



The Power of Solidarity:

Supervisors, Employees, and their Interdependence at Work

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Eduardo Hughes Galeano states:

“I don’t believe in charity; I believe in solidarity.

Charity is vertical. It goes from top to bottom.

Solidarity is horizontal. It respects the other and learns from the other.

I have a lot to learn from other people. “

But is it true that we can only respect and learn from others
on the horizontal, and not on the vertical level?

~ Jayshri Nargis Bachoe ~

ACKNOWLEDGEMENT

Initially, the purpose of my first thesis was to investigate the willingness to change among employees working at Achmea. The intention was to collect data within this organization and investigate to what extent work engagement is related to the level of willingness to change. Unfortunately, due to organizational policy, data collection was not possible and the paper was delayed for a couple of weeks. Additionally, due to personal reasons, I decided not to enroll for the second year of the two-year Master Sociology and postponed writing my thesis for one academic year.

After a six-month intermission, I resumed writing my thesis. Unfortunately, the supervisor of my first thesis was unable to guide me further through the course. Consequently, prof. dr. F. Koster was assigned as my new supervisor and dr. S. Quak filled the position of co-reader. Due to the fact that the subject of my first thesis, willingness to change, shows similarities with the subject of this thesis, solidarity, and a dataset about solidarity was available, I changed the thesis subject into solidarity. This thesis is based on the results of the dataset about solidarity. This thesis subject turned out to be as interesting as the thesis subject about the willingness to change.

I would like to extend my gratitude to all those who helped me write this thesis. A sincere thanks goes to prof. dr. F. Koster, dr. S. Quak, and A. Brugmans, fellow student, for their guidance and feedback in order to complete this thesis successfully. Lastly, a special thanks to Ajay Doebar, my parents, sisters, brothers-in-law, family and friends for their unlimited support and encouragements when needed.

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ABSTRACT

Organizational solidarity, Leader-Member Exchange (LMX) and Team-Member Exchange (TMX) have been studied from a variety of theoretical perspectives. Previous research solely investigated LMX and TMX separately based on direct reciprocity. This research examines LMX and TMX in more detail in relation to organizational solidarity based on the mechanism of indirect reciprocity, and argues that solidarity from the supervisor is positively related to solidarity among employees (hypothesis 1). This research further examines whether the relationship of solidarity from the supervisor to solidarity among employees is strengthened by the employment contract (hypothesis 2), temporal embeddedness of past experiences (hypothesis 3a) and future encounters with the supervisor (hypothesis 3b). Regression analyses show that solidarity from the supervisor is related to solidarity among employees. Employment contract appears not to be important in explaining the relationship between solidarity from the supervisor and solidarity among employees. Past experiences of temporal embeddedness do not affect this relationship, while future encounters of temporal embeddedness do impact the relationship of solidarity from the supervisor to solidarity among employees. Limitations of this research and suggestions for future research are discussed.

Keywords: leader-member and team-member exchange, organizational solidarity, indirect reciprocity, employment contract, temporal embeddedness

1. INTRODUCTION

According to LMX theory, supervisors and employees share mutual trust within effective supervisor-employee relationships (Stringer, 2006). TMX theory has been proposed as complementary to LMX (Seers, 1989) as it refers to organizational relationships that are established among employees (Seers, Petty & Cashman, 1995). Both theories are based on social exchange theory that essentially emphasizes that relationships among people are interconnected, and therefore dependent, on each other (Cropanzano & Mitchell, 2005). The concept of reciprocity is central within social exchange theory (Blau, 1964). Falk and Fischbacher (1999) define reciprocity as the act of rewarding kind actions and punishing unkind ones. This definition is based on the norm of reciprocity (Gouldner, 1960), which contains two aspects: “(1) people should help those who have helped them; and (2) people should not injure those who have helped them” (p. 171). Dansereau, Graen and Haga (1975) suggest that positive actions directed at employees by supervisors (LMX) contribute to high-quality exchange relationships. Accordingly, high-quality exchange relationships among employees (TMX) are also established by their actions and reactions. Nowak and Highfield (2011) distinguish these direct and indirect (re)actions into direct and indirect reciprocity among people. Direct reciprocity relates to a relationship between person A and person B, while indirect reciprocity refers to a relationship between person A and B via person C. Koster and Sanders (2007) distinguish between vertical and horizontal solidarity within organizations. The relationship between a supervisor and employee refers to vertical solidarity as the exchanges are between organizational members at different hierarchical levels, and horizontal solidarity relates to exchanges among employees at the same hierarchical level. LMX is comparable with vertical solidarity, and TMX corresponds with horizontal solidarity.

Although an extensive body of literature exists on LMX, TMX and organizational solidarity, it currently lacks an empirical assessment of the link between supervisor-employee relationships and organizational solidarity. Several studies about organizational solidarity have been conducted within the research program *Solidarity at Work* (Lambooi, Sanders, Koster, Van Emmerik, Raub, Flache & Wittek, 2003) that covered a variety of topics, e.g. status of solidary behavior (Van Emmerik & Stone, 2002), friendship effects (Flache, 2002), feedback-processes and personality traits (Van de Vliert, Sanders, Shi, Wang & Huang, 2003), leadership (Sanders, Schyns, Koster & Rotteveel, 2003), the concept of organizational solidarity (Sanders, Emans & Koster, 2004), and reorganizations (Boedjawan, 2013). This research is the first that relates vertical solidarity, the relationship from supervisors to

employees (LMX), to horizontal solidarity, the relationship among employees (TMX). Hence, this research focuses on the mechanism of indirect reciprocity (see figure 1).

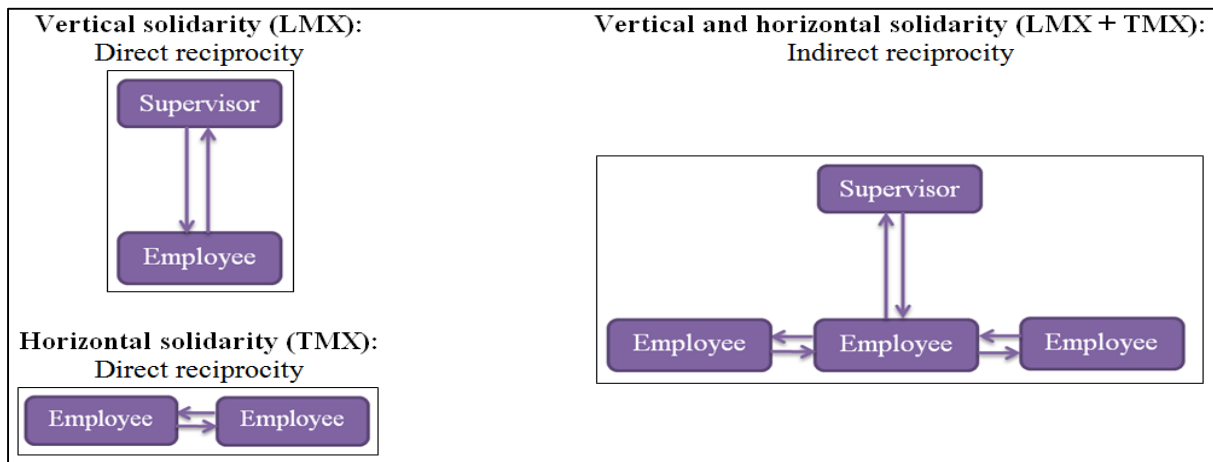


Figure 1. Vertical solidarity (LMX) and horizontal solidarity (TMX) with direct and indirect reciprocity.

