The moderating role of social ties on entrepreneurs' depressed affect and withdrawal intentions in response to economic stress

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Summary   We explored whether contact with business-related social ties would buffer entrepreneurs against the potentially deleterious effects of economic stress. Our proposed stress-buffering model builds on the premise that social ties with similar others can serve as both a source of valuable information and a source of empathic support. Findings from a sample of 262 entrepreneurs revealed that the relation between economic stress and intentions to withdraw from entrepreneurial opportunities was stronger among individuals reporting less contact with social ties and weaker among those who reported more contact with social ties. We further examined the indirect effects of economic stress and contact with business-related social ties on entrepreneurs' future intentions through depressed affect. Results showed that among those reporting less contact with social ties, the indirect effect is positive, meaning greater economic stress leads to higher depressed affect, which in turn results in greater intentions to withdraw from entrepreneurship. Among those with more contact with social ties, there is no evidence of this process at work. We interpret this to mean that social ties serve to buffer the impact of economic stress on depressed affect, which in turn reduces an entrepreneur's intention to withdraw from entrepreneurship. Those who seem most susceptible to the impact of economic stress are those with relatively limited contact with business-related social ties. We discuss implications and directions for future research. Copyright © 2012 John Wiley & Sons, Ltd.

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Introduction

A rising tide lifts all boats. It's not until the tide goes out that you realize who's swimming naked. (Warren Buffett)

The predicament of entrepreneurs in difficult economic times is dire—struggling to keep a business afloat in a declining economy can have severe negative psychological effects on an entrepreneur. Economic stress, due to job-related insecurity, can evoke feelings of helplessness, hopelessness, and desperation (Baum, Fleming, & Reddy, 1986; Dekker & Schaufeli, 1995; Hellgren & Sverke, 2003) as entrepreneurs strive to maintain and/or grow their business, keep employees working, and avoid bankruptcy (Brennan & McHugh, 1993; Egan & Tosanguan; 2009; Latham, 2009). According to learned helplessness theory (Seligman & Maier, 1967), these negative feelings

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are often intensified and can lead to disengagement when the stress-inducing event (i.e., a declining economy) is beyond the control of an individual (Markman, Baron, & Balkin, 2005).

If you were an entrepreneur in difficult economic times, how would you respond to such stress? As the quote from Warren Buffet notes, "A rising tide lifts all boats. It's not until the tide goes out that you realize who's swimming naked." When things are going well (e.g., the economy is booming), it is easier to engage in pursuing one's business-related goals. However, in stressful economic times when one's business is negatively impacted by the economy, goal engagement is more difficult. If faced with economic stress, would you feel hopeless, fall victim to learned helplessness, and withdraw from future entrepreneurship opportunities?

These questions—questions focusing on understanding entrepreneurs' affective, cognitive, and behavioral responses to economic stress—are particularly salient considering the potential impact of stress on entrepreneurs' personal well-being, business performance, and overall economic productivity (e.g., Baron, 2008; Brown, Westbrook, & Challagalla, 2005; Foo, Uy, & Baron, 2009; Wincent & Örtqvist, 2009a). In the current research, we propose that entrepreneurs' responses to economic stress depend on his or her access and use of social support.

Research in the social network theory literature (e.g., Aldrich & Zimmer, 1986; Kilduff & Brass, 2010a) and studies related to the stress-buffering model (e.g., Cohen & Wills, 1985; Uchino, Cacioppo, & Kiecolt-Glaser, 1996) suggest that social ties can play a crucial role in predicting the well-being of individuals experiencing stress (Kawachi & Berkman, 2001). However, these literatures illustrate that sometimes social support has a direct effect on stress reduction and other times an indirect effect (Cohen & Wills, 1985; Tang, Au, Schwarzer, & Schmitz, 2001). Evidence for a direct effect emerges when the degree of social support assesses an individual's involvement in a large network, whereas evidence for a buffering effect emerges when social support assesses whether needs elicited by stressful situations are met (Cohen & Wills, 1985).

Extant research has not yet examined which process (direct versus buffering) operates within the context of entrepreneurs coping with economic stress. This gap in the literature has resulted in a limited understanding of how to alleviate the effect of economic stress on entrepreneurs. We suggest a buffering model in the current work, outlining the specific context in which social support is likely to meet the needs of entrepreneurs struggling with economic hardship. We draw on the social support literature, in the domains of clinical psychology and management, to outline how contact with business-related social ties provides critical support in the form of access to relevant information (structural support) as well as empathy (functional support). We also propose, then test, our newly developed overall process model where such social ties buffer the effects of economic stress on withdrawal through a reduction of depressed affect (see Figure 1 for conceptual representation).

There are two primary theoretical contributions that arise from the current work. First, this research, to our knowledge, is the first exploration of how entrepreneurs' social ties can alleviate the negative effects of economic stress. Specifically, our research merges the social ties literature with a learned helplessness framework to explore the mediating mechanism of depressed affect. Identifying the psychological foundations of the stress-withdrawal relation clarifies how entrepreneurs can remain motivated during tough economic times—namely developing social ties that can provide structural and functional support helps alleviate feelings of depressed affect and, in turn,
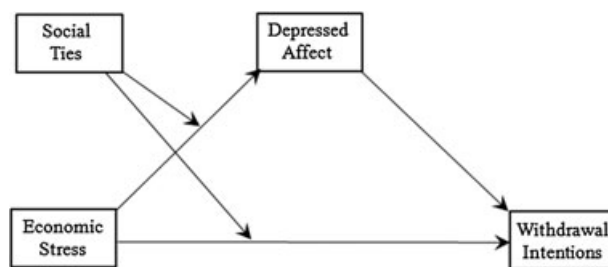

Figure 1. Our conceptual model in which the effect of economic stress on entrepreneurial withdrawal intentions is moderated by social ties. Depressed affect is the proposed mediator of the conditional effect of economic stress on withdrawal intentions

withdrawal. This clarification, and the overall process model we present, can inform future interventions aimed at alleviating the potential deleterious effects that economic stress can have on entrepreneurs. Second, we offer a theoretically driven conceptualization of how social ties should be operationally defined within the context of entrepreneurship. Specifically, we focus on entrepreneurs' business-related ties as the type that can provide the needed structural and functional support to cope more successfully with economic stress. This theoretical clarification can help move the field forward by eliminating unnecessary variance that may distort findings and/or lead to contradictory findings when examining social ties, stress, and entrepreneurs' withdrawal intentions. We elaborate on these extensions of the literature in the following sections.

Theoretical Background

Entrepreneurs, economic stress, and the psychology of learned helplessness

For entrepreneurs, one of the most taxing work-related causes of stress is economic decline (e.g., Harris, Saltstone, & Fraboni, 1999; Vasumathi, Govindarajalu, Anuratha, & Amudha, 2003). Stress represents any "environmental, social, or internal demand, which requires the individual to readjust his/her usual behavior patterns" (Thoits, 1995, p. 54). And, decades of research across disciplines provides clear evidence that stress predicts individual (e.g., physical and psychological health) as well as organizational (e.g., performance, turnover, absenteeism) outcomes (Ganster & Schaubroeck, 1991; Gilboa, Shirom, Fried, & Cooper, 2008; Lazarus, 1993).

