

**Direct and Indirect Impacts of Formalization and
Transformational Leadership on Organizational Citizenship
Behavior in Public Sector: Role of Self-Determination**

**Mediation Test of SDI for Latent OCB Antecedents
in Swiss Perspective**

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1. Introduction

1.1 Background

Organizational Citizenship Behavior (OCB), which was defined as “individual behavior that is discretionary, not directly or explicitly recognized by the formal reward system, and in the aggregate promotes the efficient and effective functioning of the organization” (Organ 1988, p. 4; Organ, Podsakoff, & MacKenzie 2006, p. 3), stands for individual behaviors such as helping others beyond or above regulations. OCB has been widely studied since 1980s because of its unique function of promoting work effect and efficiency in an organization. To investigate the antecedents of citizenship behavior is of theoretical and empirical interest.

Scholars have categorized possible sources of OCB into “individual/employee characteristics”, “task characteristics”, “organizational characteristics”, and “leadership behaviors” (Podsakoff, MacKenzie, Paine, & Bachrach 2000, p. 526), whereby study on formalization of an organization is under developed, while that on leadership behavior has been fully conducted.

In a public service perspective, if direct impact were analyzed, the latent linkage would likely be connected through public service motivation or similar intrinsic motivation. Using self-determination as a mediating variable is still novel. However, since self-determination continuum can reflect human being’s psychological activities more truthfully, it has been taken into account as a mediator.

1.2 Research questions

Among a wide range of OCB antecedents, two elements of *formalization* and *transformational leadership* are chosen under scrutiny through the lens of the self-determination theory (SDT).

By a given task, what measures can be taken to achieve an optimal organizational performance—including citizenship behavior—depends on the *people dimension* and the *organization dimension*. In another word, with fixed task characteristics, to improve people-

and organizational settings is a reasonable and feasible way to maximize collective performance.

In view of the aforementioned inherent logic and the fact that scant research papers are focused on the relationship between formalization and OCB—among the already conducted small number of studies in this area, the conclusions are generally conflicting (Organ et al. 2006, p. 122; Adler 2012)—and of the dearth of relationship study with the help of the self-determination theory as Chen and Bozeman (2013) stated “conventional wisdom suggests that motivational styles are either intrinsic or extrinsic”, these three elements—formalization, transformational leadership, and self-determination—are chosen. Besides, their potential of empirical implications for the team leaders, the HR practitioners, the employees, and other interest groups makes this study direction worthy as well.

The research questions are: (1) What direct and indirect impacts does formalization have on OCB in public sector? (2) What direct and indirect impacts does transformational leadership have on OCB in public sector?

Out of these two research questions would three hypotheses be referred, which will be described in the subsequent Section 2.

1.3 Aim

The goal of this study is to exploit more academic values in this field, be it the modeling, the causality conception, or the future direction.

Apart from that, empirical implications will be offered to the target groups. To put it concretely: first, identify and recruit individuals who are inherently tend to contribute more and work wholeheartedly, when self-determination plays an significant role, e.g. intrinsic motivation evoke OCB as a powerful trigger. Next, reckon with possible contradictions in terms of bureaucratic deliberation, i.e., the team leader may need to keep a wary eye on weighing of pros and cons of formalization, which can be interpreted by Organ (1988, p. 99) as “(...) to ensure that its cost, in terms of petty harassment and frustrations, does not exceed its benefits in terms of efficiency and clarity”. Last but not least, select leaders and adjust leadership behaviors so as to enhance “an abiding sense of community” (Organ 1988, p. 99),

where OCB is more likely to be generated.

This paper aims at, so to speak, offering references pertaining to HR practitioners, rule makers, and team leaders, as well as pursuing academic value *per se*.

1.4 Method

This paper is primarily intended to investigate the direct and indirect impacts of independent variables (IV)—formalization and transformational leadership—on dependent variable (DV) OCB, through the mediating variable (MV) Self-Determination Index (SDI). Quantitative method such as Ordinary Least Squares and Structural Equation Modeling is adopted, in that it is the dominant method in (social and humanitarian) research

According to what was depicted by introducing the research questions, two types of latent mediation relationship are apparently to be identified—that is, the one between formalization and OCB and the other one between transformational leadership and OCB. If the mediation truly exists remains to be tested.

The sample is comprised of 479 Swiss public sector employees from the Bern Tax Department, which is a sub-sample of a sample made up of public workers from both the Bern Tax Department and the Office of Imprisonment and Correction of Canton Bern. The overall return quote is as high as 64.5%.

1.5 Structure

After the overview of this paper in introduction part, a comprehensive theoretical framework will be presented, which leads to three formulated hypotheses. Part three introduces methodology, which is followed by the results in part four. Based on the findings, discussions are conducted in the fifth section, and afterwards, this paper is ended with a conclusion, limitations and future research directions included.

In the second part, under “Concepts” four relevant concepts about OCB, formalization, transformational leadership, and self-determination theory will be briefly introduced, whereas under “Hypotheses” crucial concepts, relationships and arguments will be both theoretically and empirically studied by reviewing a series of papers.

2. Theoretical Framework and Hypotheses

2.1 Concepts

2.1.1 Organizational Citizenship Behavior

The terminology Organizational Citizenship Behavior was first coined in 1983 (Podsakoff et al. 2000, p. 513; Bateman & Organ 1983, p. 588; Smith, Organ & Near 1983, p. 653), which Organ (1988, p. 4; Organ et al. 2006, p. 3) defined as “Individual behavior that is discretionary, not directly or explicitly recognized by the formal reward system, and in the aggregate promotes the efficient and effective functioning of the organization”, as above mentioned.

Since then, OCB has grown into a burgeoning field. The reasons of this prolificacy in this domain could be partially accounted for by its positive impact on the organization’s efficiency and effect according to its definition, and partially attributed to a series of added valued and profitable effects OCB demonstrates (Organ et al. 2006, p. 199-212 & p. 221; Podsakoff et al. 2000, p. 533-548).

Helping

Among different dimensions (e.g., altruism, sportsmanship, civic virtue, courtesy, loyalty, self-development) of citizenship behaviors, lending a helping hand undoubtedly plays a crucial, if not a leading, role. Before Organ (1988, p. 1-4) officially introduced OCB to his readers in his book, he told an anecdote of a colleague *Sam* (short for the Good *Samaritan*) helping him out of a working disaster. Sam’s helping hand has been anatomized by Organ—the assistance “was not part of his job duties”, “was spontaneous”, would not be rewarded by the formal system, and “the aggregate of such action” would probably benefit the organization—from which the definition of OCB was born.

In this paper helping scale represents OCB.

2.1.2 Formalization

Max Weber (1864-1920) is honored as father of the modern bureaucracy theory. Weber's bureaucracy is characterized by rationality, rules, tools and objective impersonality (Weber 1976, p. 578). Extracted from Weber's bureaucratic model four principles can be categorized, i.e., the principles of labor division, hierarchy, rules & documentations, and meritocracy (Bochatay, Erny & Zeng 2012, p. 20).

Formalization relates closely and reflects part of Weber's bureaucratic model, since it can be defined as "the degree to which an organization's culture is written. Examples of culture are knowledge, ideology, rules, regulations, policy and history" (Price 1997, p. 382), "the degree to which job description are specified" "the degree to which job occupants are supervised in conforming to the standards established by job codification" (Hage & Aiken 1967, p.79), and "the extent to which rules, procedures, instructions, and communications are written" (Pugh, Hickson, Hinings & Turner 1968, p.75).

Adler (2012) reviewed the history of bureaucracy theory development and showed its sociological ambivalence, while Olsen (2008) checked the ups and downs of bureaucracy. Since the effect of bureaucratic on work related behavior or motivation is disputable, so is it of formalization.

2.1.3 Transformational leadership

Transformational leadership, as a leadership concept developed by Burns (1978), “involves fundamentally changing the values, goals, and aspirations of employees so that they are intrinsically motivated to perform their work because it is considered with their values” (Organ et al. 2006).

Transformational leadership is normally compared with transactional leadership (see Bass, Avolio, Jung & Berson 2003; Judge & Piccolo 2004; MacKenzie, Podsakoff & Rich 2001), whereas the latter associates with the give-and-take exchange process and relates to supervisor feedback such as contingent reward and punishment behaviors (Bryman 1992). This kind of comparison highlights the conceptual specificities of transformational leadership, such as “transformational leadership influences followers through a process of *internalization* and/or *identification* (Kelman 1958) rather than instrumental compliance”, and “MacKenzie, Moorman, and Fetter (1991) indicates that transformational leaders get followers to perform above and beyond expectations by articulating a vision, providing an appropriate role model, fostering the acceptance of group goals, provide individualized support and intellectual stimulation, and express high performance expectations” (MacKenzie et al. 2001, p. 116; see items of “Formalization” in Appendix 1).

