer variable explained additional variance in both outcome variables above and beyond the individual-level controls.

Discussion

I used a social network approach to analyze the effect that individuals' schedule control has on others to whom they are connected in the workplace. Empirical tests of two hypotheses drawn from this approach provided mixed support, suggesting that there do appear to be effects of schedule control that ripple through social networks. The findings provide initial support for the idea that an individual's ability to decide when to arrive to and leave work is not only important in its impact on his or her own job satisfaction and organizational commitment, but also on the outcomes of others in the network, who are able to use this as a point of reference in evaluating their own schedule control. Specifically, the findings here suggest that the influence of equivalent job peers is most impactful in driving network-based comparisons. Interestingly, the data suggest that this comparison effect seems to be strongest for one's job peers. A non-significant finding across the other three network variables suggests that contacts in the social network, as well as direct ties, may not be as meaningful in comparisons of schedule control. This may be because individuals see peers, who are assumed to have access to similar opportunities and resources, as the most relevant comparison group rather than direct ties who may have different experiences and opportunities associated with their network position. Furthermore, because schedule control is an aspect of one's job, job network peers may be perceived as especially influential.

Limitations

Despite the strengths of this paper, there are several limitations that should be acknowledged. First, it is important to note that the association between the variables may not be entirely due to the effect of social influence. Since I do not have data from the time of network formation, I cannot rule out the notion that the perceived social influence of an individual's job peers may be attributed at least in part to similar others attaining comparable network positions. In order to test the extent to which these effects may be present, I would need data on network formation to control for these processes, such as data from a quasi-experimental design.

In addition, the data used for the analyses was cross-sectional in nature and therefore does not allow us to see the effects of social influence over time. In order to make better inferences about the association between the variables and to understand causality, data collected over multiple time periods would be needed. Yet, despite this finding, the results of this study provide a useful contribution to the literature on flexibility in that they show the first evidence of a potential network effect of schedule control and provide scholars with an avenue for future research regarding the socialized aspects of schedule control.

Theoretical Implications

Extant research on flexibility has tended to focus on individual- or macro-level explanations of schedule control, such as the extent to which individuals with schedule control are more satisfied with their jobs or organizations or the effect of regulatory differences across countries on individuals' control over their schedules. While these existing approaches have yielded many useful insights, flexibility scholarship has placed comparatively little focus on the contextual effects of schedule control within organizations. In applying a novel network approach to the study of schedule control, I aimed to shed light on potential meso-level effects

by examining the influence of the schedule control of an individual's direct ties and peers across two networks. The finding that the schedule control of others in the network *does* have an influence on a person's job satisfaction and organizational commitment that is above and beyond the impact of his or her own schedule control highlights the need for researchers to consider peer effects when examining issues regarding flexibility. Such a focus is important in that it better represents the complex social reality of organizations, recognizing that individuals do not experience aspects of their job in a social vacuum. Rather, they interpret and make sense of their environments in the context of others.

One potential avenue for future research is an examination of this phenomenon in other organizational settings. In this study, I examined network effects in the context of a manufacturing firm with a relatively low level of schedule control among workers. Whether this effect would be found in a different setting is a question for further empirical study. It is possible that the context of a manufacturing firm provides a conservative test of these hypotheses, given the generally low level of schedule control among workers. In a sample of knowledge workers with more flexible job structures, we might expect to see more variation in the degree to which individuals can make decisions regarding their work hours and schedule, introducing more room for peer comparison and thus amplifying the ripple effect among workers. However, it is also possible that in a setting in which workers have high levels of schedule control, comparisons along this dimension might be less salient or meaningful to workers. Thus, additional research is need to extend the analysis of peer effects across multiple samples of workers with varying amounts of schedule control.

Another direction for future research is to further unpack the differences among social contacts and peer effects in order to better understand why certain social contacts drive outcomes

more than others. Here, I looked at two types of social contacts (direct ties and network peers) in both a job and social network and found an inverse relationship between job peers and both outcome variables. Clearly, defining an individual's social contacts is important to the study of social influence and I show differences across influence parameters empirically. Perhaps the finding that peer effects were not at play in the social network suggests that individuals do not look to their close friends or social peers as a source of comparison on job-related characteristics. This finding warrants further investigation and presents an opportunity for better understanding the influence of the qualitatively different relationships in which individuals are engaged.

Finally, future research should better assess variation in schedule control beyond a binary indicator. Additional studies in this area that look at greater variation in schedule control, as well as work hours and location, would allow us to better understand the nature and magnitude of network effects. For example, are there even stronger social comparison effects when we consider multiple aspects of work arrangements, such as hours, scheduling, and location? Which of these comparisons lead to more pronounced effects? Similarly, unpacking the nature of schedule control with regard to formality would be another step forward. In this study, the item measuring schedule control asks workers to indicate whether they, formally or informally, have control over their starting and finishing times. Future studies should decouple formal policies and practices from idiosyncratic deals arranged with supervisors and examine whether these lead to differential effects.