Following Koster and Sanders’s analysis about employment contract and temporal embeddedness (Koster & Sanders, 2007), this research further investigates employment relationship duration. Employment contract and temporal embeddedness approach employment relationship duration differently (Koster & Sanders, 2007). While employment contract, both permanent and temporary, refers to the employment status and is solely used to describe the length of an employment relationship, temporal embeddedness also takes past experiences and likelihood of future encounters between supervisor and employees into consideration. Employees can differ with regard to the past experiences and the expected encounters in the future concerning a supervisor-employee relationship; these aspects correspond with the quality of an employee relationship. In essence, temporal embeddedness encompasses both length and quality of an employment relationship. Consequently, the following questions are addressed within this research: To what extent is solidarity from the supervisor related to solidarity among employees? Does this relationship differ for employees with a different employment contract or level of temporal embeddedness and can this difference be explained by the mechanism of indirect reciprocity?

1.1 Scientific Relevance

Thus far, research solely investigated LMX and TMX separately based on the mechanism of direct reciprocity. This research is the first to connect LMX and TMX and investigate this relationship by relating it to organizational solidarity. Additionally, this research goes beyond

explaining solidarity based on the mechanism of direct reciprocity by investigating the role of indirect reciprocity. Any outcome, whether solidarity from the supervisor is or is not related to solidarity among employees, contributes to the current body of literature about organizational solidarity (Koster & Sanders, 2007). Furthermore, supervisors contribute to organizational support and, ultimately, to job retention (Eisenberger, Stinglhamber, Vandenberghe, Sucharski & Rhoades, 2002), which is favorable for organizations. Relating outcomes from this research to organizational topics like organizational support and job retention provides a variety of opportunities for future research.

1.2 Societal Relevance

The labor market has become more flexible over the last decade that may decrease solidarity among employers and employees due to less long-lasting relationships (Komter, Burgers & Engbersen, 2000). Organizational solidarity is relevant on the micro-, meso-, and macro-level. An effective supervisor-employee relationship is seen as an important factor contributing to organizational support (Stringer, 2006). This research questions whether solidarity plays an important role within a supervisor-employee relationship. Furthermore, this research provides more insight about group behavior concerning their level of solidarity within a supervisor-employee relationship. Wickens (1995) has described organizational solidarity as one of the success factors of modern organizations. Anticipations on the findings of this research may contribute to more profitable organizations as solidarity is becoming more prominent within society (Meurs, 2013).

1.3 Outline

First, chapter two provides a literature review about solidarity, in which vertical and horizontal solidarity, employment contract, and temporal embeddedness will be discussed. The mechanism of indirect reciprocity will also be addressed while the expected results will be hypothesized. Chapter three provides a descriptive and statistical overview of the dataset and results are reported in chapter four. Finally, the results will be discussed and concluding remarks will be provided.

2. SOLIDARITY

Solidarity relates to concepts like ‘willingness to co-operate’ (Barnard, 1938), ‘pro-social organizational behavior’ (Brief & Motowidlo, 1986), and ‘contextual performance’ (Borman

& Motowidlo, 1993). Koster, Sanders and Van Emmerik (2002) defined solidarity as “the effort that is being put into producing a collective good without any direct compensation” (p. 66), which is based on the perspectives of Hechter (1987) and Lindenberg (1998).

Organizational solidarity expressed by people is characterized as contributing to the collective good in two ways: (1) in-role performance, which refers to performance according to the responsibilities of a job; and (2) extra-role performance, which is related to behavior that formally goes beyond the job description. This type of behavior is discretionary and contains any form of solidarity (Smith, Organ & Near, 1983; Williams & Anderson, 1991).

The concept of solidarity is based on Lindenberg’s (1998) conceptualization according to which solidarity involves choices in five dilemma situations: (1) contributing to the collective good (common good situation); (2) providing help to people who need it (need situation); (3) resisting the temptation to let others do most of the work (breach temptation); (4) honestly sharing the costs and benefits (sharing situation); and (5) rectifying unintentional errors (mishap situation) (Sanders, 2000).

Showing solidarity entails a choice: to be or not to be solidary. Sanders et al. (2004) argue that solidarity is directed to employees, and simultaneously influenced by the behavior of colleagues. Solidarity is, therefore, not only dependent on individual characteristics, but also on the interdependent relationships with employees (Koster & Sanders, 2006). When two or more employees co-operate with each other, a problem arises: each individual is better off when a task is successfully accomplished, but to what extent will each individual put an effort into the co-operation? The answer to this question concerning what motivates employees within a co-operation can be provided by the concept of reciprocity.

2.1 Explaining Solidarity: Direct Reciprocity Mechanism

According to Sanders et al. (2004), solidarity is based on reciprocity, i.e. the rewarding or punishing (re)actions of people (Falk & Fischbacher, 1999). Based on reciprocity, solidarity from person A to person B is answered with solidarity from person B to person A. Following Blau’s analysis, reciprocity is central within social exchange theory (Blau, 1964) that “comprises actions contingent on the rewarding reaction of others, which over time provide for mutually and rewarding transactions and relationships” (Cropanzano & Mitchell, 2005: p. 890). Cropanzano and Mitchell (2005) also argue that interdependent transactions between employees potentially generate high-quality relationships, which give rise to effective work behavior. Koster (2005) argues that relationships differ due to the fact that the relationships

depend on different people. This premise, which Koster based on the difference between vertical and horizontal solidarity, is also found in the argument that interactions among supervisor and employees are essential for organizations because employees interact most meaningfully with their supervisors and colleagues (Smith, Carroll and Ashford, 1995). Social exchange theory specifically explains reciprocal relationships between persons based on direct reciprocity (Nowak & Highfield, 2011). Which mechanism, however, could explain relationships that are not based on direct reciprocity, e.g. the relationship between person A and B via person C?