In times of economic decline, defined as the economic environment having a negative impact on a business, entrepreneurs are compelled to change their strategies, cut costs, reduce assets, and seek alternate revenue generation outlets (Egan & Tosanguan; 2009; Latham, 2009). In response to such stressors, it is not surprising that entrepreneurs often report feeling concerned, isolated, and overburdened (Brennan & McHugh, 1993). These feelings, in turn, can inhibit entrepreneurs' ability to pursue their goals, actively engage in entrepreneurial activities, and compete in the marketplace. We submit that these deleterious effects of stress emerge because the primary cause of the stress—negative effects of the economy—is beyond the control of the entrepreneur.

Individuals who experience an inability to control adversity can develop feelings of "apprehension, apathy, and at times desperation" (Markman et al., 2005, p. 3). The vast literature of learned helplessness theory illustrates that when people encounter unwanted events beyond their control, a sense of helplessness arises (Seligman, 1972; Seligman & Maier, 1967). These effects are evident across achievement domains. For example, in academic settings, research finds that students who reported experiencing failure beyond their control also reported greater feelings of helplessness as well as maladaptive coping such as self-handicapping and disengagement (e.g., Dweck, 1975).

Drawing on the theoretical perspective gained from learned helplessness theory (Hiroto & Seligman, 1975; Pryce et al., 2011), we expect that entrepreneurs under economic stress (an event out of one's control) will experience depressed affect. Specifically, entrepreneurs' should experience overall negative self-evaluations over the past year (e.g., discouragement, inferiority, hopelessness, helplessness). In turn, consistent with learned helplessness theory, we expect entrepreneurs' increased depressed affect to predict increased psychological withdrawal.

Individuals' affect is a critical predictor of engagement as well as behavioral withdrawal. For example, data examining burnout in a sample of managers illustrate that experienced stress predicts greater negative affect (i.e., decreased satisfaction, emotional exhaustion), which, in turn, predicts withdrawal (i.e., decreased commitment, increased turnover intentions; Lee & Ashforth, 1993). And, affect plays a critical role as a determinant of entrepreneurs' cognitive processes (e.g., judgments, decision, perception), job engagement (e.g., acquiring resources, recognizing opportunities), and adaptive responses to setbacks, challenges, and failures (Baron, 2008; Shepherd, 2003, 2009). As affect predicts cognitive and behavioral responses in an array of extant literature, we expect entrepreneurs experiencing depressed affect to report greater job-related withdrawal

intentions—negative cognitions toward entrepreneurial endeavors. Psychologically, for entrepreneurs, this withdrawal presents a way to "…mentally distance themselves from a stress-causing workplace" (Keaveney & Nelson, 1993, p. 117).

The buffering effect of social ties

Stress-inducing uncontrollable circumstances (e.g., declining economy) do not always lead to helplessness and withdrawal. Rather, research shows that individuals respond differently to stress when it is perceived as a challenge versus as a hindrance—overall, more adaptive and positive responses occur when stress is viewed as a challenge (LePine, Podsakoff, & LePine, 2005; Podsakoff, LePine, & LePine, 2007). Thus, a key determinant of the effect that economic stress has upon an entrepreneur is embedded in how the stress is perceived.

We propose that one critical component of how stress is interpreted, and whether individuals respond with helplessness (i.e., depressed affect and intentions to withdraw), depends on *interpersonal* processes. A plethora of research highlights the importance of relationships with others for a range of positive outcomes including happiness, physical health (e.g., Eng, Rimm, Fitzmaurice, & Kawachi, 2002; Kawachi & Berkman, 2001), and, of most relevance to the current work, as a source of support (e.g., Brüderl & Preisendörfer, 1998; Haslam, O'Brien, Jetten, Vormedal, & Penna, 2005).

In the current work, we examined how an entrepreneur's contact with business-related social ties can serve as a source of social support, thereby buffering against the potential deleterious effects of economic stress. Within this context, social ties represent the frequency of contact with various network members (e.g., Barrera, 1986; Thoits, 1995). The proposed stress-buffering model builds on the idea that social support can help individuals cope more successfully with stress-related pressures and burdens (e.g., Thoits, 1995). That is, social support moderates the stress–strain relationship (Cohen & Wills, 1985; Kawachi & Berkman, 2001). Within social support theory, there are diverse types of social connections that may provide defense against the deleterious effects of stress. Two general categories of social support are structural and functional. Structural support provides access to important information and resources, whereas functional social support provides encouragement, empathy, and a "sounding board" to discuss one's feelings and ideas. In the present work, we suggest that contact with business-related social ties can provide both structural *and* functional support.

Frequent contact with business-related ties should buffer the effects of stress by providing structural support such as access to resources (e.g., a network of people who can provide referrals to new clients, opportunities, and markets). Research building on the seminal social network-related studies of Lee (1969), Granovetter (1973, 1974), and Krackhardt (1987, 1996) has illustrated some of the benefits of structural social network ties (i.e., the number of people with whom an individual interacts). For example, more social ties are related to business performance (i.e., survival, innovation, financial performance; Dubini & Aldrich, 1991; Duchesneau & Gartner, 1990; Kilduff & Brass, 2010a, 2010b; Watson, 2007; Witt, 2004), the discovery of business opportunities (Singh, 2000; Zimmer & Aldrich, 1987), information acquisition (Aldrich & Zimmer, 1986; Anderson, 2008; Soh, 2003), profitability (Lerner, Brush, & Hisrich, 1997), and the ability to acquire equity capital (Hustedde & Pulver, 1992). Within this body of work, however, research to date has only focused on the financially relevant outcomes of social ties for entrepreneurs.

In the present research, we expand this literature and examine the psychological effects of social ties, which can have consequences for entrepreneurs' behavior and subsequent responses to stress. Structural support, via receiving information and resources (e.g., referrals to new sources of revenue and new clients), can help entrepreneurs regain a sense of control and can provide ways to take action (e.g., Aldrich & Zimmer, 1986; Anderson, 2008; Soh, 2003). Accordingly, we propose that entrepreneurs experiencing economic stress who have less contact with social ties, and thereby likely less access to critical information and resources (i.e., structural support), are more likely to psychologically withdraw from entrepreneurship.

Hypothesis 1: The relation between economic stress and withdrawal intentions will be stronger among those individuals with less contact with business-related social ties and weaker among those with more contact with business-related social ties.

In contrast to structural social support, research related to functional social support has typically focused on personal types of relations through which individuals obtain emotional support (e.g., marital status; sociability—contact with close friends and family; religious group affiliations; and membership in social or community organizations; Eng et al., 2002). Functional social support from these sources (actual and perceived) can exert strong positive influences on mental health outcomes (Thoits, 1995). Although the majority of findings show that such emotional social support can alleviate the effect of stress (Chay, 1993; Cohen & Wills, 1985), some research has failed to find support for such a relationship—some research shows that no buffer exists or that the buffering effect is very small (Ganster, Fusilier, & Mayes, 1986; Kawachi & Berkman, 2001; Seers, McGee, Serey, & Graen, 1983; Uchino et al., 1996).

These inconsistent findings may be due, in part, to the context in which functional social support unfolds (Aldrich & Zimmer, 1986; Eng et al., 2002; Kilduff & Brass, 2010a). Within our specific context—entrepreneurs dealing with economic stress—business-related social ties may serve as functional support because such individuals can be more empathetic, not just sympathetic, to feelings caused by economic stress. Support from individuals in similar situations can have a greater buffering effect (Haslam et al., 2005), and interacting with a business contact can provide support in ways that a non-business-related contact cannot. Such individuals are experiencing similar events and have a shared identity (i.e., stresses related to poor economic times) that is important within a social support context (Haslam et al., 2005). This similarity is a crucial component of social support and should help reduce negative effects of stress. For example, traditional functional support (e.g., from one's partner, from religious group contacts) may not be as effective within the context of economic stress if the contacts are in unrelated fields, or do not work, and thus cannot relate to the exact issues associated with running a business during an economic decline.