2.1.4 Self-determination theory

Self-determination theory has not been isolated and ring-fenced as a study target, instead, is has “evolved over the past three decades in the form of mini-theories, each of which relates to specific phenomena”(Ryan & Deci 2002, p. 9). The reason why SDT can be integrated into a wide array of varied scenarios is partly due to that it reveals rules of basic psychological activities involved in “human behavior in all domains”, as Ryan and Deci (ibid.) accordingly concluded, “(...) together, the mini-theories constitute SDT”. As of mini-theories, the authors continued to introduce cognitive evaluation theory which mainly investigates intrinsic motivation and organismic integration theory which illustrate the “development and dynamics of extrinsic motivation”, among other mini-theories.

Literally speaking, “self-determination is the capacity to choose and to have those choices (...) be the determinants of one’s action”, “is a quality of human functioning”, and is “integral to intrinsically motivated behaviors and (...) some extrinsically motivated behaviors” (Deci & Ryan 1985, p. 38). Thus, “the different motivational orientations represent different levels of self-determination, which can be ordered along a self-determination continuum” (Vallerand & Ratelle 2002, p. 44).

Ryan and Deci (2000) developed SDT, as shown in the following figure, which is beyond the intrinsic-extrinsic dichotomy (Chen & Bozeman 2013, p. 586).

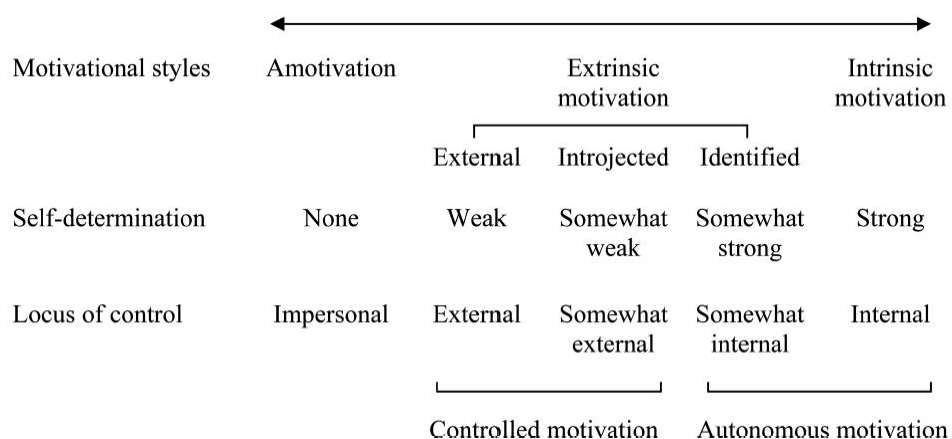


Figure 1: Self-determination theory (Chen & Bozeman, 2013, p. 588)

SDI is an index adopted by the researchers to streamline the measurement in the studies. “The advantage of using such an index is the significant reduction of variables needed to represent the different types of motivation at a given level. To do so, a different weight is

allocated to each subscale, with the autonomous subscales having positive weights and the nonself-determined having negative weights” (e.g., Grolnick & Ryan 1987; Vallerand & Blssonnette 1992; also see Vallerand 1997 on this topic). Chen and Bozeman also explained that SDI, the index that indicates the overall level, “roots in the assumption that people are simultaneously influenced by the five motivational styles”.

It should be taken into account that the designation of items in the questionnaire (see Appendix 1) to measure SDI is based on the respective definitions and properties of each motivational styles, namely, intrinsic motivation, extrinsic motivation—identified motivation, introjected motivation, external motivation—and amotivation.

Intrinsic motivation “implies engaging in an activity for the pleasure and satisfaction inherent in the activity” (Deci 1975; Deci & Ryan 1985), and is a type of “non-drive-based motivation (...), suggesting that the energy is intrinsic to the nature of the organism. (...) intrinsic motivation is based in the organismic needs to be competent and self-determining” (Deci & Ryan 1985, p. 5). Hence, intrinsic motivation, as it may self-explanatorily indicates, is generated from inside and might be interpreted as part of your *raison d’être*.

Extrinsic motivation, in contrast to intrinsic motivation, indicates “instrumental reasons” and the corresponding “behaviors are undertaken to attain an end state that is separate from the actual behavior”(Vallerand & Ratelle 2002, p. 42). Extrinsic motivation is divided into four types—integrated, identified, introjected, and external motivation styles—“that vary in their degree of self-determination”(ibid.). Because *integrated motivation* “shares many qualities with intrinsic motivations”(Ryan & Deci 2002, p. 18), and the conventional SDI excludes integrated motivation, this subscale is not considered in this paper as well. Comparing to the intrinsic motivation, *identified motivation* is watered down in the aspect of self-determination and degree of motivational inherence. “People having identified motivation accept the regulation because the activity is judged valuable and partly integrated into their value system” (Chen & Bozeman 2013, p. 588), whereas *introjected motivation* enables people to take a course of action “out of obligation, in order to feeling shame and internal pressure (Vallerand & Ratelle 2002, p. 42)”. That is to say, introjected motivation has been “partially internalized, is within the person but is not considered part of the integrated self”(Ryan & Deci 2002, p. 17). Even less self-determined is the *external motivation*, which is,

as Chen and Bozeman (2013, p. 589) explained, “to satisfy an external demand or obtain an external reward contingency”. “Strong desires for bonus pay or job security (as a positive end state) and avoiding reprimands (an a negative end state) are typical examples”. Finally, it goes without saying that *amotivation* is the opposite to and deny of motivation, i.e., “the state of lacking the intention to act”(Ryan & Deci 2002, p. 17) or “helplessness”(Deci & Ryan 1985, p. 71).

It is obvious that SDT takes a hierarchical form, categorizing different motivational dimensions in a “intrinsic-extrinsic-amotivation” spectrum, whereas self-determination ranges from strong to null, as well as locus of control varies from internal to impersonal, as Figure 1 shows.

2.2 Hypotheses

2.2.1 Antecedents of OCB

How to generate more citizenship behavior and the relevant implications for human resource practitioners are of substantial interest to employers, which prevails the relatively newly looming study area as of the dark sides of OCB (Bolino, Turnley & Niehoff 2004). At the outset, possible antecedents of OCB should be recognized. Organ et al. (2006, p. 65-138) analyzed this question by dividing them into “attitudinal and dispositional antecedents” and “the impact of leadership and work environments”, while Podsakoff et al. (2000, p. 526) categorized them into “individual/employee characteristics”, “task characteristics”, “organizational characteristics”, and “leadership behaviors” after reviewed the literatures. For instance, people who possess prosocial personality traits (Krebs 1970, p. 298) engage more in extra role behavior; leaders who play positive role models before employees and enable them internalize collective values directly or indirectly stimulate OCB (MacKenzie et al. 2001; Ritz, Giauque, Varone & Anderfuhren 2014); intrinsically satisfying tasks positively influence OCB (Todd & Kent 2006); moreover, role ambiguity may inhibit OCB as well (Jex, Adams, Bachrach & Sorenson 2003).

Dimension typology of antecedents: People & Organization

Among a wide range of OCB antecedents, two elements of *transformational leadership* and *formalization* are chosen to be scrutinized through the lens of the self-determination theory. In practice, by a given task, what measures can be taken to achieve an optimal organizational performance, including citizenship behavior, depends on the *people dimension* and the *organization dimension*, whereas the former encompasses both employer and employee aspects, while the latter indicates the organization structure, the degree of formalization, and the composition of bureaucracy institution.

By *people-employer dimension*, there are elements like transactional leadership, ethical leadership, transformational leadership, to name a few; by *people-employee dimension*, some examples are expertise, service motivation, trust, affect, autonomy, and so on; on the other hand, according to Podsakoff et al. (2000), spatial distance, cohesive group, perceived

organizational support, formalization and other factors belong to the *organization dimension*.