2.2 Explaining Solidarity: Indirect Reciprocity Mechanism

Nowak and Highfield (2011) distinguish direct from indirect reciprocity, but the first step toward understanding the difference between these types of reciprocity is to analyze how the structure of direct and indirect relationships are established. While direct reciprocity relates to the principle of give-and-take, also known as ‘tit for tat’ (Nowak & Highfield, 2011: p. 22), indirect reciprocity refers to a broader perspective and is called ‘the power of reputation’ (Nowak & Highfield, 2011: p. 52). With direct reciprocity it is clear who gives and takes within a relationship, as only person A and person B are involved within an exchange. Unlike the assumptions of direct reciprocity, it is not entirely clear who is acting and reacting with indirect reciprocity as the relationship between person A and B is established via person C. As person C could be anyone, every person is dependent on third parties in order to receive something in return. Regarding indirect reciprocity, people are no longer in direct contact with each other, and are therefore interconnected with and dependent on others.

Although many aspects of solidarity have been extensively researched and discussed, the relationship of solidarity in relation to supervisor behavior or the overall company strategy (Koster & Sanders, 2007) have remained unclear. The existing body of literature offers suggestions on how to examine these relationships, but these interpretations have not empirically been tested so far. One study showed a reciprocal relationship between solidarity and leadership (Sanders & Schyns, 2006), but this result solely corresponds with direct reciprocity. Koster (2014) recently stated a potential trade-off between vertical and horizontal organizational interactions; strengthening vertical organizational relationships may weaken horizontal ones. However, this aspect requires additional research as this study has been conducted using the concept of Organizational Citizenship Behavior (OCB), a concept that is closely related but not similar to organizational solidarity (Koster & Sanders, 2006).

Psychological research concerning vertical and horizontal organizational relationships contains findings about an “exemplary role” (Avoort & Van Dinteren, 2011: p. 31). According to Dweck (2006) and Liedtka, Rosen and Wiltbank (2009), employees take norms and values from their supervisor into account and, subsequently, mimic the supervisor’s behavior. Following the concept of an exemplary role by the supervisor, employees are likely to express horizontal solidarity towards their colleagues when their supervisor expresses vertical solidarity to them (Dweck, 2006; Liedtka, Rosen & Wiltbank, 2009). The relationship between solidarity expressed by the supervisor towards employees and employees subsequently expressing solidarity among each other can be explained by the concept of indirect reciprocity as employees indirectly mimic supervisor’s solidary behavior towards their colleagues.

Hypothesis 1: *Solidarity from the supervisor is positively related to solidarity among employees.*

2.3 Employment Relationship Duration

This research further investigates if employment relationship duration affects the relationship of solidarity from the supervisor to solidarity among employees as the employment relationship duration could weaken, strengthen, or have no influence at all regarding this relationship. Integrating indirect reciprocity into this field, one could assume that indirect reciprocity depends on the duration of a supervisor-employee relationship; the longer the employment relationship, the more possibilities for both supervisor and employees of increasing their level of solidarity over time. The mechanism of indirect reciprocity is therefore relevant in order to understand the possible influence of employment relationship duration on the relationship between solidarity from the supervisor and solidarity among employees. This research investigates two forms of employment relationship duration that have been discussed within the existing literature concerning organizational solidarity (Van Emmerik & Sanders, 2004; Koster & Sanders, 2007): (1) the employment contract, which refers to the employment status; and (2) the level of temporal embeddedness, which is a relational characteristic.

2.3.1 Employment Contract

As society is changing rapidly, organizations attempt to meet staffing levels by hiring

temporary employees without making any long-term commitments (Van Emmerik and Sanders, 2004). Temporary employment is defined as “paid employment relations other than those with unlimited duration” (Virtanen, Kivimäki, Joensuu, Virtanen, Elovainio & Vahtera, 2005, p. 610). Polivka and Nardone (1989) define permanent contracts as “a fulltime, permanent, wage and salary employment” (p. 10).

While investing in employees results in a primary competitive advantage for organizations (Miles & Snow, 1995), the increased use of temporary employment contracts (Masters & Miles, 2002) may undermine co-operative employee behavior (Davis-Blake & Uzzi, 1993; Moorman & Harland, 2002). Hogan and Ragan (1995), however, expect that temporary employees are more motivated than permanent ones in order to achieve tenure. The research of Van Emmerik and Sanders (2004) found an increase of job performance for permanent employees only, but did not show a stronger relationship for permanent employees in comparison with temporary employees. Although the relationship of solidarity to employment contract has been extensively researched and discussed (Koster, Sanders & Van Emmerik, 2002; Van Emmerik & Sanders, 2004; Koster & Sanders, 2007), the existing literature shows not much consensus concerning the effect of employment contract on the level of employees’ solidarity. Because research has shown inconsistent findings about employment contract and solidarity of employees and these findings also refer to the mechanism of direct reciprocity, this research argues that employment contract could indirectly affect the level of solidarity regarding the relationship between solidarity from the supervisor and solidarity among employees.

The statement that employment contract solely refers to the length of an employment relationship gives rise to the assumption that temporary employees have short-term relationships with their supervisor and permanent employees have long-term relationships with their supervisor. Accordingly, permanent employees are assumed to have an employment relationship of a longer duration with their supervisor than temporary employees. Indirect reciprocity for the supervisor-employee relationship of permanent employees contains more time, and therefore it is most likely that permanent employees benefit from more possibilities of increasing their level of solidarity towards their colleagues as a result of solidarity from the supervisor in comparison with the supervisor-employee relationship of temporary employees. Thus, according to this argument, having a permanent contract strengthens the relationship of solidarity from the supervisor to solidarity among employees more than having a temporary contract as an employee.

Hypothesis 2: *The positive relationship of solidarity from the supervisor to solidarity among employees is strengthened by employment contract.*

2.3.2 Temporal Embeddedness

Employment contract solely refers to the length of the employment relationship, while temporal embeddedness offers more insight into this relationship; taking into consideration the past, the future, and the quality of this relationship (Koster & Sanders, 2007).