Contact with business owners in one's community who are undergoing similar stresses should provide entrepreneurs with an empathetic listener, and such empathy is one of the most critical predictors of successful social support (Etzion, 1984; Fielden & Hunt, 2011). Accordingly, we expect greater contact with business-related social ties to buffer against the deleterious effects of economic stress because contact with similar others, who can provide empathy and an experienced "sounding board," may help counteract a sense of hopelessness. Also, contact with similar others helps individuals realize that they are not alone in their struggles—such a realization is a critical predictor of coping effectively with stress and depression (e.g., Haslam et al., 2005; Pryce et al., 2011). Accordingly, we propose that entrepreneurs experiencing economic stress who have less contact with social ties, and thereby likely less empathic and emotional support (i.e., functional support), are more likely to experience depressed affect.

Hypothesis 2: The relation between economic stress and depressed affect will be stronger among those individuals with less contact with business-related social ties and weaker among those with more contact with business-related social ties.

To summarize, Hypothesis 1 postulates that social ties buffer the relation between economic stress and entrepreneurs' withdrawal intentions (due to structural support). Although this is an extension of the stress-buffering literature to the domain of entrepreneurship, the question of *how* social ties buffer against the effects of stress remains unaddressed. We draw on the psychology literature and the construct of depressed affect to answer this question. Accordingly, Hypothesis 2 postulates that social ties buffer the relation between economic stress and entrepreneurs' depressed affect (due to functional support). Within our theoretical framework, we propose that entrepreneurs who have greater contact with business-related social ties should report lower depressed affect—and, from our theoretical perspective, entrepreneurs reporting lower depressed affect should, in turn, report decreased withdrawal intentions. In summary, we expect that the indirect effect of economic stress on withdrawal intentions, through depressed affect,

will be contingent on entrepreneurs' social ties. Accordingly, we posit the following overall stress-buffering relation reflecting the predicted conditional indirect effects of economic stress and social ties, through depressed affect, on withdrawal intentions (Hypothesis 3; also see Figure 1).

> *Hypothesis 3*: Contact with business-related social ties will moderate the indirect effect of economic stress on entrepreneurial withdrawal intentions through depressed affect. Specifically, we predict that among entrepreneurs who report less contact with business-related social ties, there will be a positive indirect effect of economic stress on withdrawal, through depressed affect.

Method

Research context

We recruited small business owners who were members of Business Networking International (BNI) in a large city in the southeast U.S.A. to participate in this study by completing a survey administered online. BNI is a membership-based organization through which entrepreneurs join a networking group to foster ties with fellow members to assist in the process of gaining access to new potential customers. The executive director of BNI granted us access to email each BNI member with a link to our online survey. We told participants that their responses would be useful in examining their perceptions and opinions about business networking. These BNI groups meet weekly, in person, and the goal is to enable other group members to refer new business to each another.

The phenomenon of networking can be defined as, "the initiation and sustenance of interpersonal connections for the rather Machiavellian purpose of tapping those relationships later for commercial gain" (Iacobucci, 1996, p. xiii). Entrepreneurs' membership in formal, peer-to-peer networking groups is growing exponentially—BNI, the context of the current sample, was founded in 1985 and now operates in over 50 countries with over 2800 chapters (Thompson, 2010). Limited research has examined this type of networking environment (e.g., de Janasz, & Forret, 2007; Parrott, Roomi, & Holliman, 2010; Pollack, Burnette, & Hoyt, forthcoming).

Participants

Three hundred entrepreneurs across 25 groups completed our online survey (out of 534 total members). However, 38 did not provide responses to all of the primary variables in the analysis (i.e., withdrawal intentions, contact with business-related social ties, depressed affect, economic stress). Thus, the analysis is based on only those 262 (37 percent women) who provided complete data. Participants were of varying ages ($M = 43.72$, $SD = 10.45$, min = 23, max = 71) and had an average tenure in their own company of between five and six years ($M = 5.92$, $SD = 6.58$, min = 0, max = 33). The average number of employees per company was small ($M = 21.9$, $SD = 42.33$, min = 1, max = 250).

Measures

Contact with business-related social ties
We operationalize this as the daily contact an entrepreneur has with members in his or her own networking group—specifically, the number of members of the entrepreneur's networking group he or she talks to, meets with, and emails about work-related matters on a daily basis. This conceptualization of social ties is consistent with how epidemiological studies of social ties and health are constructed—"investigators have typically asked individual subjects about the structure and function of networks that immediately surround them" (Kawachi & Berkman, 2001, pp. 462–463).

Our operationalization taps into individual entrepreneurs' "out-degree centrality"—to how many people an individual goes to for advice and resources (as opposed to in-degree centrality, which is how many people come to the individual for advice and resources; Bowler, Droege, & Anderson, 2003; Brass & Burkhardt, 1993). Research has measured out-degree centrality in various ways such as the number of times per month participants saw close friends and relatives (Berkman & Syme, 1979), the number of direct, face-to-face, contacts with network members (Seeman & Berkman, 1988), or the quantity of ties—network size—of individuals' internal and external contacts at a company (Collins & Clark, 2003).

Drawing on these examples, we adapted a measure to fit our specific entrepreneurship context (i.e., contact with group members on a daily basis). We used a 3-item measure of an individual's self-reported out-degree centrality to assess social ties. The questions that we had participants answer were as follows: "With how many members of this networking group do you meet in person daily about business-related matters?" "With how many members of this networking group do you talk on the phone daily about business-related matters?" "How many members of this networking group do you email daily about business-related matters?" This aggregate was adequately reliable ($\alpha = .75$) but was highly skewed ($M = 1.40$, $Mdn = 1.00$, $SD = 0.70$, min $= 1$, max $= 5$), with 65 percent of the respondents reporting only one daily contact in person, over email, and on the phone.

Economic stress

We used a 2-item measure to assess economic stress: "How has the recent economic climate affected your business?" and "How did your business perform over the last 12 months?" Participants responded using a 7-point scale that ranged from 1 (*very negatively*) to 7 (*very positively*). We recoded so that higher numbers represented increased economic stress. Responses were correlated sufficiently ($r = .57$, $p < .001$) to warrant aggregation into a single index of economic stress ($\alpha = .72$, $M = 4.62$, $SD = 1.42$). Sixty percent of respondents were above the theoretical midpoint of the scale, suggesting that most were experiencing economic stress in the last year. Note that shorter scales, when available, have gained widespread acceptance across literatures such as marketing (e.g., Bergkvist & Rossiter, 2007; Drolet & Morrison, 2001) and organizational behavior (Wanous, Reichers, & Hudy, 1997) to measure specific constructs (e.g., job satisfaction).