Choice of transformational leadership, Self-Determination Index and formalization

Out of the aforementioned three dimensions are three factors regarded as resources of OCB in this paper, i.e., *transformational leadership*, *Self-Determination Index*, and *formalization*, respectively. By and large, this choice is made—

1. In view of the fact that scant research papers are focused on the relationship between formalization and OCB. Among the already conducted small number of studies in this area, the conclusions are generally conflicting (Organ et al. 2006, p. 122; Adler 2012);

2. Because of the dearth of relationship study with the help of the self-determination theory as Chen and Bozeman (2013) stated “conventional wisdom suggests that motivational styles are either intrinsic or extrinsic” (p. 586), thus “(...) research has disproportionally emphasized the importance of intrinsic motivation (...)but has given comparatively little attention to non-intrinsic motivation” (p. 584). This applies to a relatively large amount of literature on relationship between transformational leadership and OCB in public sector as well, since public service motivation (PSM) as a mediator or moderator gains a privilege in that PSM has manifested its positive impact on OCB (Kim & Sangmook 2006; Pandey. Wright & Moynihan 2008);

3. Not only is justified by the choice’s niche status, but also based on the inherent logic per se. As mentioned, by a given task, that is, with fixed task characteristics, to improve people- and organizational settings is a reasonable and feasible way to maximize collective performance. Among various items in these dimensions, these three elements are chosen for further scrutiny because of their potential of empirical implications for the team leaders, the HR practitioners, the employees, and other interest groups.

2.2.1.1 Formalization

Theory

Formalization, as a means of specify rules, has long been conjectured as negatively related to citizenship behavior. Organ et al. (2006, p. 122) indicate how “[a]t first glance, one might expect highly formalized and inflexible rules and procedures to be disliked by employees, to reduce their job satisfaction (see Hall 1991), and to have detrimental effects on OCB because they encourage employees to focus on formalized job procedures and requirements, perhaps to the exclusion of “extra-role” or citizenship behaviors (Organ 1988)”, moreover Organ et al. state that rules may inhibit helping or taking initiatives to implement new procedures as well.

However, as the authors continue, potential advantages of formalization might be neglected, such as it may “enhance perception of fairness and procedural justice”, “decrease role ambiguity and conflict”, and increase “job satisfaction, commitment, and trust in the organization”. Ulrich (2011) suggested that there is a positive relationship between employee satisfaction and control in monotonous tasks. Olsen questions in his paper *Maybe it is time to rediscover bureaucracy* (2014) the fashionable idea of bureaucracy’s obsolesce and indicates the reasons, including “Bureaucratic organization and the success criteria in which it is embedded are still with us. Bureaucracy has a role as the institutional custodian of democratic-constitutive principles and procedural rationality (...)”.

Empirical study

Literature review in public organizations reflects this contradiction as well.

Some support that formalization or bureaucracy serves as safeguard; promotes coordination; decreases ambiguity, uncertainty, conflicts, arbitrariness, and so on; or even opens new scopes for action and strengthens self-determination (Kettle 2006; Jackson & Schuler 1985; Schmid & Bar-Nir 2001(Olsen 2014); Olsen 2008; Lambert, Pauline & Hogan 2006; Stevens, Diederiks & Philipsen 1992; Brigham, Castro & Shepherd 2007). Some found role ambiguity and role conflict were weakly and negatively related to altruism (Jex et al. 2003), which might imply the adverse link between formalization and OCB in that

formalization reduced ambiguity and conflict.

Others show the negative sides of formalization because it is confining, inflexible, contracts self-determination or entails alienation (Miller, Droge & Toulouse 1988; Arches 1991; Argyris 1957; Moynihan & Pandey 2007; Benz & Frey 2004; Sorensen & Sorensen 1969; Bozeman & Rainey 1998).

Swiss context

In view of this research dearth, it is difficult to posit the relationship between formalization and OCB in public sector. However, in the specified Swiss context, in which rules and disciplines are widely respected and pervasively obeyed, especially in the French part of Switzerland (Hofstede n.d.; Hofstede, Hofstede & Minkov 2010, p. 53-86 & p. 187-233), it could be reasonably inferred that the Swiss people appreciate the clarity specified by formalization; the Swiss attach importance to tidiness or regularity not only toward people, but also for pets (Sitzler 2012, p. 150), which exemplify to what extent the word “orderly” (“ordentlich” in German) means to the Swiss daily life; this characteristic is also reflected by various suveys—Konso Institute in Basel(2008) found that 76% Swiss respondents out of 826 who are above 15 years old describe themselves as “orderly” (p. 9) as well as the scale of “perfect, correct, orderly” (“perfekt, korrekt, ordentlich” in German) is ranked second as “typical Swiss characteristics” (“typische Schweizer Eigenschaften” in German, p. 2), moreover, the results are compared to another online questionnaire which shows 75% of the interviewees agree that “orderly” is a Swiss personality, slightly less than those for “quality conscious” (“qualitätsbewusst” in German, p. 18). Hence, there are sensible reasons that enable us to believe that formalization can even pave the way for OCB—it is known, except the abovementioned subjective order preference, that objectively, a “supranorm” of fairness (Organ 1988, p. 94) also accounts for job satisfaction, commitment, trust and eventually OCB to a substantial extent, and fairness can be generated by formal rules.

Apart from that, Switzerland is a wealthy developed democracy, in which its public servants are prone to possess prosocial personality traits, in another word, they might be more intrinsically motivated in public spheres and thus have a high SDI which would allow them to

tolerate, accept or even welcome formalization. Otherwise the public employees would have already voted by feet und left for private sectors, since for the majority of Swiss citizen, it is comparably easy to choose their own career direction.

Nevertheless, it is not surely plausible to hypothesize *a priori* with lack of evidence. Potential sources are likely to be overseen, for example, a part of Swiss public workers may choose their jobs because of its stability, ease, or pay, instead of intrinsic motivation, in which situation may alter formalization's impacts on OCB.

Moreover, according to Hofstede's cultural dimensions model (Hofstede n.d.; Hofstede et al. 2010, p. 53-86 & p. 187-233), there partially exist vast differences between French speaking part and German speaking part of Switzerland. While the French Swiss exhibit what was argued above, the German Swiss on the contrary represent a lower hierarchical society and have lower aversion toward uncertainty and ambiguity. Sitzler (2012, p. 73) stated clearly that "At working place the Swiss do not like clear hierarchy"¹, yet directly followed by "(...) they know anyway who has the say-so"², which can be interpreted partly as that rules set in a hierarchical context lead to no positive working outputs, partly as that work codes are self-explanatory and there is no need for the rule-obeyed Swiss people to receive order from others since the order is known to them, therefore "the individual employees are often entitled to a lot of personal responsibility"³—in this sense, the aversion of hierarchy may not equal to avoidance of formalization with emphasis in setting rules.

Because of the intricate relationships between rules and hierarchy in a Swiss context, the link between formalization and OCB may not accord with Hypothesis 1.

Hypothesis 1

Formalization directly positively affects helping citizenship behavior in public sector.

¹ Original text in German: "Am Arbeitsplatz mögen die Schweizer keine klaren Hierarchien".

² Original text in German: "(...) wissen sie sowieso, wer das Sagen hat".

³ Original text in German: "den einzelnen Mitarbeitern wird oft viel Selbstverantwortung zugestanden".

2.2.1.2 Transformational leadership

Theory

The aforementioned transformational leadership by Burns (1978) is self-contained since it will encourage the staff achieve more than required. It affects the staff through internalization so as to trigger their intrinsic motivation. “If employees are motivated intrinsically to collaborate, then shirking is not a preferable action, because the activity of collaboration is itself a benefit” (Frost, Osterloh & Weibel 2010), thus working beyond in-role tasks logically comes into being. “The transformational leader’s focus is directed toward the organization, and his or her behavior builds follower commitment toward organizational objectives” (Stone, Russel & Patterson 2004). The same effect of stimulating extra achievements have been manifested over decades (see Bass 1985; Ritz et al. 2014)

Empirical study

On reviewing previous literatures, one can almost confidently confirm the positive relationship between transformational leadership and OCB. Not only transformational leadership as a whole (see Connell 2006), but also its decomposed aspects, such as articulating a vision, providing an appropriate role model, fostering the acceptance of group goals, provide individualized support and intellectual stimulation, and express high performance expectations” (MacKenzie et al. 2001, p. 116) have been studied. For instance, leader’s OCB model will promote imitation (Yaffe & Kark 2011).

Hypothesis 2

Transformational leadership directly positively affects helping citizenship behavior in public sector.

2.2.2 Mediation of SDI

Firstly, the conflicting effects of formalization may suggest certain moderators or mediators working in between. Mellewigt, Madhok, and Weibel (2007) demonstrate that trust will change formalization's role from controlling into coordination. Nearly a decade ago Organ et al. (2006) found that there were no study yet "has examined the potential mediating effects of satisfaction, commitment, and/or trust on the relationship between organizational formalization/inflexibility and OCB, today still, the number is limited, let alone in public sectors. Jex et al. (2003) found that organizational constraints were positively related to altruism among those reporting high levels of affective commitment but negatively related among those reporting low levels of affective commitment.

Secondly, though the direct positive impact of transformational leadership on OCB is obvious based on the previous empirical experiences, to study the latent mediator in between is meaningful, in that the degree of effect can be strengthened or alleviated by the mediator (see Kuvaas 2009).