Karl Polanyi is considered the father of the concept of embeddedness (Swedberg & Granovetter, 2001) that gained prominence in the last decade (Hess, 2004). Individuals are embedded within their social context, which may impact their solidarity (Raub, 1997). Research contains many definitions of temporal embeddedness, creating a lack of consensus regarding one definition of this concept. Following Koster and Sanders (2007), this research defines temporal embeddedness as: the experiences with the supervisor in the past and the likelihood of future encounters with the supervisor. The difference between temporary and permanent employment contracts implicitly assumes that temporary employees have short-term relationships with their supervisor and permanent employees have long-term relationships with their supervisor (Koster & Sanders, 2007). However, a permanent employee could, for example, be transferred to another department or change job positions. Employment contract and temporal embeddedness thus show the following three differences: (1) past experiences with the supervisor to learn from and future encounters with the supervisor to control behavior compose the conditions for a co-operation (Buskens & Raub, 2002), while employment contract solely refers to the length of the employment relationship; (2) temporal embeddedness refers to both the length and quality of this relationship; and (3) temporal embeddedness focuses on the relationship itself instead of the employment status.

Employees can differ with regard to past experiences as well as the expected future concerning the relationship with their supervisor. Assuming that indirect reciprocity takes time to take hold, past experiences and possible future encounters with the supervisor are likely to affect the relationship between solidarity from the supervisor and solidarity among employees. The supervisor-employee relationship may or may not be long in terms of the length of this relationship, but the quality of this relationship could be high. Employees with high-quality supervisor-employee relationships, containing high-quality past experiences and an expectation of a long-term relationship with the supervisor in the future, are more likely of

gaining possibilities to increase their level of solidarity towards their colleagues as a result of solidarity from the supervisor. Employees with low-quality supervisor-employee relationships, in contrast, are expected to be less likely of increasing their level of solidarity towards their colleagues resulting from solidarity from the supervisor due to having fewer possibilities as their relationships contain low-quality past experiences and an expectation of a short-term relationship with their supervisor in the future. High-quality past experiences and possible future encounters with the supervisor, therefore, strengthen the relationship of solidarity from the supervisor to solidarity among employees more than low-quality past experiences and possible future encounters with the supervisor.

Hypothesis 3: *The positive relationship of solidarity from the supervisor to solidarity among employees is strengthened by temporal embeddedness, namely, past experiences (hypothesis 3a) and possible future encounters (hypothesis 3b) with the supervisor.*

2.4 Conceptual Model

Figure 2 outlines the proposed hypotheses in which the relationship of solidarity from the supervisor, employment contract, temporal embeddedness and their impact on solidarity among employees is investigated.

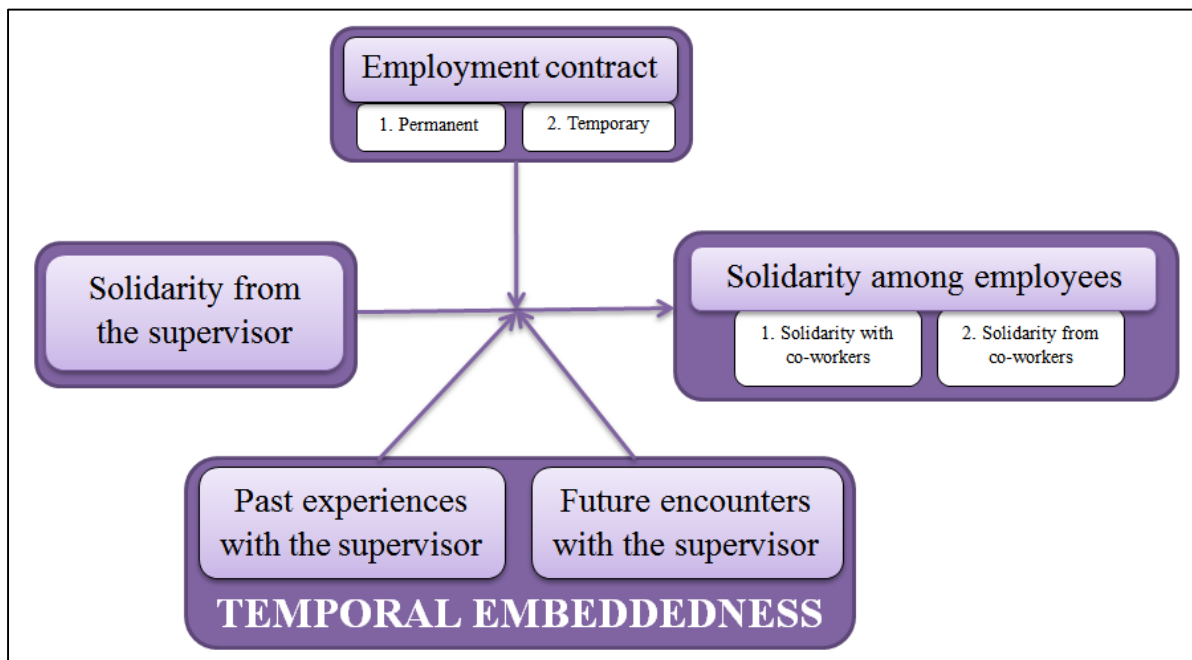


Figure 2. The relationships of solidarity from the supervisor, employment contract, temporal embeddedness and solidarity among employees

3. METHODS

This research uses quantitative secondary data from the dataset that resulted from the questionnaire *Survey Solidarity at Work* (Lambooy et al., 2003). The individual-level questionnaire required each respondent from various organizations in the Netherlands to answer the questions on a Likert-scale from 1 (totally disagree) to 7 (totally agree), which is often used to measure diffuse concepts within research (Van Dalen & De Leede, 2009). According to Koster (2005), the questionnaire was modified in order to meet specific needs of the participating organizations. However, every item measuring the variables were formulated in the same fashion across the different organizations to prevent misinterpretation by respondents. Students were present in every organization during the period of collecting data in order to increase the response rate. The possibility that students could respond to employees' questions and complaints regarding the questionnaire is seen as an advantage, that also probably resulted in a higher willingness of respondents to participate due to being more informed about the research (Koster, 2005). The questionnaire also contained questions to collect demographic data.

Using a quantitative method is a straightforward approach to study attitudes, values, motives, and behavior (Robson, 2011) and it is useful in describing characteristics of a large population (Babbie, 2004). Behavior of employees regarding one's perception about solidarity was studied for this research. Perceptions offer an indication of how respondents experience their own level of solidarity, that of their supervisors, and their colleagues. Consequently, the respondents' answers are only observations, not a reflection of actual behavior. Furthermore, this research is based on an occasional sample which restricts this research to the investigation of significant relationships and correlations (Baarda, Van Dijkum & De Goede, 2014).

The dataset contained missing values due to the limitation that a few survey measures have not fully been measured. Therefore, the Expectation-Maximization (E-M) technique (Moon, 1996) was used in order to achieve a complete dataset. Generally, a missing values percentage lower than 2 percent is used to secure random missing values. As controlling every survey measure for a missing value percentage below 2 percent resulted in excluding too many respondents, the E-M technique was applied for the two most important survey measures of this research: solidarity from the supervisor and solidarity among employees. The original dataset contained answers of 1,347 employees, however, applying the E-M technique reduced the total respondents to 816 (61 percent).