Depressed affect

The depressed affect scale consisted of six items adapted from the Multiple Affect Adjective Check List (MAACL; Lubin, Zuckerman, & Woodward, 1985). Participants used a 5-point scale that ranged from 1 (*not at all*) to 5 (*extremely*) to answer the question, "Regarding your business, over the past year, did you experience any of the following emotions?" Participants gave responses to six different options: "discouraged," "inferior to others," "hopeless," "worthless," "helpless," and "inadequate." A principal axis factor analysis revealed only a single interpretable factor (pre-extraction eigenvalue $= 3.756$) that included all six emotions (all with standardized factor loadings greater than 0.60) and which accounted for over 50 percent of the variance. We averaged responses to the six emotions to produce an index of depressed affect ($\alpha = .88$, $M = 1.60$, $SD = 0.72$, min $= 1$, max $= 5$). Past adaptations (e.g., Hoyt & Blascovich, 2007) of the depressed affect scale of the MAACL have been used successfully, and the factor structure consistently exhibits adequate psychometric properties (Gotlib & Meyer, 1986). We adapted the MAACL instrument used in the present research with work carried out by Patzelt and Shepherd (2011) who also assessed self-reports of negative emotions, such as in the present research, and further illustrated that method as an established procedure to assess levels of emotions.

Entrepreneurial withdrawal intentions

Drawing on existing research on withdrawal (e.g., Blau, 1998; Keaveney & Nelson, 1993), we created a 3-item scale that assessed entrepreneurs' thoughts about their continued work in the domain of entrepreneurship. We asked participants to rate their intentions over the next year. Using a 7-point scale that ranged from 1 (*strongly disagree*) to 7 (*strongly agree*), participants rated the extent to which they would, in the next year, "avoid entrepreneurial positions," "feel anxious about entrepreneurial positions," and "feel less excited about entrepreneurial positions."

Responses were correlated sufficiently to aggregate average them to produce an index of withdrawal intentions ($\alpha = .73$, $M = 2.32$, $SD = 1.25$, $min = 1$, $max = 7$). This measure did exhibit considerable positive skew but still evidenced considerable variation between respondents. Only 30 percent respondents "strongly disagreed" with all questions, and 25 percent scored 3 or higher. Thus, a nontrivial number of participants reported some skepticism about their future in an entrepreneurial role.

Control variables

In a sensitivity analysis described at the end of the results section, we added some additional variables to assess the vulnerability of our findings to the possibility of spurious association. Consistent with previous research, these included sex, age, and how long a person has worked with their company (e.g., Buttner, 1992; Grossman, Yli-Renko, & Janakiraman, 2007; Kolvereid, Shane, & Westhead, 1993). Additionally, to rule out two plausible alternate explanations for the relations we examined, we also used entrepreneurial self-efficacy, assessed using the Chen, Greene, and Crick (1998) 15-item scale ($\alpha = .94$, $M = 5.61$, $SD = 0.95$), as well as social competence as assessed using the Baron and Markman (2003) 17-item scale ($\alpha = .88$, $M = 3.44$, $SD = 0.51$). We included entrepreneurial self-efficacy on the basis of research suggesting that social ties along with entrepreneurial self-efficacy predict entrepreneurial intentions and success (e.g., Ozgen & Baron, 2007; Sequeira, Mueller, & McGee, 2007). We included social competence on the basis of research suggesting that entrepreneurs' social skills can lead to greater success in obtaining information and resources from various contacts (Baron & Tang, 2009).[1]

Results

As can be seen in Table 1, entrepreneurs who reported experiencing greater economic stress reported greater depressed affect ($r = .34$, $p < .01$), and this greater depressed affect in turn was related to an increased intention to withdraw from entrepreneurial activity ($r = .42$, $p < .01$). Interestingly, at least expressed in terms of simple association, there was no evidence of a relationship between economic stress and intentions to withdraw. However, we did not hypothesize such a simple association, and as Bollen (1989, p. 52) stated most concisely, "...a lack of correlation does not disprove causation." Rather, we predicted that the association between economic stress and withdrawal intentions should be contingent on contact with social ties, and the simple association would not adequately quantify such a moderated effect. Furthermore, our model proposes an indirect effect—one that links economic stress to withdrawal intentions through depressed affect. Indirect effects can exist even in the absence of evidence of simple association (e.g., Cerin & MacKinnon, 2009; Hayes, 2009; Rucker, Preacher, Tormala, & Petty, 2011).

To directly test our proposed stress-buffering model as depicted in Figure 1, we used a regression-based path analysis with the aid of existing computational tools for estimating and probing interactions and conditional indirect effects in moderated mediation models (Hayes & Matthes, 2009; Preacher, Rucker, & Hayes, 2007). This model in path diagram form can be found in Figure 2 and consists of three distinct submodels. The first model, in panel A, is used to test whether social ties moderate the relationship between economic stress and withdrawal intentions (Hypothesis 1). Of interest in this model is an estimate and test of the significance of path c_3. The second and third models, in panel B, are pertinent to whether contact with social ties moderates the effect of economic distress on depressed affect (the estimate and test of path a_3; Hypothesis 2) and the estimation of the conditional indirect effect of economic distress on withdrawal intentions through depressed affect, contingent on social ties (Hypothesis 3; Preacher et al., 2007), quantified as the product of the function of *a* paths and path *b*. The component of the model in panel B is also used for testing *mediated moderation*, in which a moderated effect is carried through a mediator, quantified as the product of a_3 and *b* (Morgan-Lopez & MacKinnon, 2006).

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[1]As will be clear at the end of the Results section, the inclusion of these covariates did not change the results, so we exclude them from the main analysis we report here to keep our models only as complex as necessary to test the hypotheses.

Table 1. Descriptive statistics and intercorrelations.

|					Pearson correlations							
	n	Mean	SD	α	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) Sex	253	1.37	0.48	—								
(2) Age	238	43.72	10.45	—	−.07							
(3) Company tenure	262	5.93	6.58	—	.03	.32**						
(4) Entrepreneurial self-efficacy	261	5.61	0.95	.94	−.02	−.09	−.06					
(5) Social competence	262	3.44	0.51	.88	.08	.01	.02	.22**				
(6) Social ties	262	1.40	0.70	.75	.07	−.06	.01	.19**	.13*			
(7) Economic stress	262	4.62	1.42	.72	−.15*	.09	.07	−.16*	−.09	−.07		
(8) Depressed affect	262	1.61	0.72	.88	−.05	−.02	−.07	−.25**	.06	−.05	.34**	
(9) Withdrawal intentions	262	2.32	1.25	.73	−.03	−.05	−.04	−.24**	−.09	.01	.06	.42**

$**p < .01$; $*p < .05$.
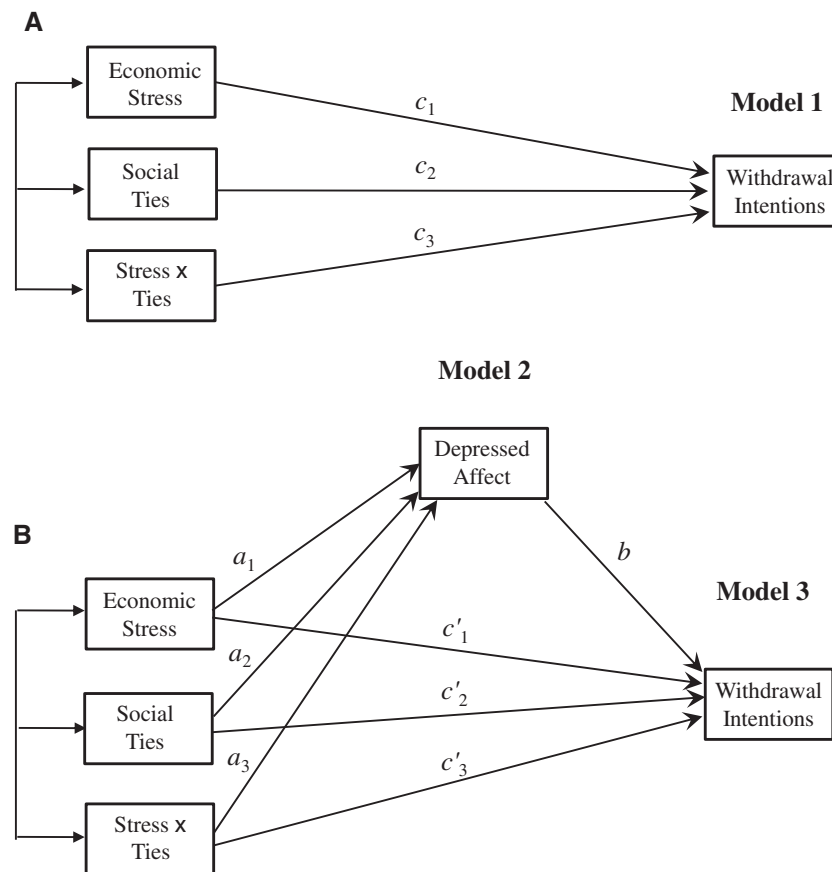
Figure 2. The conceptual model in Figure 1 represented in the form of a path model and a visual depicting the three ordinary least squares regressions estimated and reported in Table 2