Job satisfaction is one of verified mediator by Organ et al. (2006), whereas more are to be explored. Leader's ethic level, employees' PSM, and the task's self-satisfying property can all be considered as catalyst between transformational leadership and OCB, SDI also qualifies. "Researchers of educational psychology and generic behavioral science have used SDI to study various issues such as environmental behaviors, academic motivation, eating regulation, and work attitudes (Fortier, Vallerand & Guay 1995; Green-Demeirs, Pelletier & Ménard 1997; Pelletier, Dion, Slovinet-D'Angelo & Reid 2004; Tremblay, Blanchard, Taylor, Pelletier & Villeneuve 2009)"(Chen & Bozeman 2013, p. 592).

Therefore, it is of interest to examine in the SDI motivational continuum perspective as of its mediation effect.

Hypotheses 3

Self-Determination Indices mediate the relationship between OCB and the two variables of formalization and transformational leadership.

3. Data and Methodology

3.1 Data

3.1.1 Sample characteristics

The data is extracted from a survey (see Appendix 1) conducted by the Center of Competence for Public Management of University of Bern and the University of Tilburg, targeting on the public sector personnel. The sample consists of 1869 public sector employees in Switzerland, with 603 returned from the Bern Tax Department and 602 from the Office of Imprisonment and Correction of Canton Bern, yielding a relatively high overall response rate of 64.5%.

In this paper the data is made of 479 valid samples from the Bern Tax Department. In total there are 523 samples from the Bern Tax Department, by deleting those invalid ones and whose inputs are not enough to test any single one of the latent links in hypotheses, 479 observations were finally confirmed. In another word, among these 479 questionnaires, it is not that each one of them includes complete information, rather, only 275 persons report all the 14 items, that is, 2 IV, 1 MV, 1 DV, and 9 control variables. It may be questioned why instead of 275 complete inputs 479 are chosen in the end, this choice is out of two considerations—first, the larger the database, the better the prediction, in that larger samples increase the chance of significance by more reliably reflecting the population mean (Concept Stew Ltd n.d.); second, the software Stata used in this paper to run the program is able to detect in each and every situation the plausible number of observations, depending on the concrete commands, thus generate corresponding results. Take sample characteristics depicted in 3 for example, all the statistics are yielded based on slightly varied data size, yet it reflects a more reliable total sample characteristics, such as the fact that 479 samples show a complete gender distribution than 275. In the subsequent part of results 331 will be detected in certain tests, while 280 and 275 in the others. Hence, in order to improve the degree of precision, a larger size is favored.

As Ritz et al. (2014, p. 13) mentioned in their paper *From leadership to citizenship*

behavior—when values matter, “representativeness of the sample for Swiss municipalities cannot be determined definitely because population characteristics for administrative employees of Swiss municipalities do not exist”. Despite of this, some basic sample characteristics can be compared to those generated by Ritz et al. (ibid., p. 13-p. 14), since their database is comprehensive—covering 3754 public servants in 279 municipalities, whereby the participating municipalities show considerable heterogeneity, as well as be compared to the Swiss population characteristics.

In the sample there are 53% female and 47% male (see Table 1), whereas Ritz et al. reported 46% women and 54% men; the average age is 41, while 47 in their sample. In terms of education background, over half (54%) of the participants were apprentices before, while 35% hold a higher professional school, college or university degree, whereas 25% of these received their diploma from a higher professional school, this, just as indicated in above mentioned paper, manifests considerably stronger professional rather than general college nor university background in public sector; in fact this statistic coincides with the status quo, according to Swiss Federal Statistical Office (BfS), in 2014 there was approximately 35% of the whole 25- to 64-year-old population who obtained a higher education degree(BfS 2015a), which may be contributed to the special Swiss education system in which professional education accounts for a substantial proportion(BfS n.d.). Switzerland is a multilingual country, in which 64% of the inhabitants speak German, 23% French, and 8% Italian(BfS 2015b); the sample in this paper shows a German speaker overrepresentation (88%), while French and Italian speaking makes up merely 11% and 0.7%, respectively, which might influence the results given special personality of different language groups (see *Swiss Context* in Section 2.2.1.1 of this paper, in which Hofstede et al. found that the German Swiss prefer a “flatter” society and the French Swiss exhibit higher aversion toward ambiguity).

As of health condition, 63% of the employees reported themselves being physically fit, while 5.4% of them self-rated as unwell; both proportions by psychological health report are slightly higher (circa 2%). Nearly 75% participants are full-time workers. A vast majority of the sample (circa 90%) has worked with the current leaders together for less than 10 years, among which 62% under 5 years.

To conclude, this sample comprises people with prevailing professional background,

from well-distributed age and gender groups, and mostly on a full-time basis. They are primarily healthy German speaking staff.

Table 1: Sample characteristics

Variables	Percentage
<i>Gender (n=479)</i>	
Female	52.82
Male	47.18
<i>Age (n=443)</i>	
17-19 years	2.7
20-29 years	21.90
30-39 years	22.35
40-49 years	23.48
50-59 years	24.15
60-67 years	5.42
<i>Tenure (n=450)</i>	
0-4 years	30.89
5-10 years	26.44
11-20 years	25.11
21-30 years	11.34
31-44 years	6.22
<i>Education (n=427)</i>	
Elementary school	3.51
Apprentice	54.1
High school	7.26
Higher Professional/College/University Degree	35.13
<i>Length of working with the current leader (n=452)</i>	
0-4 years	62.39
5-10 years	27.21

	11-20 years	9.52	
	21-42 years	0.88	
<i>Volume of work (n=450)</i>			
	Full-time	74.67	
	Part-time	25.33	
<i>Health (n=460)</i>		<i>Physical</i>	<i>Psychological</i>
	Bad	5.43	8.04
	Neutral	31.31	26.96
	Good	63.26	65
<i>Mother tongue (n=444)</i>			
	German	88.29	
	French	11.03	
	Italian	0.68	

3.1.2 Variable Measurement

The questionnaire, whereby the respondents were asked to reconcile their agreement or disagreement and the answers, adopts a seven-point scale (e.g., ranging from “strongly disagree” “disagree” “somewhat disagree” “neutral” “somewhat agree” “agree” to “strongly agree”). It is assigned with the values of 1 to 7. The relevant items together with its scales are introduced as follows (see Appendix 1):

OCB – Helping Behavior—Six items derived from Van Dyne and Lepine (1998, p. 112) and Organ et al. (2006, p. 294-295) and this part should be completed by the supervisors. Helping behavior is the only OCB dimension in this survey, which enables it as a representative of OCB, and its uniquely important status in OCB studies can be referred to justify this representativeness. The Cronbach’s alpha is 0.94.

Mediating variable – SDI—Fourteen items were selected from the questionnaire to match the five various motivational styles suggested by the self-determination theory. This part is self-rated. According to the introduction of SDI in 2.1.4, the equation is adapted from

Chen and Bozeman's paper (2013, p. 592), namely, " $SDI = (3 \times \text{intrinsic}) + (1.5 \times \text{identified}) - (1 \times \text{introjected}) - (2 \times \text{external}) - (3 \times \text{amotivated})$ ". As Vellerand and Ratelle (2002) postulated, "a complete analysis of motivation must include intrinsic and extrinsic, and amotivation", all three types of motivation which are divided into five subscales are considered. The reason why integrated motivation has not been taken into account is because of its apparent similarities with intrinsic motivation. The Cronbach's alpha is 0.82.

Formalization—A specific six-item scale for formalization and a three-item scale for task feedback were rated by the employees. Except the items originally incorporated in the survey, three items with respect to feedbacks were integrated as well. Pugh et al. (1968, p. 76) formulated three subscales of formalization, namely, "Role Definition, Information Passing, and Recording of Role Performance"; Hage and Aiken (1967, p. 79) mentioned "job codification" and "rule observation", whereas "Job codification represents the degree of work standardization while rule observation is a measure of the latitude of behavior that is tolerated from standards". Both regarded feedback measures, name it role performance or rule observation, as an integral part of formalization, moreover, the items of role performance listed by Pugh et al. (p. 101) can be seen as a comprehensive feedback report, especially the item of "Work assessment record". Hence, three feedback items were added to the measurement scale of formalization. Moreover, the Cronbach's alpha before integrating feedback items is 0.73 whereas after considering the feedbacks it increases to 0.82 (when unstandardized the contrast is even more sharp, because before preceding feedbacks the value was merely 0.67 which is below the commonly suggested threshold of 0.7 while went up to 0.79 afterwards).