Practical Implications

In addition to underscoring a new theoretical lens through which to view schedule control, the findings from this study have important implications for practitioners in organizations. Flexible work arrangements are often implemented unevenly throughout

organizations, meaning that some individuals have the ability to control their work hours and schedule while others do not. Regardless of the reasons for the uneven distribution, whether it be due to performance differences, the nature of the job structure, or the interdependence of tasks among workers in a work group, the outcome is the same in that some workers have schedule control while others do not. A finding that there are ripple effects of schedule control means that organizations need to be mindful of the comparisons that individuals may make between their work arrangements and those of others in their work environment. In particular, it appears that the schedule control of an individual's peers in the job network may be most strongly related to his or her job satisfaction and organizational commitment, such that the more their job peers have schedule control, the less satisfied and committed they feel. For workers with schedule control, the positive outcomes that they experience may be eroded when their peers also have this resource, since this aspect of their job structure is no longer a valued source of advantage in an environment where others also have access to it. Similarly, for workers without schedule control, the salience of job peers who are able to alter their work schedule may make them feel even worse about their work arrangement. Thus, organizations need to consider not just the absolute effects of schedule control on individual outcomes but also the relative effects. Rather than solely reaping the benefits of allowing individuals access to schedule control, managers may actually *worsen* outcomes by allowing workers to adjust their schedules in an environment when equivalent others have relatively less ability to do so.

Conclusion

In sum, I provide the first empirical examination of the ripple effects of schedule control. In a full network dataset of workers at a manufacturing facility, I find support for the notion that the schedule control of equivalent job network peers is negatively associated with an individual's

job satisfaction and organizational commitment, when controlling for his or her own schedule control. This provides evidence for the existence of socialized aspects of schedule control and puts forth a potential caveat for organizations in their management of flexibility among workers. This unique methodological approach allows us to have a deeper understanding of the social dynamics of the workplace and suggests a useful theoretical perspective with which to study schedule control in future research.

APPENDIX A – Tables and Figures

Figure 1. *Job Network*

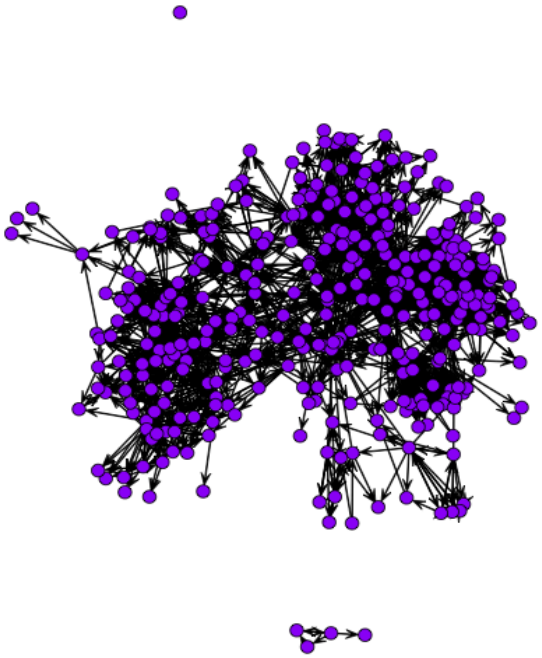

Figure 2. *Social Network*

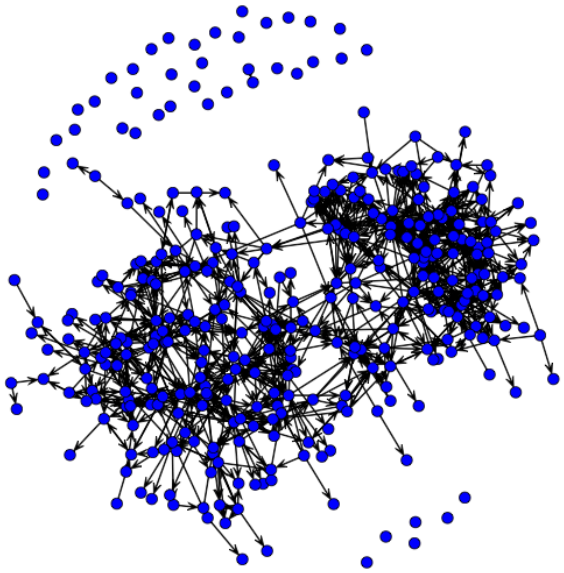

Figure 3. *Ripple Effects of Schedule Control*

		Relationship Type	
		Job Network	*Social Network*
Alter Type	*Direct Contact*	Job Ties (Cohesion)	Social Ties (Cohesion)
	Organizational Peer	Job Peers (Equivalence)	Social Peers (Equivalence)