Table 2. Ordinary least squares regression model coefficients (standard errors in parentheses).

Outcome	$\rightarrow$	Model 1 Withdrawal intentions			Model 2 Depressed affect			Model 3 Withdrawal intentions	
Predictor		Coefficient	p		Coefficient	p		Coefficient	p
Intercept		2.307 (0.076)	<.001		1.587 (0.404)	<.001		1.151 (0.186)	<.001
Economic stress	$c_1 \rightarrow$	0.067 (0.054)	.210	$a_1 \rightarrow$	0.181 (0.029)	<.001	$c'_1 \rightarrow$	−0.064 (0.053)	.229
Social ties	$c_2 \rightarrow$	0.034 (0.109)	.751	$a_2 \rightarrow$	−0.017 (0.058)	.766	$c'_2 \rightarrow$	0.047 (0.101)	.640
Depressed affect							$b \rightarrow$	0.728 (0.108)	<.001
Stress × Social ties	$c_3 \rightarrow$	−0.258 (0.081)	.002	$a_3 \rightarrow$	−0.218 (0.043)	<.001	$c'_3 \rightarrow$	−0.099 (0.078)	.205
Model R^2		.042	.011		.198	<.001		.186	<.001
Interaction ΔR^2		.038	.002		.081	<.001		.005	.205

Economic stress and social ties were mean centered to render parameter estimates that are interpretable within the range of the data. All coefficients are unstandardized and based on models with all primary variables entered.

First, does the relationship between economic stress and withdrawal intentions depend on contact with social ties? As can be seen, the answer is yes. The results of an ordinary least squares regression in which withdrawal intentions is estimated from economic stress, social ties, and their product can be found in Table 2 (Model 1). Although the variance in withdrawal intentions explained by these three predictors is small (just over 4 percent in total), the majority of this explained variance (over 90 percent, from .038/.042) is attributable to the moderated effect of economic stress. We depict this interaction graphically in Figure 3(A), which plots the conditional effect or "simple slope" of economic stress at various values of social ties by using the estimated coefficients from the model. As can be seen, among entrepreneurs with less contact with social ties, the relationship is positive, with greater economic stress associated with greater intentions to withdraw. The relationship flattens and then even appears to go negative as contact with social ties increases.

We formally probed this interaction by using the Johnson–Neyman technique (Bauer & Curran, 2005; Hayes & Matthes, 2009), which mathematically derives the "regions of significance" for the conditional effect of economic stress, meaning the values within the range of the moderator in which the association between economic stress and withdrawal is statistically different from zero. We used this rather than the more common "pick-a-point" approach because the skew of the distribution of social ties makes it difficult to justify the selection of values of social ties to define "low," "moderate," and "high." For instance, a "low" value of one standard deviation below the mean (or 0.70 here), which is typically used when probing interactions, is actually below the range of possible measurement as well as the observed data in this case. The mean of social ties (1.40) is only barely larger than the minimum value observed (1).

Figure 3(B) plots the conditional effect (the dark line) of economic stress on withdrawal intentions across the distribution of social ties as well as the upper and lower bounds of a 95 percent confidence interval (the dashed lines) for the conditional effect (note: the parameter estimates from Model 1 defines the slope of the point estimate: $c_1 + c_3 \times$ Social ties = $0.067 - 0.258 \times$ Social ties; Aiken & West, 1991; Hayes & Matthes, 2009). The points at which the confidence interval is wholly above or below 0 define the regions of significance. As can be seen, when social ties are less than 1.23, the effect of economic stress is statistically positive and different from zero, whereas when social ties are greater than 2.35, the effect of economic stress is significantly negative. Between these two values, there is no evidence of association between economic stress and withdrawal intentions. These findings support Hypothesis 1.
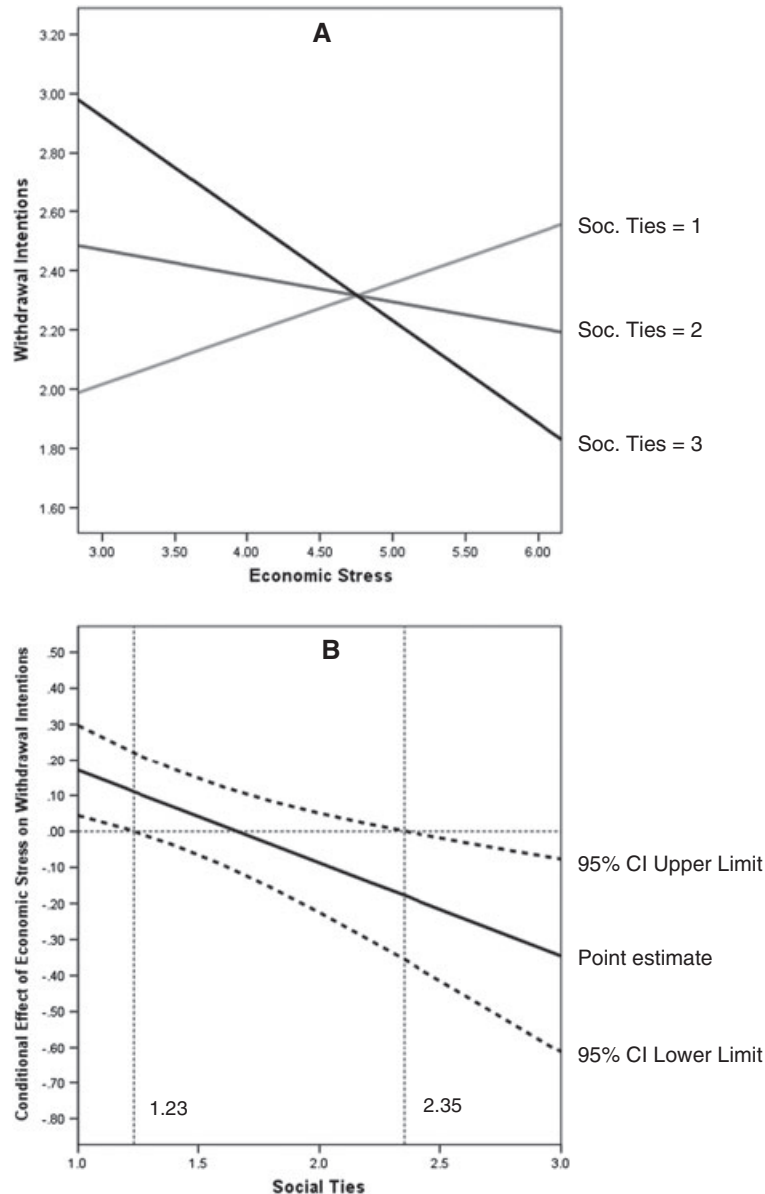
Figure 3. Withdrawal intentions as a function of economic stress and social ties (A) and John–Neyman regions of significance for the conditional effect of economic stress at values of social ties (B)

Among entrepreneurs with less contact with social ties, those who reported greater economic stress reported greater intentions to withdraw from their entrepreneurial roles. We did not hypothesize the reversal of this association among those with higher contact with social ties, and we are reluctant to make too much of this, seeing as very few of the participants in this study reported contact with social ties above 2.35 (only 9 percent did so). Nevertheless, we speculate on this trend in the discussion.