Transformational Leadership—Seven-item scale according to MacKenzie et al. (1991) is assessed by the employees. "Leader" in the survey means the direct leader to whom one is subordinated in their work unit and with whom the appraisal interview will be performed, and if there are more than one leader, the most influential one to the rater should be taken into consideration⁴. Therefore, the team leaders who are rated by their subordinates can rate their own direct superiors as employees in parallel. The Cronbach's alpha is 0.94.

⁴ Original text in German: "Mit direkter/direktem Vorgesetzten ist diejenige Person gemeint, der Sie in der Linie unterstellt sind und die mit Ihnen das Mitarbeitendengespräch durchführt. Falls dies auf mehrere Personen zutrifft, denken Sie bitte an diejenige/denjenigen Vorgesetzte/n, mit der/dem Sie am meisten zusammenarbeiten."

Control Variables—Nine control variables are included in a test to “reduce the possibility of spurious relationships based on unmeasured variables” (Van Dyne & LePine 1998, p. 111). What should be reported are age (years), Gender (0 = male, 1 = female), education (seven ordered categories), tenure (years), length of working with the current leader (years), volume of work (in percentage), physical health (seven ordered categories), psychological health (seven ordered categories), and mother tongue (1= German, 2 = French, 3 = Italian).

3.2 Methodology

The main methodology adopted in this paper is quantitative. Quantitative method, as a dominant method even in social and humanitarian research, has been enjoying popularity among scholars since 20th century. As Teddlie and Tashakkori (2009) stated in their book *Foundation of Mixed Methods Research: Integrating quantitative and qualitative approaches in the social and behavioral sciences*, the reason why quantitative methods became dominant is due to its postpositivist and positivist characteristic. Because of the objectivity of statistics, certain subjective qualitative assertions without solid factual sources could be avoided. Nevertheless, in light of the peculiarity of social and behavioral study, qualitative or mixed method should be taken into consideration as of future studies.

According to Baron and Kenny (1986, p. 1177), to establish a mediation relationship, “the following conditions must hold: First, the independent variable must affect the mediator in the first equation; second, the independent variable must be shown to affect the dependent variable in the second equation; and third, the mediator must affect the dependent variable in the third equation.” The test steps are accordingly “three following regression equations: first, regressing the mediator on the independent variable; second, regressing the dependent variable on the independent variable; and third, regressing the dependent variable on both the independent variable and on the mediator”.

Based on this conceptual framework, if the mediation exists, Hypothesis 3, in a de facto self-contained sense, can be decomposed as follows (see Figure 2):

(1) Hypotheses 3.1 and 3.2 represent that relationships between IVs (formalization &

transformational leadership) and MV (SDI) are statistically significant.

(2) Hypotheses 1 and 2 prove that IVs show significant direct effects on DV (OCB), without any influx of influence from MV.

(3) Check the effect with both IVs and MV involved, and “the effect of the independent variable on the dependent variable muss be less than in the second [equation]. Perfect mediation holds if the independent variable has no effect when the mediator is controlled” (Baron & Kenny 1986, p. 1177; see also Chen & Bozeman 2013, p. 598). In certain cases Baron and Kenny also point out that “it is possible for the independent variable to have a smaller coefficient when it alone predicts the DV than when it and the mediator are in the equation but the larger coefficients is not significant and the smaller one is”. Therefore, if mediations exist, the coefficients of H1 and H2 should be significantly smaller than that of H3, or otherwise, the former are significant while the latter not.

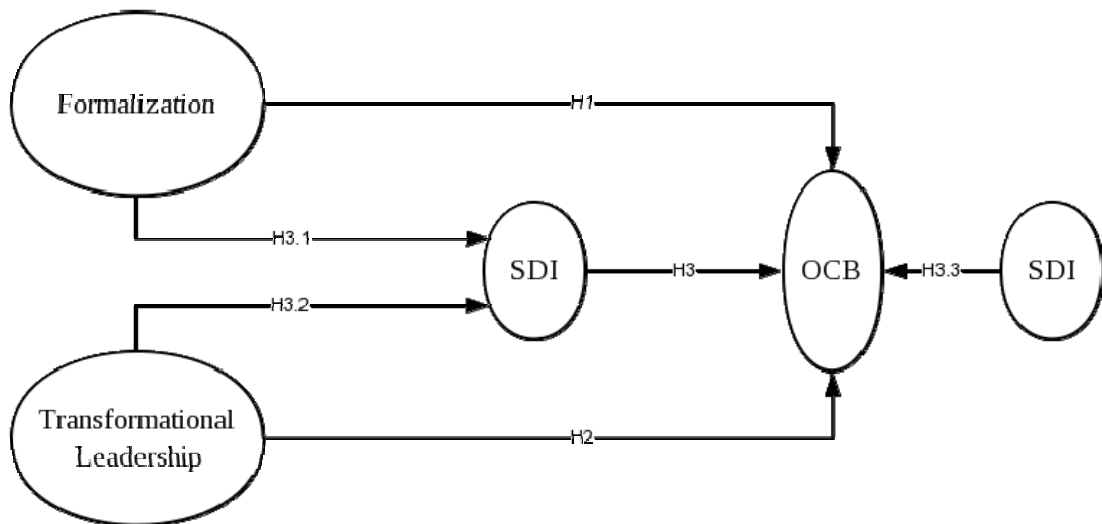


Figure 2: Hypothesized models

Apart from these links, it will also be interesting to check if the link between MV and DV is statistically significant, that is, if H3.3 is supported without any influx effects from IVs—the higher the public employees’ SDIs are, the more likely they will exhibit helping citizenship behavior.

With help of the state of the art Stata 13, a series of methods are supposed to be adopted—Pearson’s correlation coefficients, Ordinary Least Squares (OLS), and Structural equation modeling (SEM).

Pearson's correlation can be parsimoniously defined as "a measure of the strength and direction of association that exists between two continuous variables. (...)Its value can range from -1 for a perfect negative linear relationship to +1 for a perfect positive linear relationship"(Laerd statistics n.d.).

OLS is a tool that is familiar for the researchers to perform tests in social sciences as well as natural sciences. In this paper this pervasive used methodology is also applied to perform hypothesis testing.

SEM is a powerful statistical tool to estimate and present comprehensive network relationships. Baron and Kenny (1986, p. 1177) presented the major advantage of structural modeling techniques, and Suhr (2006) listed several comparisons between traditional and SEM methods—

SEM is similar to traditional methods like correlation, regression and analysis of variance in many ways. First, both traditional methods and SEM are based on linear statistical models. (...)

Traditional approaches differ from the SEM method in several areas. First, SEM is a highly flexible and comprehensive methodology. (...) Second, traditional methods specify a default model whereas (...) SEM offers no default model and places few limitations on what types of relations can be specified. SEM model specification requires researchers to support hypothesis with theory or research and specify relations a priori. (...) Multiple, related equations are solved simultaneously to determine parameter estimates with SEM methodology. (...) Fifth, traditional analysis provides straightforward significance tests to determine group differences, relationships between variables, or the amount of variance explained. SEM provides no straightforward tests to determine model fit. (...)Finally, a graphical language provides a convenient and powerful way to present complex relationships in SEM.

Data and Methodology are already introduced. By getting acquainted with how the survey was conducted, what demographic structure does the sample has, and how the crucial determinants, mediator and predicted variables are calculated, the preparing stage for studying the results in the subsequent section is completed.

4. Result

In this section the results will be quantitative presented. At the beginning, a big picture of the data will be given—Section 4.1 and 4.2 briefly introduce the overall statistical description as well as Pearson’s correlation analysis, firstly without, then with control variables. In 4.3 the process of conducting hypothesis testing is reported and the results are depicted.

4.1 Descriptive statistics

Table 2 indicates the basic information of the four variables, thus an overview of the sample. Not only DV (Mean = 5.75, SD = 1.04), but also IVs (Mean = 5.24, SD = 1.28; Mean = 5.28, SD = 0.69) demonstrate a fairly high mean value, while the employee’s motivation, which is reflected by SDI (Mean = 0.23, SD = 5.26), deviates in a large spectrum from −16 to 12.5.

OCB tells us that the overall public workers are assessed highly by their direct team leaders in the aspect of citizenship behavior, which might exemplify a friendly working atmosphere.

It can be assumed that correspondingly, TL also reaches a high value, which suggests a respectable amount of employees are empowered by their leaders and view this as positive.

FORM shows the smallest deviation. Fixed rules and conduct code are objective to observe and rate, which may be account for this consistency. The mean of 5.24 implies that the sample department is a somewhat highly regulated work unit.

The fact that people’s SDI varies massively is not surprising in that people’s self-reported mental situation can hardly remain consistent. In addition to that, SDI is consists of 12 items out of 5 subscales, and some of the items are scattered rather than put together, this, again, might water down the rater’s autosuggestion such as “I am rating a group of items that belong to the same scale so I might better concentrate on this very field now”. Subjectivity, self-reporting, plus decentrality may account for this phenomenon.