3.1 Respondents

Respondents were recruited from ten organizations, both public and private domain, and consists of a ministerial organization, a governmental organization, a military organization, a newspaper publishing organization, a consultancy firm, an engineering organization, a nursing home, a housing foundation, a recreation center, and a municipality. Table 1 provides an overview regarding the background characteristics of the organizations. Overall, 83 percent of the respondents have a permanent contract. In the ministerial organization, the highest number of 100 percent has a permanent contract, whereas the lowest number of respondents (44 percent) with a permanent contract work at the recreation center. The engineering organization employs the lowest number of female employees (6 percent), while the recreation center employs 69 percent of female workers. The mean education level of the total respondents, measured on a scale ranging from 1 (no education completed) to 9 (Ph.D. level completed), in the dataset is 4.99. On average, the nursing home has the highest educational level (mean = 6.41) and the publishing organization has employed the least educated employees (mean = 3.47). Furthermore, about 63 percent of the respondents is living with a partner, of which 84 percent has a working partner who, on average, spends around 19 hours per week on domestic and care chores.

Table 1 Descriptive statistics of the organizations

| | Organization | Number of respondents | Percentage permanent employees | Percentage women | Mean educational level |
|---------|---------------------------|-----------------------|--------------------------------|------------------|------------------------|
| Public | Ministerial organization | 12 | 100 | 42 | 5.25 |
| | Governmental organization | 255 | 91 | 62 | 4.91 |
| | Military organization | 199 | 64 | 13 | 5.22 |
| | Nursing home | 17 | 94 | 65 | 6.41 |
| | Housing foundation | 14 | 93 | 36 | 4.93 |
| | Recreation center | 16 | 44 | 69 | 4.65 |
| | Municipality | 117 | 92 | 38 | 4.96 |
| Private | Publishing organization | 63 | 83 | 16 | 3.47 |
| | Consultancy firm | 106 | 91 | 48 | 5.60 |
| | Engineering organization | 17 | 88 | 6 | 4.47 |
| | | | | | |
| | Total | 816 | 83 | 40 | 4.99 |

3.2 Measures

3.2.1 Dependent Variable: Solidarity Among Employees

Solidarity among employees is based on the five dimensions of Lindenberg (1998) and has been operationalized by composing the survey measures: solidarity from co-workers and solidarity with co-workers. To measure solidarity from co-workers the following statements were asked to reflect on: (1) “My co-workers help to finish work in our team”; (2) “My co-workers are willing to help when things that nobody is responsible for went wrong”; (3) “My co-workers apologize when they have made a mistake”; (4) “My co-workers divide the pleasant and unpleasant tasks as fairly as possible”; and (5) “My co-workers live up to their agreements”. To measure solidarity with co-workers the following statements were asked to reflect on: (1) “I help my team members to finish tasks”; (2) “I am willing to help my team members when things that nobody is responsible for went wrong”; (3) “I apologize when I made a mistake regarding my team members”; (4) “I try to divide the pleasant and unpleasant tasks as fairly as possible between me and my team members”; and (5) “I live up to my agreements concerning my team members”. A reliability analysis did not confirm unidimensionality or homogeneity (Cortina, 1993). A Principal-Components Analysis using Varimax Rotation was performed to examine the underlying structure of the two survey measures (Wold, Esbensen & Geladi, 1987) and confirms a classification for two components, $\alpha = 0.90$ for solidarity from co-workers and $\alpha = 0.85$ for solidarity with co-workers.

3.2.2 Independent Variable: Solidarity from the Supervisor

To measure the level of solidarity from the supervisor five statements, based on Lindenberg's dimensions (1998), were asked to reflect on: (1) “My supervisor helps to finish team tasks”; (2) “My supervisor is willing to help us when things went wrong that nobody is responsible for”; (3) “My supervisor apologizes when something went wrong”; (4) “My supervisor divides the pleasant and unpleasant tasks as fairly as possible”; and (5) “My supervisor lives up to agreements”. A reliability analysis resulted in $\alpha = 0.86$.

3.2.3 Moderating Variable: Employment Contract

From the total respondents, 83 percent has a permanent contract and 17 percent (of which 10 percent has a possibility of tenure) are temporary employees. This research categorized and coded employment contract as either permanent (0) or temporary (1).

3.2.4 Moderating Variable: Temporal Embeddedness

This variable contains two aspects: (1) past experiences with the supervisor: “How many years have you been working with your current supervisor?”; and (2) future encounters with the supervisor: “For how many years do you expect to work for your current supervisor?”. The questionnaire required each respondent to answer these questions in a number of years.

3.2.5 Statistical Control Variables: Relational Structure

The supposed relationship of solidarity from the supervisor to solidarity among employees is corrected for task interdependence and informal relationships.

Task Interdependence

Task interdependence is an indicator regarding the extent to which employees are dependent on their colleagues in order to perform their job and was measured with three statements: (1) “To be able to do my job I need information from my team members.”; (2) “I depend very much on my team members to be able to do my job.”; and (3) “In order to be able to do my job well, I need to cooperate with my team members.” A reliability analysis resulted in $\alpha = 0.85$.

Informal Relationships

Informal relationships refer to personal interactions with supervisors and colleagues and was measured with three statements: (1) “With which part of your team do you engage in activities (both work related and non-work related)?”; (2) “With which part of your team did you engage in one of the following activities: going out for dinner, going to movies, visiting at home?”; and (3) “With which part of your team do you have a good personal relationship?”. The questionnaire required each respondent to answer these questions on a Likert-scale from 1 (with no one) to 7 (with everyone). A reliability analysis resulted in $\alpha = 0.79$.

3.2.6 Statistical Control Variables: Individual Indicators

The relationship of solidarity from the supervisor to solidarity among employees is corrected with the individual characteristics of gender and age. Gender was coded by a binary unit as either male (0) or female (1), and the ages ranged from 16 to 61 years old. The E-M technique provided negative results that are evenly corrected with the average of age (37 years).