Hypothesis 2 predicts a similar contingent effect of economic stress on depressed affect, with social ties serving as the moderator. The results of an analysis comparable with the one reported earlier can be found in Table 2 (Model 2),

which shows that indeed, the relationship between economic stress and depressed affect is contingent on social ties, with this moderation accounting for just over 40 percent of the explained variance (from .081/.198). We depicted this effect graphically in Figure 4(A) and probed it using the Johnson–Neyman technique (Figure 4(B)). As can be seen, the pattern is similar to the one reported with withdrawal intentions as the outcome. Among entrepreneurs with less contact with social ties (<1.91), those who reported relatively more economic stress also reported relatively more depressed affect. There was no association among those more moderate in contact with social ties, and there are hints of a negative association among those with greater contact with social ties (the function for the conditional
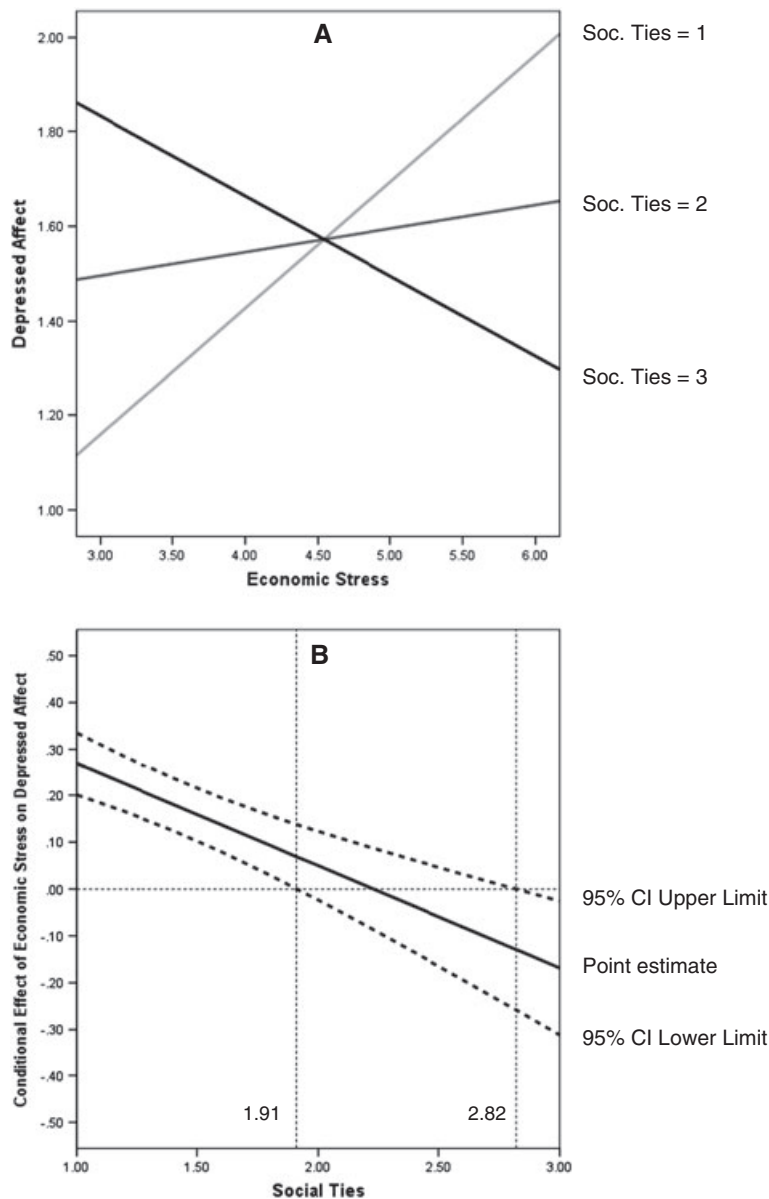

Figure 4. Depressed affect as a function of economic stress and social ties (A) and John–Neyman regions of significance for the conditional effect of economic stress at values of social ties (B)

effect is $0.181 - 0.218 \times$ Social ties). Again, we are hesitant to speculate much on this latter trend seeing as there are relatively few participants in this study who reported social ties higher than 2.82 (less than 5 percent did so). Regardless, these findings support Hypothesis 2.

Hypothesis 3 proposes that the effect of economic stress on withdrawal intentions is carried in part indirectly through depressed affect, with this process being moderated by contact with social ties. In path analysis, an indirect effect is the product of the effect of a causal agent (here, economic stress) on an intervening variable or "mediator" (depressed affect in this case) and the effect of the mediator on the outcome (withdrawal intentions in this study) holding the proposed cause constant (e.g., Baron & Kenny, 1986; Hayes, 2009; MacKinnon, Fairchild, & Fritz, 2007). If one of these paths is moderated, then so too is the indirect effect (Edwards & Lambert, 2007; Muller, Judd, & Yzerbyt, 2005; Preacher et al., 2007). The prior analysis establishes that the path from economic stress to depressed affect is indeed moderated—it is contingent on contact with social ties. In the conceptual model in Figure 1, estimated using the path analysis diagrammed in Figure 2(B), we estimated the conditional indirect effect of economic stress on withdrawal intentions as $(a_1 + a_3 \text{ social ties})b$, where b is the partial effect of depressed affect on withdrawal intentions from regression model summarized in Table 2, Model 3 (for a derivation, see Edwards & Lambert, 2007, pp. 8 and 10, or Preacher et al., 2007, pp. 196–197). Notice that holding economic stress and social ties constant, those who reported greater depressed affect also reported higher withdrawal intentions ($b = .728$, $p < .001$). Combining the conditional effect of economic stress on depressed affect with the effect of depressed affect on withdrawal results in the conditional indirect effect of economic stress on withdrawal intentions through depressed affect: $(0.181 - 0.218 \times \text{Social ties}; 0.728)$.