Table 2: Descriptive statistics

Variables	Items	Obs	Mean	SD	Min	Max	α
DV							
OCB	6	345	5.75	1.04	2.00	7.00	0.94
MV							
SDI	12	471	0.23	5.26	−16	12.5	0.82
IV							
TL	7	470	5.24	1.28	1	7.00	0.95
FORM	9	479	5.28	0.69	1.67	7.00	0.82

Note: Obs = observation, SD = standard deviation, α = Cronbach's alpha, TL = transformational leadership, FORM = formalization

4.2 Correlation analysis

Knowing the separate characteristics of the variables, next section will give certain insight as of the interrelationship of the data. Table 3 provides Pearson's correlation of four primary variables, whereas Table 4 illustrates that of all the variables, including all nine control variables. Tiny differences can be found by comparing these two tables.

Correlation analysis offers a quick and fundamental overview of pairwise links between variables. Apart from that, the contrast before and after adding control variables enables a better basic understanding of interdependence among control variables and predicting and predicted variables (Ekici & Luu 2012, p. 56).

The significant relationships shown in Table 3 are still valid in Tables 4, and the connections increase slightly with the involvement of control variables. Specifically speaking, TL positively correlates with SDI from value 0.22 to 0.24, FORM also with SDI from 0.2 to 0.244, FORM with TL from 0.525 to 0.533, all under the condition where $p < 0.001$. Control variables have triflingly strengthened these relations, without changing the elementary characteristics, e.g. those nonsignificant relations remain nonsignificant.

A series of connections can predict the following results. Noticing that in the OCB column, only education significantly correlates with it ($r = 0.15$, $p < 0.05$), a question may rise—will this situation change through OLS or SEM tests? The same questioning could be applied to the SDI column, in which two health indices positively relate to SDI, and

psychological health plays more important role than physical health in this link, will it change in the next section? Again, seeing health positively correlates with TL, the fact that TL works better by healthy staff should be born in mind. Self-evident are the positive links between education, tenure, length of working with the current leader and the age factor. Also, it goes without saying that mental health and body health depend on each other ($r = 0.6$, $p < 0.001$).

It is worth mentioning the negative correlation between gender and education ($r = -0.3$, $p < 0.001$), tenure ($r = -0.2$, $p < 0.001$), and volume of work ($r = -0.36$, $p < 0.001$), because it can suggest female issues. As mentioned, by measuring gender, 1 = woman, and 0 = man, therefore it can inferred that women have received less education, worked less or enjoy less work stability, because women are traditionally viewed as a group who should take more care of household; or this may be interpreted as women enjoy more work-life-balance in that they spend considerably less time at work place. The arguments for different interpretations depend on more research work.

Next, the main results generated from OLS and SEM will be presented. The most core tasks—test the three hypotheses—will be completed, and relevant findings are to be detected as well.

Table 3: Pearson's correlation of four variables

Variables	OCB	SDI	TL	FORM
OCB	(0.94)			
SDI	0.042	(0.82)		
TL	0.025	0.220***	(0.95)	
FORM	-0.073	0.203***	0.525***	(0.82)

*Note: $n = 331$; * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$*

Table 4: Pearson's correlation of all variables

Variables	OCB	SDI	TL	FORM	1	2	3	4	5	6	7	8
OCB	(0.94)											
SDI	0.046	(0.82)										
TL	-0.004	0.239***	(0.95)									
FORM	-0.116	0.244***	0.533***	(0.82)								
1Age	-0.056	0.0277	-0.0155	-0.119*								
2Gender	0.01	0.117	-0.0059	0.101	-0.3***							
3Education	0.15*	0.0665	-0.0250	-0.142*	0.28***	-0.3***						
4Tenure	0.04	0.0888	0.0344	0.015	0.63***	-0.2***	-0.055					
5Lengthwleader	0.089	0.0512	-0.0088	0.017	0.37***	-0.02	0.005	0.5***				
6Volumework	0.068	0.0890	0.0687	0.016	0.00552	-0.36***	0.086	-0.047	0.079			
7Healthphysi	0.098	0.203***	0.164**	0.116	0.0226	0.0333	0.038	-0.035	0.079	-0.013		
8Healthpsych	0.097	0.329***	0.158**	0.089	0.0755	0.0351	0.101	-0.028	0.075	-0.04	0.6***	
9Mothertongue	-0.012	-0.0675	0.0412	0.105	-0.025	0.0508	-0.2**	0.03	0.023	-0.09	0.088	-0.02

*Note: n = 275; *p<0.05, **p<0.01, ***p<0.001; Lengthwleader = length of working with current leader, Volumework = volume of work, Healthphysi =physical health, Healthpsych = psychological health*

4.3 Hypothesis testing

In the following section the results of three hypotheses will be introduced. Precede SEM method the usually utilized OLS regression processes the latent mediation test. On account of the peculiarity of mediation test, direct influences in H1 and H2 are self-contained in H3; in addition to this, the proceeding software enables the investigators to run diversified programs simultaneously by executing commands. For instance, SEM is particularly multitasking as described in Section 3.2. Hence, the statistic records (see Appendix 3) on the testing part can appear fairly concise.

4.3.1 OLS

In Model 1, SDI the mediator is excluded, whereas Model 2 offers a complete picture of the linkages. Demographic data and other confounding variables are controlled. By reading the outputs and comparing them in these two models, the answers to three hypotheses turn self-explanatory.

Hypothesis 1: Formalization directly positively affects helping citizenship behavior in public sector.

Hypothesis 2: Transformational leadership directly positively affects helping citizenship behavior in public sector.

Hypothesis 3: Self-Determination Indices mediate the relationship between OCB and the two variables of formalization and transformational leadership.

The results in Table 5 indicate that formalization does have a significant impact on OCB, yet negatively ($r = -0.305$; $p < 0.01$). Contrary to the common expectation, there is no significant relationship between transformational leadership and OCB, although r takes a value of 0.059, the nonsignificant effect is not persuasive. Therefore neither Hypothesis 1 nor Hypothesis 2 is supported by the results; moreover, by Hypothesis 1, it is even exactly the opposite

estimation—formalization directly hinders OCB—that is proven according to the data. In another word, one unit increase in formalization leads to circa 30% decrease in OCB, and this assumption is combined with a relatively strong confidence in that it will not be denied.

After rejecting Hypothesis 1 and Hypothesis 2, the chance of Hypothesis 3 being true should be checked. While the coefficient of transformational leadership affecting OCB still remains nonsignificant, the one of formalization shows mediation effect of SDI. First, formalization lowers helping citizenship behavior like before ($r = -0.287$); second, this impact is still significant with a slight decline ($p < 0.05$); finally, the power of hinder is reduced by 1.8%, thus resulting a mediation effect of 5.9% $((0.305 - 0.287)/0.305) = 5.9\%$.

It is noted that formalization also shows a trend to reduce in value despite the fact that it is not significant. If it were significant, then the mediator would have mediated as high as about 20%.

Hypothesis 3 postulate that both IVs have indirect influences on the DV, however, only half of it is supported, i.e., the formalization-OCB relationship, mediated by SDI.

If SDI has a direct significant link with OCB deserves to be mentioned. Nevertheless, OLS regression in this case gives little evidence for this possible connection.

The positive relationship between education and OCB is noticeable, with $r = 0.159$ without mediator and almost unchangeable $r = 0.156$ in the second equation with mediator. P for both coefficients is smaller than 0.001.

Tenure and age affect OCB almost equally strong (2%, tenure positive, age negative), yet toward opposite directions, be it with or without mediator.

A closer look and interpretation of these statistics will be undertaken in Section 5.

R-squared value might be too low to certain degree (0.11), but this is understandable when predicting human psychology or behavior. These values are not inherently inferior; it is anyhow the significance that matters more. Since several conclusions can be drawn from significant predictors, the results are of good use.

In brief, hypothesis 1 and 2 are rejected, whereas half of hypothesis 3 is supported by the OLS results, that is, the part related to formalization.