3.3 Criteria for Research

This research meets the requirements of controllability, reliability, validity, and usefulness (Braster, 2000; Yin, 2009). First, controllability is guaranteed by following the codebook of *Survey Solidarity at Work* (Lambooi et al., 2003), formulating findings as accurately as possible, maintaining notes about conducting this research, applying adequate data-analyses, and assuring public availability of this thesis via Erasmus University. Second, this research applied reliability analyses by using a Cronbach Alpha of 0.8 or higher in order to neutralize misinterpretation by respondents (Howitt & Kramer, 2007). Third, construct validity is guaranteed by using multiple data sources, multiple research methods like literature review and quantitative research, and various research feedback moments. Data was collected at one single moment in time. It is precarious to conclude on causal relationships as this implicates internal validity of this research. This research is therefore restricted to the investigation of significant relationships and correlations. Furthermore, the dataset does not evenly represent every sector, age, and level of education. As a result, external validity for every variable is guaranteed by a normal distribution, deleting outliers, and the absence of multicollinearity. External validity for the dependent variable is met by a normal distribution of residuals, homoscedasticity, and independency of residuals (Vocht, 2010). Finally, this research had no influence on the modification of the questionnaire regarding the survey measures and timing of collecting data. Developing an appropriate conceptual model and formulating adequate hypotheses guarantees the usefulness of this research.

4. RESULTS

Table 2 provides the means, standard deviations and correlations of the variables. The means for both *solidarity from the supervisor* (Mean = 5.08, SD = 1.23) and *solidarity among employees* (Mean = 5.72, SD = 0.75) are around the same range. *Solidarity from the supervisor* has a strongly positive relationship with *solidarity among employees* ($r = 0.40$, $p < 0.01$), and a moderately positive relationship with *future encounters with the supervisor* ($r = 0.16$, $p < 0.01$). *Solidarity among employees* is correlated with *future encounters with the supervisor* ($r = 0.07$, $p < 0.05$). *Employment contract* is related to *past experiences with the supervisor* ($t = 5.58$, $p < 0.01$) and *future encounters with the supervisor* ($t = 2.97$, $p < 0.05$). Finally, *past experiences with the supervisor* is related to *future encounters with the supervisor* ($r = 0.19$; $p < 0.01$).

To test the hypotheses, this research regressed *solidarity among employees* on the

measures of the statistical control variables, the main effect of *solidarity from the supervisor*, and the interaction terms of *employment contract*, temporal embeddedness of *past experiences with the supervisor*, and temporal embeddedness of *future encounters with the supervisor* (see table 3). Variables are centered in order to reduce multicollinearity (Aiken & West, 1991).

As depicted in model 1 of table 3, the statistical control variables are entered in one step. Every statistical control variable is significant except for *age* ($b = 0.01$; n.s.). This model explains 10 percent of the variance. *Solidarity from the supervisor* is added in model 2 using two steps for this regression analysis, which results in a significant relationship ($b = 0.21$; $p < 0.01$) and explains 20 percent of the variance. Hypothesis 1, stating that solidarity from the supervisor is positively related to solidarity among employees, is supported by the results. As can be seen in table 3, *solidarity from the supervisor* explains a significant amount of variance in all seven model that follow after this analysis.

In an attempt to overcome the lack of consensus about the relationship of solidarity and employment contract, this research proposed that employees with a permanent contract express more solidarity towards their colleagues in comparison with temporary employees. The regression analysis concerning this hypothesis was performed using four steps. A non-significant result of *employment contract* ($b = 0.02$; n.s.) is shown in model 3 and shows a slight increase in variance in comparison to the previous model ($R^2 = 0.21$). Model 4, with the same variance ($R^2 = 0.21$), shows no interaction-effect for the *employment contract* on the relationship of *solidarity from the supervisor* to *solidarity among employees* ($b = 0.00$; n.s.). The expectation of hypothesis 2, that employment contract strengthens the relationship between solidarity from the supervisor and solidarity among employees, is thus not supported by the results.

Past experiences with the supervisor ($R^2 = 0.21$) and the corresponding moderating variable ($R^2 = 0.21$) show no significant results in model 5 and model 6 ($b = 0.01$; n.s., $b = 0.00$; n.s.). This regression analysis was also performed by entering the variables in four steps. Hypothesis 3a, which predicted that past experiences with the supervisor strengthens the positive relationship of solidarity from the supervisor to solidarity among employees, is thus rejected. Consequently, neither high- nor low-quality past experiences with the supervisor affect the relationship between solidarity from the supervisor and solidarity among employees.

Finally, *future encounters with the supervisor* ($R^2 = 0.20$) shows no significant results in model 7 ($b = 0.00$; n.s.). However, the corresponding moderating variable in model 8

explains 21 percent of the variance, as it significantly supports an interaction-effect for *future encounters with the supervisor* ($b = 0.01$; $p < 0.05$). This regression analysis was also performed using four steps. Hypotheses 3b, stating that the positive relationship of solidarity from the supervisor to solidarity among employees is strengthened by future encounters with the supervisor, is therefore supported. Employees that expect a long-term relationship with their supervisor in the future respond with more solidarity towards their colleagues as a result of solidarity from the supervisor in comparison with employees that expect a short-term relationship with their supervisor in the future. This result shows that future encounters with the supervisor is an important factor contributing to a supervisor-employee relationship.

Table 2 Means, standards deviations, and correlations matrix

| | Mean | SD | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|-------|------|--------|--------|---------|--------|-------|--------|--------|--------|---|
| 1. Solidarity from the supervisor | 5.08 | 1.23 | 1 | | | | | | | | |
| 2. Solidarity among employees | 5.72 | 0.75 | 0.40** | 1 | | | | | | | |
| 3. Employment contract | 1.17 | 0.38 | -1.07 | 0.57 | 1 | | | | | | |
| 4. T.E.*: Past experiences with the supervisor | 2.45 | 2.58 | -0.02 | 0.00 | 5.58** | 1 | | | | | |
| 5. T.E.*: Future encounters with the supervisor | 3.48 | 3.96 | 0.16** | 0.07* | 2.97* | 0.19** | 1 | | | | |
| 6. Task interdependence | 4.90 | 1.21 | 0.20** | 0.17** | -4.59 | -0.09* | -0.04 | 1 | | | |
| 7. Informal relationships | 2.17 | 0.77 | 0.26** | 0.25** | 5.92 | -0.09* | 0.09* | 0.13** | 1 | | |
| 8. Gender | 1.40 | 0.49 | 2.02 | 0.29 | 2.71 | 2.50** | -0.69 | 2.97 | 15.06* | 1 | |
| 9. Age | 36.67 | 9.52 | 0.08* | 0.10** | 10.41** | 0.23** | -0.04 | -0.03 | 0.20** | 3.16** | 1 |