We depicted the conditional indirect effect graphically as the solid line in Figure 5. Observe that this function slopes downward, meaning that the conditional indirect effect decreases as contact with social ties increases. Inference about indirect effects can be carried out in a manner analogous to methods for probing interactions in ordinary least squares regression. Preacher et al. (2007) describe a Johnson–Neyman method for deriving regions of significance for the conditional indirect effect, as well as a bootstrap approach to the construction of confidence intervals at a given value of the moderator, and they provide a computational tool for SPSS (MODMED) to aid in
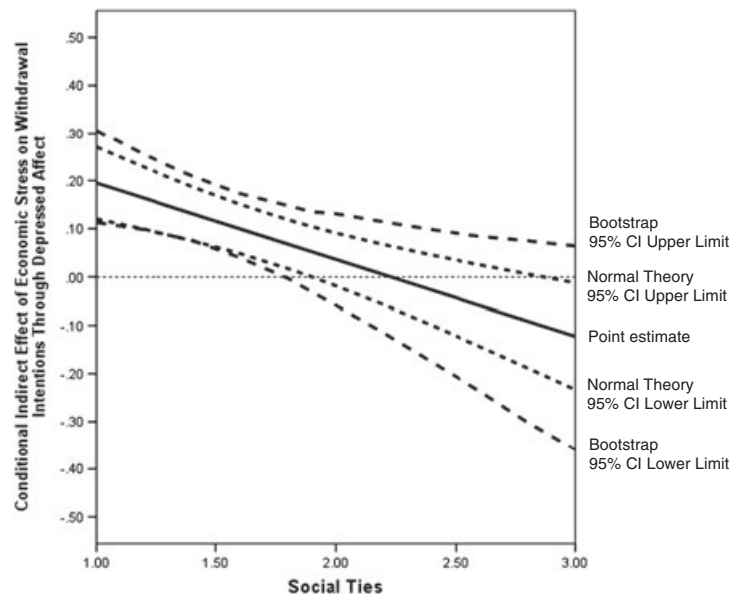

Figure 5. The conditional indirect effect of economic stress on social ties through depressed affect, with normal theory and bias-corrected bootstrap confidence intervals

their computation. Figure 5 displays the upper and lower limits of a 95 percent confidence interval using the Johnson–Neyman "normal theory" approach. Although not explicitly stated in Figure 5, the 95 percent confidence interval for the conditional indirect effect is entirely above zero when social ties are less than 1.90 and entirely below zero when social ties are greater than 2.87. However, this approach assumes the sampling distribution of the product of paths is normal, an assumption known to be false and that makes tests on the basis of normal theory methods, such as the Sobel (1982) test and the Johnson–Neyman technique problematic in this application (see e.g., Hayes, 2009; MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002). Bootstrapping avoids this assumption, and we recommend it for inference about indirect effects in mediation analysis (Hayes, 2009; MacKinnon et al., 2007; Preacher & Hayes, 2004, 2008). We generated 95 percent bootstrap confidence intervals for the conditional indirect effect at various values of social ties on the basis of 10 000 bootstrap samples and using the MODMED tool described by Preacher et al. (2007). The end points of the confidence interval can be found in Figure 5, and they confirm the statistically significant positive conditional indirect effect among those lower in contact with social ties revealed by the Johnson–Neyman technique. Among those lower in contact with social ties, the indirect effect is positive, meaning greater economic stress leads to higher depressed affect, which in turn results in higher intentions to withdraw from entrepreneurship. Among those higher in contact with social ties, there is no evidence of this process at work.

The prior analysis focuses on contact with social ties as a moderator of the indirect effect of economic stress on withdrawal intentions through depressed affect or "moderated mediation." This pattern can also be described statistically in terms of "mediated moderation," meaning the mediation of the interactive effect of economic stress and social ties on withdrawal intentions through depressed affect. Observe that the coefficient for the interaction between economic stress and social ties is closer to zero in Model 3 than in Model 1. The difference between the total effect of the interaction (c_3) and the direct effect of the interaction after controlling for a proposed mediator (c'_3) is the indirect effect of the product of social ties and economic stress on withdrawal intentions through depressed affect. A formal test of this difference answers the question on whether depressed affect functions as a mediator of the moderation (i.e., mediated moderation) predicted by Hypothesis 1 and confirmed analytically. As Morgan-Lopez and MacKinnon (2006) pointed out, this difference is equal to the product of the effect of the interaction on the proposed mediator (a_3) and the effect of the proposed mediator on the outcome controlling for the interaction (b). Indeed, observe that $a_3 b = c_3 - c'_3$: $-0.218(0.728) = -0.159 = 0.258 - (-0.099)$. A 95 percent bootstrap confidence interval for this product, based on 10 000 bootstrap samples (using the INDIRECT procedure described in Preacher & Hayes, 2008), was found to be entirely below zero (-0.294 to -0.032), thus supporting the interpretation that depressed affect can be construed as a mediator of the moderation of economic stress on withdrawal intentions by social ties.[2]

Sensitivity to confounds

It is well known that correlation does not imply causation, and a cross-sectional mediation analysis such as this is replete with alternative explanations, among the most serious being "spuriousness"—that the associations observed are not causal themselves but instead are the outcomes of common causes not modeled (e.g., Bullock, Green, & Ha, 2010; Mathieu, DeShon, & Bergh, 2008; Stone-Romero & Rosopa, 2010). Statistical control is a common means of establishing whether a defined and measured set of potential confounding variables can explain the obtained results of a correlational analysis. On the basis of the argument provided earlier, we repeated this analysis while including

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[2]Following the advice of a reviewer, we also tested our moderation hypotheses by using a dichotomized version of the social ties measure. For this, we categorized the participants into those who reported "1" tie and those who reported more than 1. This did not substantively alter the results. We still find the reported interaction between social ties and economic stress, the form of that interaction is the same, and the indirect effect is statistically different from zero only among those with "low" (i.e., 1) social ties. Thus, we retained our original analysis, as it is more consistent with best practices across literatures regarding the disadvantages of arbitrary dichotomization of continua (see, e.g., Irwin & McClelland, 2002; MacCallum, Zhang, Preacher, & Rucker, 2002; Royston, Altman, & Sauerbrei, 2006).

sex, age, tenure at the firm, entrepreneurial self-efficacy, and social competence as additional predictors in the regression models reported in Table 2. We did so in this sensitivity analysis but not in the main analysis because of the presence of much missing data in some of these controls, which reduced the sample size down to 234 after deletion of cases with missing data. However, adding these controls had no effect on the results substantively or statistically. All effects we reported earlier persisted after controls, and no effects reported as nonexistent emerged as statistically significant in this sensitivity analysis.

Discussion

In this research, we examined the psychological experience of entrepreneurs in response to economic stress. Findings supported our three primary hypotheses. First, we proposed and found that contact with social ties moderates the relation between economic stress and the withdrawal intentions of entrepreneurs (Hypothesis 1). Specifically, among entrepreneurs with less contact with social ties, the relation between stress and withdrawal intentions is positive, with greater economic stress associated with greater intentions to withdraw—the relation flattens and even appears negative as contact with social ties increases. Although we did not hypothesize this reversal, this finding bolsters research related to the stress-buffering effect and the role that social ties play in alleviating the deleterious effects of stress (e.g., Cohen & Wills, 1985; Kawachi & Berkman, 2001). It may be that, in times of increased economic stress, contact with business-related social ties not only negates the effects of stress on withdrawal intentions but even causes a sort of reactance, leading entrepreneurs to use the structural support provided by social ties to work even harder. Reactance occurs under times of stress or pressure, when an individual responds with unexpected effort or performance. For instance, women exposed to stereotype threat in a leadership context reacted with greater identification of themselves as leaders (e.g., Hoyt, 2005). Perhaps entrepreneurs under economic stress, who have more contact with business-related social ties, experience stress as a challenge rather than a hindrance and exhibit this reactance response (e.g., LePine et al., 2005; Podsakoff et al., 2007).