Table 5: OLS regression and mediation test

	Model 1 b/se	Model 2 b/se
form	-0.305** (0.11)	-0.287* (0.12)
tl	0.059 (0.06)	0.048 (0.06)
age	-0.025*** (0.01)	-0.024*** (0.01)
gender	0.162 (0.14)	0.164 (0.14)
education	0.159*** (0.04)	0.156*** (0.04)
tenure	0.021* (0.01)	0.022* (0.01)
lengthwlea~r	0.020 (0.01)	0.019 (0.01)
volumework	0.006 (0.00)	0.006 (0.00)
healthphysi	0.044 (0.07)	0.058 (0.07)
healthpsych	0.052 (0.06)	0.055 (0.06)
mothertongue	0.133 (0.17)	0.083 (0.17)
sdi		-0.002 (0.01)
Constant	5.926*** (0.75)	5.833*** (0.82)
R-sqr	0.111	0.110
dfres	268	262
BIC	835.4	828.3

* p<0.05, ** p<0.01, *** p<0.001

4.3.2 SEM

In general, when certain requirements are fulfilled, the results yielded from OLS and SEM will coincide with each other, whereas in this paper it is not likely to occur. Thus, the SEM results will show respectable deviations on the one hand, and exhibit several similarities on the other hand.

For the first step to run SEM, the basic command must be entered, followed by a command that orders to list three tables to demonstrate direct effects, indirect effects, and total effects, respectively (see Appendix 3 & Table 7). Through this process, the most important data were written down in Table 5 so as to decide if the hypotheses can be accepted; the next step would be taking the other variables under scrutiny, comparing them with their OLS counterparts and drawing conclusions.

Different from OLS, SEM does not offer model fit indexes straightforward. “Instead, the best strategy for evaluating model fit is to examine multiple tests (e.g., chi-square, Comparative Fit Index (CFI), Bentler-Bonett Nonnormed Fit Index (NNFI), Root Mean Squared Error of Approximation (RMSEA))” (Suhr 2006). This model shows a good fit with the data (Chi-squared value ($N = 275$) = 102.897; CFI = 1.000; RMSEA = 0.000; SRMR = 0.000).

Analogue to OLS tests, the significant negative relations between formalization and OCB can be proved (see Table 6), however, none of the potential mediations can be verified, not even the one generated from formalization via SDI toward OCB, because by indirect effect the p-value is extreme large (0.9). Neither can a significant link between transformational leadership and OCB can be detected, be it with or without the mediator.

Some interesting findings are worth mentioning though, e.g., gender ($r = 2.39$, $p = 0.001$) and psychological health ($r = 1.297$, $p = 0.000$) are two very influential variables on SDI; on contrary to mental health, which without doubt considerably affects SDI, physical health has no effect. Similar to the previous section, education plays a crucial role to SDI as well, showing $r = 0.468$ at the level when $p < 0.05$. Formalization ($r = 1.38$, $p \approx 0.01$) increases SDI considerably, which might be out of people’s expectation.

As for direct effects with mediator SDI, formalization ($r = -0.287$, $p \approx 0.01$),

education ($r = 0.156$, $p = 0.000$), age ($r = -0.024$, $p = 0.000$) and tenure ($r = 0.022$, $p = 0.008$) significantly influence OCB.

In a nutshell, all three hypotheses are rejected by SEM results.

Table 6: Extraction from SEM and mediation test

Relationship	Direct without mediator	Direct with mediator	Indirect
Form SDI OCB	-0.289 (0.009)	-0.287 (0.01)	NS
TL SDI OCB	0.047 (NS)	0.048 (NS)	NS

Table 7: SEM and mediation test

	Coef.	OIM Std. Err.	z	P> z	[95% Conf. Interval]	
Structural						
sdi <-						
form	1.38111	.5625555	2.46	0.014	.2785217	2.483699
age	-.0252199	.0347328	-0.73	0.468	-.0932948	.0428551
gender	2.394362	.7010539	3.42	0.001	1.020322	3.768402
education	.4679623	.2196	2.13	0.033	.0375542	.8983704
tenure	.1121576	.041518	2.70	0.007	.0307838	.1935314
lengthwleader	-.0367801	.0655583	-0.56	0.575	-.165272	.0917118
volumework	.0514457	.0186259	2.76	0.006	.0149397	.0879517
healthphysi	-.0046233	.3299165	-0.01	0.989	-.6512477	.6420012
healthpsych	1.297411	.292868	4.43	0.000	.7234004	1.871422
mothertongue	-1.043586	.8369251	-1.25	0.212	-2.683929	.5967575
tl	.4287163	.2850972	1.50	0.133	-.130064	.9874965
_cons	-22.89876	3.804087	-6.02	0.000	-30.35463	-15.44289
ocb <-						
sdi	-.0015026	.0119204	-0.13	0.900	-.0248662	.021861
form	-.286992	.1124168	-2.55	0.011	-.5073249	-.0666591
age	-.0244521	.0068725	-3.56	0.000	-.0379219	-.0109823
gender	.1644345	.1414914	1.16	0.245	-.1128836	.4417525
education	.1557211	.043767	3.56	0.000	.0699394	.2415028
tenure	.0219696	.0083154	2.64	0.008	.0056718	.0382675
lengthwleader	.0192153	.0129668	1.48	0.138	-.0061993	.0446298
volumework	.006103	.0037326	1.64	0.102	-.0012128	.0134189
healthphysi	.0581462	.0652172	0.89	0.373	-.0696771	.1859696
healthpsych	.0546403	.0599237	0.91	0.362	-.062808	.1720885
mothertongue	.0827392	.1659086	0.50	0.618	-.2424356	.407914
tl	.0479266	.0565886	0.85	0.397	-.0629851	.1588382
_cons	5.832799	.7999925	7.29	0.000	4.264843	7.400756
var(e.sdi)	23.35755	1.991938			19.76226	27.60692
var(e.ocb)	.9127315	.077838			.77224	1.078782

RESULT

Direct effects

	OIM					
	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
Structural						
sdi <-						
form	1.38111	.5625555	2.46	0.014	.2785217	2.483699
age	-.0252199	.0347328	-0.73	0.468	-.0932948	.0428551
gender	2.394362	.7010539	3.42	0.001	1.020322	3.768402
education	.4679623	.2196	2.13	0.033	.0375542	.8983704
tenure	.1121576	.041518	2.70	0.007	.0307838	.1935314
lengthwleader	-.0367801	.0655583	-0.56	0.575	-.165272	.0917118
volumework	.0514457	.0186259	2.76	0.006	.0149397	.0879517
healthphysi	-.0046233	.3299165	-0.01	0.989	-.6512477	.6420012
healthpsych	1.297411	.292868	4.43	0.000	.7234004	1.871422
mothertongue	-1.043586	.8369251	-1.25	0.212	-2.683929	.5967575
tl	.4287163	.2850972	1.50	0.133	-.130064	.9874965
ocb <-						
sdi	-.0015026	.0119204	-0.13	0.900	-.0248662	.021861
form	-.286992	.1124168	-2.55	0.011	-.5073249	-.0666591
age	-.0244521	.0068725	-3.56	0.000	-.0379219	-.0109823
gender	.1644345	.1414914	1.16	0.245	-.1128836	.4417525
education	.1557211	.043767	3.56	0.000	.0699394	.2415028
tenure	.0219696	.0083154	2.64	0.008	.0056718	.0382675
lengthwleader	.0192153	.0129668	1.48	0.138	-.0061993	.0446298
volumework	.006103	.0037326	1.64	0.102	-.0012128	.0134189
healthphysi	.0581462	.0652172	0.89	0.373	-.0696771	.1859696
healthpsych	.0546403	.0599237	0.91	0.362	-.062808	.1720885
mothertongue	.0827392	.1659086	0.50	0.618	-.2424356	.407914
tl	.0479266	.0565886	0.85	0.397	-.0629851	.1588382

Indirect effects

	OIM					
	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
Structural						
sdi <-						
form	0	(no path)				
age	0	(no path)				
gender	0	(no path)				
education	0	(no path)				
tenure	0	(no path)				
lengthwleader	0	(no path)				
volumework	0	(no path)				
healthphysi	0	(no path)				
healthpsych	0	(no path)				
mothertongue	0	(no path)				
tl	0	(no path)				
ocb <-						
sdi	0	(no path)				
form	-.0020753	.0164851	-0.13	0.900	-.0343855	.0302349
age	.0000379	.0003051	0.12	0.901	-.0005601	.0006359
gender	-.0035979	.0285612	-0.13	0.900	-.0595768	.0523811
education	-.0007032	.0055881	-0.13	0.900	-.0116556	.0102492
tenure	-.0001685	.0013384	-0.13	0.900	-.0027918	.0024547
lengthwleader	.0000553	.0004494	0.12	0.902	-.0008255	.000936
volumework	-.0000773	.0006139	-0.13	0.900	-.0012805	.0011259
healthphysi	6.95e-06	.0004988	0.01	0.989	-.0009707	.0009846
healthpsych	-.0019495	.0154719	-0.13	0.900	-.032274	.0283749
mothertongue	.0015681	.0125034	0.13	0.900	-.0229381	.0260743
tl	-.0006442	.0051284	-0.13	0.900	-.0106957	.0094073