Table 1. *Means, Standard Deviations, and Correlations*

	Mean	SD	1	2	3	4	5	6	7	8	9	10	11
Job Position	0.45	0.50											
Tenure	8.69	7.38	-0.06										
Age	38.70	9.95	0.08	.60**									
Sex	0.32	0.47	.13*	-.18**	-0.06								
Race	0.69	0.46	.49**	0.09	0.10	-.13*							
Schedule Control	0.29	0.46	.54**	0.03	0.09	-0.05	.33**						
Direct Social Ties	0.24	0.33	.54**	-0.08	0.05	0.07	.32**	.30**					
Direct Job Ties	0.26	0.31	.64**	-0.06	0.01	0.10	.34**	.46**	.45**				
Social Peers	0.33	0.02	-.50**	0.00	0.08	0.01	-.31**	-.40**	-.47**	-.44**			
Job Peers	0.32	0.02	-.61**	-0.04	-0.02	0.03	-.39**	-.52**	-.42**	-.56**	.57**		
Job Satisfaction	0.01	0.68	.35**	0.04	.24**	-0.05	0.06	.35**	.17**	.26**	-.19**	-.34**	
Organizational Commitment	3.74	0.62	.41**	0.06	.21**	-0.01	.17**	.31**	.31**	.27**	-.19**	-.36**	.70**

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Table 2. *Job Satisfaction in the Job Network*

Variable	Model 1	Model 2	Model 3	Model 4
1. Job Position	0.32***	0.29***	0.24***	0.22***
2. Tenure	-0.08	-0.08	-0.11	-0.11
3. Age	0.26***	0.26***	0.29***	0.29***
4. Sex	-0.08	-0.08	-0.07	-0.07
5. Race	-0.21**	-0.22**	-0.23***	-0.24***
6. Schedule Control	0.23***	0.22**	0.19**	0.18**
7. Job Network Direct Ties		0.07		0.04
8. Job Network Org. Peers			-0.20**	-0.19**
df	276	276	276	276
F	15.87	13.78	15.22	13.32
R^2	0.26	0.26	0.28	0.29
ΔR^2		0	0.02	0.01
F Δ		1.18	8.66**	0.3
Highest VIF	1.78	1.78	2.09	2.39
Highest VIF Variable	1	1	1	1

*Standardized coefficients are reported

*$p < 0.05$

**$p < 0.01$

Table 3. *Job Satisfaction in the Social Network*

Variable	Model 1	Model 2	Model 3	Model 4
1. Job Position	0.30***	0.31***	0.29***	0.29***
2. Tenure	-0.11	-0.11	-0.11	-0.12
3. Age	0.26***	0.26***	0.27***	0.27***
4. Sex	-0.08	-0.08	-0.08	-0.08
5. Race	-0.20**	-0.20**	-0.20**	-0.20**
6. Schedule Control	0.23**	0.23**	0.22**	0.22**
7. Social Network Direct Ties		-0.01		-0.03
8. Social Network Org. Peers			-0.05	-0.06
df	259	259	259	259
F	12.92	11.03	11.15	9.74
R^2	0.23	0.24	0.24	0.24
ΔR^2		0.01	0	0
F Δ		0.02	0.65	0.15
Highest VIF	1.77	2.05	1.95	2.13
Highest VIF Variable	1	1	1	1

*Standardized coefficients are reported

*$p < 0.05$

**$p < 0.01$

Table 4. *Organizational Commitment in the Job Network*

Variable	Model 1	Model 2	Model 3	Model 4
1. Job Position	0.37***	0.37***	0.29***	0.30***
2. Tenure	-0.04	-0.04	-0.06	-0.06
3. Age	0.20**	0.21**	0.23**	0.23**
4. Sex	-0.03	-0.03	-0.02	-0.01
5. Race	-0.12	-0.12	-0.14*	-0.14*
6. Schedule Control	0.14*	0.14*	0.10	0.11
7. Job Network Direct Ties		0.01		-0.03
8. Job Network Org. Peers			-0.19**	-0.19**
df	274	274	274	274
F	13.32	11.38	12.75	11.13
R^2	0.23	0.23	0.25	0.25
ΔR^2		0	0.02	0
F Δ		0.03	7.39**	0.13
Highest VIF	1.8	2.22	2.1	2.41
Highest VIF Variable	2	1	1	1

*Standardized coefficients are reported

*$p < 0.05$

**$p < 0.01$

Table 5. *Organizational Commitment in the Social Network*

Variable	Model 1	Model 2	Model 3	Model 4
1. Job Position	0.35***	0.29***	0.35***	0.30***
2. Tenure	-0.05	-0.03	-0.05	-0.03
3. Age	0.17*	0.16*	0.18*	0.16*
4. Sex	-0.04	-0.05	-0.04	-0.05
5. Race	-0.07	-0.09	-0.07	-0.08
6. Schedule Control	0.13*	0.13	0.13	0.13
7. Social Network Direct Ties		0.14*		0.14*
8. Social Network Org. Peers			-0.03	0.02
df	257	257	257	257
F	10.74	9.97	9.2	8.7
R^2	0.2	0.22	0.21	0.22
ΔR^2		0.02	0	0.01
F Δ		4.48	0.15	4.36
Highest VIF	1.78	2.06	1.95	2.13
Highest VIF Variable	1	1	1	1

*Standardized coefficients are reported

*$p < 0.05$

**$p < 0.01$

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