*Note. T.E. is an abbreviation for temporal embeddedness

N = 816, * < 0.05, ** < 0.01

Table 3 Results of the regression analyses

| | Model 1 | | Model 2 | | Model 3 | | Model 4 | | Model 5 | | Model 6 | | Model 7 | | Model 8 | |
|--|---------|------|---------|------|---------|------|---------|------|---------|------|---------|------|---------|------|---------|------|
| | B | SE | B | SE | B | SE | B | SE | B | SE | B | SE | B | SE | B | SE |
| <i>CONSTANT</i> | 4.40** | 0.16 | 4.82** | 0.19 | 4.81** | 0.16 | 4.81** | 0.16 | 4.82** | 0.16 | 4.82** | 0.16 | 4.82** | 0.16 | 4.81** | 0.16 |
| <i>Statistical control variables</i> | | | | | | | | | | | | | | | | |
| <i>Task interdependence</i> | 0.10** | 0.02 | 0.06** | 0.02 | 0.06** | 0.02 | 0.06** | 0.02 | 0.06** | 0.02 | 0.06** | 0.02 | 0.06** | 0.02 | 0.06** | 0.02 |
| <i>Informal relationships</i> | 0.28** | 0.04 | 0.19** | 0.04 | 0.19** | 0.04 | 0.19** | 0.04 | 0.20** | 0.04 | 0.20** | 0.04 | 0.19** | 0.04 | 0.19** | 0.02 |
| <i>Gender</i> | 0.22** | 0.06 | 0.18** | 0.05 | 0.18** | 0.06 | 0.18** | 0.06 | 0.19** | 0.06 | 0.19** | 0.06 | 0.18** | 0.06 | 0.17** | 0.05 |
| <i>Age</i> | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| <i>Solidarity from the supervisor</i> | | | 0.21** | 0.02 | 0.21** | 0.02 | 0.21** | 0.02 | 0.21** | 0.02 | 0.21** | 0.02 | 0.21** | 0.02 | 0.22** | 0.02 |
| <i>Employment contract</i> | | | | | 0.02 | 0.07 | 0.02 | 0.07 | | | | | | | | |
| <i>Moderator: Employment contract</i> | | | | | | | 0.00 | 0.05 | | | | | | | | |
| <i>Past with the supervisor</i> | | | | | | | | | 0.01 | 0.01 | 0.01 | 0.02 | | | | |
| <i>Moderator: Past with the supervisor</i> | | | | | | | | | | | 0.00 | 0.01 | | | | |
| <i>Future with the supervisor</i> | | | | | | | | | | | | | 0.00 | 0.01 | -0.01 | 0.01 |
| <i>Moderator: Future with the supervisor</i> | | | | | | | | | | | | | | | 0.01* | 0.01 |
| <i>R²</i> | 0.10 | | 0.20 | | 0.21 | | 0.21 | | 0.21 | | 0.21 | | 0.20 | | 0.21 | |
| <i>Adjusted R²</i> | 0.10 | | 0.20 | | 0.20 | | 0.20 | | 0.20 | | 0.20 | | 0.20 | | 0.20 | |

Note: N = 816, * < 0.05, ** < 0.01

Figure 3 depicts the interaction-effect of future encounters with the supervisor with regard to the relationship of solidarity from the supervisor to solidarity among employees. The interpretation of this figure (figure 3) is that solidarity among employees increases as a result of solidarity from the supervisor, irrespective of the expected future encounters with the supervisor. There is, however, a small difference between the expected supervisor-employee relationship in the future. An increase of solidarity from the supervisor combined with employees' expectation of a long-term supervisor-employee relationship in the future (high future encounters with the supervisor) results in more solidarity among employees. Correspondingly, the same effect is found for employees that expect a short-term relationship with their supervisor in the future (low future encounters with the supervisor), however, low possible future encounters with the supervisor in comparison with higher ones result in less solidarity among employees. Thus, employees who expect a long-term relationship with their supervisor in the future are more sensitive to show solidarity towards their colleagues as a result of solidarity from their supervisor.

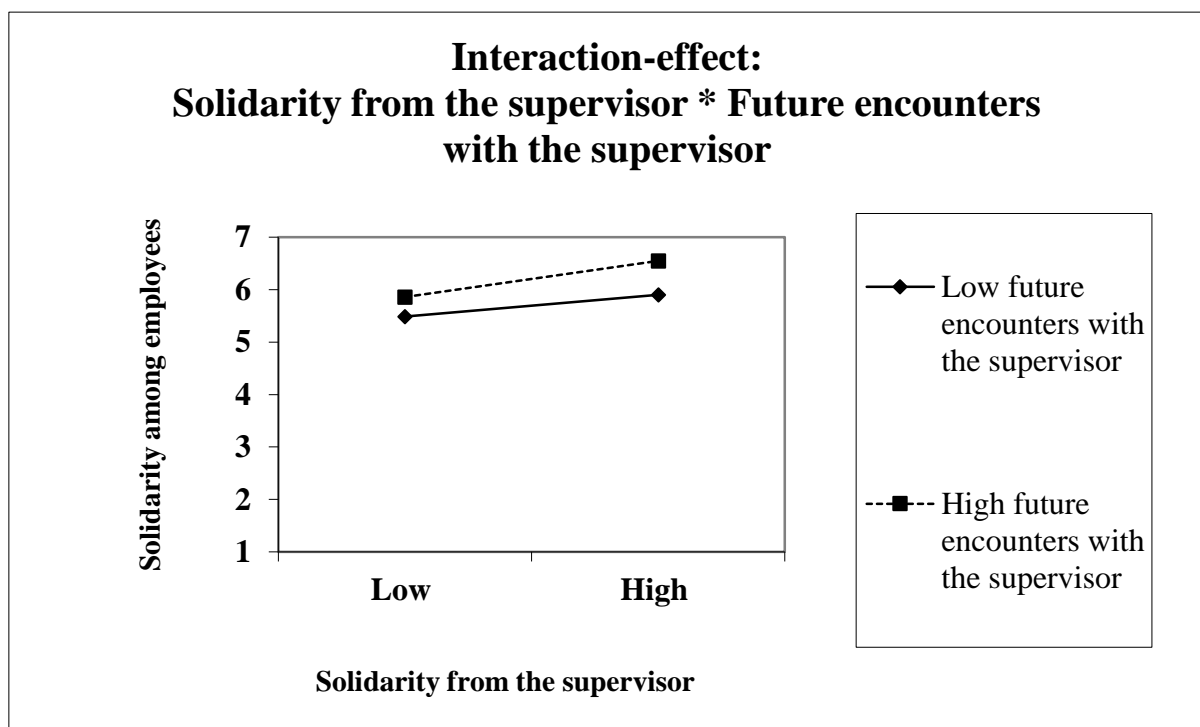


Figure 3. Interaction-effect: Solidarity from the supervisor and future encounters with the supervisor on solidarity among employees.