Second, we proposed and found that contact with social ties moderates the effect of economic stress on depressed affect (Hypothesis 2). Entrepreneurs with less contact with social ties, and thus less access to the functional social support those ties offer, reported relatively more economic stress and also relatively more depressed affect. This finding replicates related work on the stress-buffering effect in the novel context of entrepreneurs coping with economic hardships.

Third, we proposed and found that the indirect effect of economic stress on withdrawal intentions through depressed affect is contingent on contact with social ties (Hypothesis 3). Among those with less contact with social ties, the indirect effect is positive, meaning greater economic stress leads to higher depressed affect, which in turn results in higher intentions to withdraw from entrepreneurship. Among those with greater contact with social ties, there is no evidence of this process at work. We interpret this to mean that contact with social ties serves to buffer the impact of economic stress on depressed affect which in turn reduces an entrepreneur's intention to withdraw. Those who seem most susceptible to the impact of economic stress are those with less contact with social ties. This finding extends work related to the stress-buffering effect by including the theory-based construct of depressed affect as the mediating mechanism through which social ties reduce entrepreneurs' withdrawal intentions.

These findings extend our knowledge of how entrepreneurs respond to stress. The vast majority of the entrepreneurship literature currently takes a role-stress perspective and proposes that heightened stress results from role conflict (e.g., job-related expectations are at odds with each other or are misunderstood), role ambiguity (e.g., vagueness in tasks or expectations make it hard to meet obligations and commitments), and role overload (e.g., resources and time are not enough to meet obligations and commitments; Wincent & Örtqvist, 2009a, 2009b). In this framework, role stress is generally conceptualized as the consequence of factors including firm characteristics (i.e., technology, environment) and an entrepreneur's personality, and the antecedent to outcomes such as satisfaction, performance, work–family conflict, depression, and withdrawal (Wincent & Örtqvist, 2009b). Although this integration of the literatures of

sociology and psychology using Katz and Kahn's (1966) work in the domain of entrepreneurship has been beneficial, research from this perspective has two shortcomings. First, these models have not yet integrated the role of affect in the stress–strain process. Second, limited attention has been paid to potential buffering effects of the stress–strain relation. The present research addresses both these issues.

Limitations, future directions, and practical applications

We identify the following limitations and related future directions. First, we focused only on economic-related stress. But entrepreneurs experience stress in a number of other ways (e.g., loneliness, role stress, issues with employees, need for achievement). Accordingly, future research could systematically expand on the present findings by incorporating additional operationalizations of stress (for reviews, see Gilboa et al., 2008; Richardson & Rothstein, 2008) to examine the stress-buffering model and the role of depressed affect.

Second, we examined contact with social ties in an entrepreneur's networking group. Although this focus builds on research related to structural as well as functional support, future work may benefit from examining alternate conceptualizations of social ties including quality of ties (e.g., depth of social ties, team–member exchange) as well as other social network variables, such as centrality and density and how entrepreneurs can maximize their networking effectiveness (e.g., Kilduff & Brass, 2010a; Klein, Lim, Saltz, & Mayer, 2004). Additionally, whereas we honed in on business-related ties, Eng et al. (2002) identified numerous types of ties (e.g., marital status, close friends and family, religious group affiliations, memberships). Future work could examine these sources of social ties within the stress-buffering framework in entrepreneurship.

In addition to including other measures of economic stress and social ties, future research should seek to replicate these findings in other samples both domestically and internationally. This study only recruited entrepreneurs who were members of networking groups in the U.S.A. Further research could include entrepreneurs who do not belong to such networking organizations as well as entrepreneurs outside the U.S.A. (e.g., Kolvereid et al., 1993). Also, for entrepreneurial ventures, long-term persistence in running a business is of particular interest. As such, longitudinal designs that address the extent to which individuals continue in their business would be relevant for future work. Furthermore, research that examines objective performance outcomes over time (e.g., revenue, return on assets) could extend the present work.

An additional line of work could explore plausible alternative explanations for the relations among economic stress, social ties, depressed affect, and withdrawal intentions. Whereas, in the present research, we suggest that contact with social ties buffers the effect of stress on depressed affect and withdrawal intentions, it could be that depressed affect and withdrawal intentions led to a decision to withdraw from the social networking group to a certain extent, reducing the contact with social ties one maintains in response to economic stress. Thus, we recognize that longitudinal studies that measure contact with social ties maintained by participants at different periods would be necessary to draw explicitly causal claims about the exact operation of the stress-buffering model proposed, and supported, here.

Another potentially valuable line of future work could examine how the coping tactics (e.g., venting) of entrepreneurs affects the relation between experiencing a negative work event and the outcome of work performance (Brown et al., 2005; Frydenberg, & Lewis, 2009; Luria & Torjman, 2009). Although the present research examined contact with business-related social ties, it may be that some entrepreneurs do not have access to a network of these social ties—thus, examining additional coping mechanisms to help alleviate the subsequent stress, depressed affect, and withdrawal related to economic stress is an area for future research (e.g., Ahmad & Salim, 2009).

The present findings provide practical insight in numerous areas. We note the following four practical applications. First, these data illustrate the valuable role that contact with social ties can play in enabling entrepreneurs to respond adaptively to challenges, namely economic stress. Entrepreneurs, accordingly, have the opportunity to increase contact with business-related ties and thereby reduce the likelihood that they will feel emotions such as helplessness, hopelessness, and inferiority in response to economic stress.

Second, this research is useful for owners and managers of formal networking organizations (e.g., BNI). Although research related to networking is growing (e.g., Gilmore & Carson, 1999; O'Donnell, 2004), as researchers, we know little about the processes at work within these groups—the present research expands our knowledge and illustrates that membership in such groups, and the social ties they offer access to, may enable entrepreneurs to weather lean economic times. These findings provide impetus for numerous areas of future inquiry noted earlier and also offer a point of differentiation for networking groups—a selling point which they can market. Contact with social ties buffers the deleterious effects of stress, and these groups offer access to numerous social ties.

Third, these data could be useful as well for owners and managers of informal networking organizations such as LinkedIn and Facebook. These networks have use for individuals socially (e.g., sharing information) and professionally (e.g., seeking jobs). However, the present data hint at the benefits of individuals' contact with social ties in buffering against the effects of economic stress. Future work could examine if the results we found in formal networking groups hold true in informal groups as well—if so, as above, it would represent a nice selling point through which these networks may enroll additional members.

Fourth, and related, these data have applicability beyond entrepreneurship. The present research could foster future work related to how businesses (entrepreneurial and/or established) may increase the social ties among individuals to reduce the negative effects of stress (through both formal and informal contexts). Because of the negative costs associated with increased stress in the workplace, multiple stress-reduction interventions have been implemented and evaluated—however, data show that these interventions are less effective than hoped or anticipated (Briner & Reynolds, 1999). This line of work could be valuable for individuals and teams within organizations as well as for entrepreneurs and their employees. However, before workplace changes are implemented, additional empirical research is needed to ensure that the intended consequences are realized—as small changes in job design may have important (positive and negative) consequences for job-related satisfaction and performance (e.g., Baron, 2010; Johns, 2010).

Although the quantity of research related to the psychology of entrepreneurship as well as how entrepreneurs respond to stress, setbacks, and failures is growing, we still have much to learn about the contextual dynamics that impact the nature of entrepreneurs' affect, cognition, and subsequent coping intentions and behavior (e.g., Baron, 2000, 2008; Shepherd, 2003, 2009). We hope that the present work fosters such theoretical and practical explorations.

Acknowledgements

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