5. DISCUSSION

While attention for horizontal and vertical solidarity, temporal embeddedness and

employment flexibility has increased within the sociological literature over the past two decades, no empirical research provided insight into the coherence among these topics. By investigating whether these topics are related to each other, this research moves beyond the existing literature and combines sociological views with psychological perspectives. This research examined the combination of LMX and TMX based on indirect reciprocity and empirically shows that supervisor-employee relationships in the workplace matter.

5.1 Results and Research Question

The results from this research show that solidarity among employees is indirectly affected by the level of solidarity from the supervisor. The point this research wishes to make is that it is relevant to integrate LMX and TMX in order to explain the indirect relationship of solidarity from the supervisor to solidarity among employees. The first is that solidary behavior involves at least two parties as reciprocity can only be at place when person A and person B interact with each other. Secondly, following from the first, is that direct reciprocity should be distinguished from indirect. This research shows that the link between LMX and TMX involves indirect reciprocity in order to come up with a theoretical explanation of why employees express solidarity towards their colleagues as a results of solidarity that is expressed by their supervisor. Employees are continuously in contact with their supervisor and colleagues during their employment. Their relationship creates a collective supervisor-employee network, which connects every supervisor with their employees and creates interdependent relationships in the workplace. Employees show solidarity to their colleagues as a result of solidarity from their supervisor because they perceive their supervisor as an example, and following the mechanism of indirect reciprocity, the relationship between employee A and B is established via supervisor C. This findings furthermore extends Koster and Sanders' analyses as this research empirically shows that supervisors' behavior affects the dynamics and solidarity among employees (Koster & Sanders, 2007).

In addition, this research compared the influence of two forms of employment relationship duration on the relationship of solidarity from the supervisor to solidarity among employees, that is, employment contract and temporal embeddedness. Employment contract turned out not to affect the relationship of solidarity from the supervisor to solidarity among employees. This finding corresponds with the research of Koster and Sanders (2007), as employment contract appeared not to be important in explaining solidarity among employees, while temporal embeddedness was. One could argue that it is not the employment status, but

the quality of an employment relationship which is more valued in relation to solidarity at the workplace. As an employee, knowing how reliable your supervisor is depends on the quality of the supervisor-employee relationship and not on the employment contract as it solely describes the length of this relationship. The finding supports the study of Koster and Sanders (2007), showing that temporal embeddedness instead of employment contract is relevant in explaining solidarity among employees.

This research puts forth the idea of temporal embeddedness as a reinforcing factor contributing to the relationship between solidarity from the supervisor and solidarity among employees. The finding that future encounters with the supervisor shows an interaction-effect means that employees that expect a long-term relationship with their supervisor in the future show a stronger relationship with, and thus express more solidarity towards their colleagues as a result of solidarity from their supervisor than employees that expect a short-term supervisor-employee relationship in the future. The argument behind this finding, following the mechanism of indirect reciprocity, is that indirect reciprocity takes time to take hold which causes a perception about the future supervisor-employee relationship. In case of high-quality past experiences with the supervisor a long-term supervisor-employee relationship could be expected. The significant correlation between past experiences with the supervisor and future encounters with the supervisor supports this claim. Knowing how reliable your supervisor was in the past influences the employees' vision of the possible future relationship with the supervisor and subsequently influences the relationship of solidarity from the supervisor to solidarity among employees. However, a similar interaction-effect for past experiences with the supervisor was not found. The argument behind this finding, following the indirect reciprocity mechanism, is that neither high- nor low-quality past experiences with the supervisor has an influence because indirect reciprocity takes time to establish itself and when the time comes to express solidarity towards colleagues as a result of solidarity from the supervisor, not past experiences but possible future encounters with the supervisor are important. There could be argued that future incentives are more valued than past experiences, because past experiences are unimportant for the fact that it remains in the past and future encounters emphasize the importance of building up a solidary supervisor-employee relationship containing mutual trust. Certain circumstances such as increasing lay-offs by organizations and more insecurity on the labor market could be contributing factors in order to come up with a possible theoretical explanation concerning this finding. However, additional research is required to further examine the difference regarding the interaction-

outcomes of past experiences and future encounters with the supervisor. Managers are again advised to focus on long-lasting relationships in order to create effective teams (Koster & Sanders, 2007), as this research has shown that possible future encounters with the supervisor is an important factor contributing to supervisor-employee relationships.

Overall, this research explains co-operative behavior similar to research in the fields of LMX (Stringer, 2006), TMX (Seers, 1989), organizational support, and job retention (Eisenberger et al., 2002).

5.2 Limitations and Suggestions for Further Research

The findings of this research were subject to a number of limitations. First, the E-M technique with a missing values percentage lower than 2 percent was not applied to every survey measure, as it would eliminate too many respondents from the dataset. Future studies should aim at further investigating solidary relationships within organizations by paying attention to the use of adequate data. Furthermore, additional research is required in order to gain more insight into the exact nature of the positive relationship of solidarity from the supervisor to solidarity among employees. Also the question needs to be answered to what extent a supervisor may influence the level of solidarity among employees. Qualitative research methods and possibly other theories than indirect reciprocity would be of interest regarding this line of future research.

Moreover, results from this research seem to suggest that employment contract does not affect the relationship of solidarity from the supervisor to solidarity among employees. This finding may be true, however, longitudinal research may strengthen this statement with more certainty. This type of research contains valuable information as it provides more accurate data. Possibilities to investigate the process regarding increases or decreases of the level of solidarity among temporary employees are offered with longitudinal research. Similar limitations are applicable to temporal embeddedness. Multiple measurements across time contribute to exploring activity with regard to the number of past experiences and expectation of future encounters with the supervisor that subsequently provides more insight into the dynamics of temporal embeddedness. In other words, the concept of temporal embeddedness and organizational solidarity requires further investigation in more detail on the empirical content. Furthermore, the finding that employment contract is more strongly related to past experiences with the supervisor and less so with future encounters with the supervisor shows that it is of theoretical interest to investigate this relationship further.

This research specifically studied the relationship of solidarity from the supervisor to solidarity among employees, taking two forms of employment relationship duration into consideration. Relating these aspects to work satisfaction, turnover, or organizational performance could extend the analyses even further.

6. CONCLUSION

This research introduces new insights regarding the coherence between vertical and horizontal solidarity and employment relationship duration measured in both employment contract and temporal embeddedness. It provides opportunities to further investigate the LMX-TMX-relationship in relation to solidarity. Furthermore, this research offers possibilities for organizations to anticipate on the findings. This research shows organizations that wish to enhance their supervisor-employee relationships that solidarity is one of the success factors of modern organizations (Wickens, 1995), and therefore confirms the power of solidarity.

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