Total effects

	OIM				[95% Conf. Interval]	
	Coef.	Std. Err.	z	P> z		
Structural						
sdi <-						
form	1.38111	.5625555	2.46	0.014	.2785217	2.483699
age	-.0252199	.0347328	-0.73	0.468	-.0932948	.0428551
gender	2.394362	.7010539	3.42	0.001	1.020322	3.768402
education	.4679623	.2196	2.13	0.033	.0375542	.8983704
tenure	.1121576	.041518	2.70	0.007	.0307838	.1935314
lengthwleader	-.0367801	.0655583	-0.56	0.575	-.165272	.0917118
volumework	.0514457	.0186259	2.76	0.006	.0149397	.0879517
healthphysi	-.0046233	.3299165	-0.01	0.989	-.6512477	.6420012
healthpsych	1.297411	.292868	4.43	0.000	.7234004	1.871422
mothertongue	-1.043586	.8369251	-1.25	0.212	-2.683929	.5967575
tl	.4287163	.2850972	1.50	0.133	-.130064	.9874965
ocb <-						
sdi	-.0015026	.0119204	-0.13	0.900	-.0248662	.021861
form	-.2890673	.1112079	-2.60	0.009	-.5070309	-.0711038
age	-.0244142	.0068661	-3.56	0.000	-.0378715	-.0109569
gender	.1608366	.1385868	1.16	0.246	-.1107885	.4324617
education	.1550179	.0434113	3.57	0.000	.0699333	.2401025
tenure	.0218011	.0082074	2.66	0.008	.0057148	.0378873
lengthwleader	.0192705	.0129598	1.49	0.137	-.0061302	.0446713
volumework	.0060257	.003682	1.64	0.102	-.0011909	.0132424
healthphysi	.0581532	.0652191	0.89	0.373	-.0696738	.1859802
healthpsych	.0526907	.0578952	0.91	0.363	-.0607818	.1661632
mothertongue	.0843073	.1654463	0.51	0.610	-.2399615	.4085761
tl	.0472824	.056359	0.84	0.401	-.0631793	.157744

In this section the objective statistical results are depicted. In the following section the interpretation of these data are provided.

5. Discussion

In the discussion section the topics are displayed in such a manner:

“5.1 Beneath the surface” tries to dig out more in-depth findings, based on the previous literature review, theoretical background, factual argumentation, and self thinking, the emphasis lies still in the research questions of this paper *per se*.

“5.2 Limitations” reflects on this paper’s own drawbacks, the way to improve it, and the direction of future research. The distance of this section to this paper is still close.

“5.3 Practical implications” makes one step further. It refers to the practical world, aiming at provide a set of down-to-earth suggestions or proposals to the potentially related HR practitioners, to rule makers, and to the team leaders. These recommendations are made based on the findings in this paper.

5.1 Beneath the surface

“Beneath the surface” implies that the interpretations of the results should not stop on the surface of the paper, merely reading the numbers and frigidly follow the results. Rather, interpretations demand brainstorm, cerebration, self-reflection, and diversified visual angels. Only in this way can we broaden our horizon, can we further develop ourselves until to a higher platform and can we become free of slavery to software or unspoken data.

At the time while the author was studying the statistical results, the following four aspects loom. They are:

5.1.1 Formalization—sociological ambivalence

This subsection talks about the ambivalent role of formalization at work place based on the data results and the previous studies (See Section 4.3, e.g., Hypothesis 1 being rejected).

5.1.2 Transformational leadership does not transform?

This question refers to the malfunction of transformational leadership that used to transforming extrinsic motivation to intrinsic one and encouraging in-role behaviors to

extra-role behaviors in this paper (See Section 4.3, e.g., Hypothesis 2 being rejected).

5.1.3 Motivation \neq helping?

This subsection investigates why in this study self-determination and the relevant motivation do not necessarily lead to helping citizenship behavior (See Section 4.3, e.g., SDI does not positively influence OCB).

5.1.4 Value of education and health

This subsection deals with the findings yielded by the control variables, especially the role of education and health (See Section 4.3, e.g., Education positively relates with both OCB and SDI in either OLS or SEM tests)

5.1.1 Formalization—sociological ambivalence

The author postulated that formalization is a latent antecedent of OCB, whereas both by OLS and by SEM the opposite relationship was exemplified. It seems this study adds one more piece of evidence for criticizing formalization as killer of extra-role behavior at work place (in public sector). However, as mentioned sufficiently before, this is no easy question.

This sample comes from a relatively highly ruled and regulated department, where the working atmosphere is friendly and empowering to some degree, which is demonstrated in Section 4.2. This single one reason might not be so powerful to argue against the evident findings originated from these two tests. But formalization is indeed is a complicated concept and issue rather than a pure evil and merely bureaucratic burden that only add to the bloat. Otherwise we would not find out that formalization actually positively relates to SDI by SEM tests with $r = 1.38$ and $p < 0.001$.

Maybe it could be argued that motivation reflected by SDI does not equal to OCB, which will be discussed in Section 5.1.3, but it should not be ignored that the issue of sociological ambivalence—formalization—is still in dispute. It is already stated that it may “enhance perception of fairness and procedural justice”, “decrease role ambiguity and conflict”, and increase “job satisfaction, commitment, and trust in the organization”. Ulrich (2011) suggested that there is a positive relationship between employee satisfaction and control in monotonous tasks. Olsen questions in his paper *Maybe it is time to rediscover*

bureaucracy (2014) the fashionable idea of bureaucracy's obsolescence and indicates the reasons, including "Bureaucratic organization and the success criteria in which it is embedded are still with us. Bureaucracy has a role as the institutional custodian of democratic-constitutive principles and procedural rationality (...)".

Moreover, the question of Swiss context is also worthy raising. In section 2.2.1.1 this point is fully discussed, whereas the author still want to stress that in this sample there is a German Swiss overrepresentation, and this group of Swiss are more hierarchy-averse than the French Swiss. Even it is not always the case that formalization means hierarchy, these two concepts are somewhat intertwined.

5.1.2 Transformational leadership does not transform?

Transformational leadership—self-explained, is transfer extrinsic incentives into intrinsic values and beliefs. Nonetheless, in this paper the conventionally admitted positive links between transformational leadership and OCB fail.

Honestly speaking, it is unexpected. As aforementioned, transformational leaders will encourage the staff achieve more than required. It affects the staff through internalization so as to trigger their intrinsic motivation. "If employees are motivated intrinsically to collaborate, then shirking is not a preferable action, because the activity of collaboration is itself a benefit" (Frost, Osterloh & Weibel 2010), thus working beyond in-role tasks logically comes into being. "The transformational leader's focus is directed toward the organization, and his or her behavior builds follower commitment toward organizational objectives" (Stone, Russel & Patterson 2004). The same effect of stimulating extra achievements have been manifested over decades (see Bass 1985; Ritz et al. 2014) On reviewing previous literatures, one can almost confidently confirm the positive relationship between transformational leadership and OCB. Not only transformational leadership as a whole (see Connell 2006), but also its decomposed aspects, such as articulating a vision, providing an appropriate role model, fostering the acceptance of group goals, provide individualized support and intellectual stimulation, and express high performance expectations" (MacKenzie et al. 2001, p. 116) have been studied. For instance, leader's OCB model will promote imitation (Yaffe & Kark 2011).

It is therefore tough to try to figure out the possible reasons. Given the condition that the data editing, analyzing, and processing are correct, then latent sources might be as follows: first, the author need to re-mention that in this sample, the employees give their leaders high marks by rating transformational leadership items—a possibility might come into being when the majority of leaders behave equally empowering and transform similar encouraging or exciting visions, it becomes normal and will not be treasured respectably than when there is only one outlier transformer among all the evil leaders; second, maybe the Swiss, especially the German Swiss are very independent and self-disciplined, which reduces the functioning power of a transformational leadership behavior.

5.1.3 Motivation \neq helping?

This section can directly refer to Section 5.1.3, because there a question was asked why a common antecedent will strongly negatively affects OCB while significantly positively influences SDI. In addition to that, in this study, no support is found for the direct linkage between SDI and OCB.

It might be interpreted in this way: an intrinsic motivated type of employee prefer wholeheartedly concentrate on the job rather than anything else. In this sense, the overcontribution to his own work is also extra-role behavior to some degree. It is just because this kind of citizenship behavior is hidden in one's own field that it will be even more difficult than the helping behavior to be recognized.

This behavior may be named so called self-helping. If someone who helps the others still expects certain reward or appreciation from the outside world, then the self-helpers can probably be the followers of the proverb “God helps those who help themselves”—they are loyal to their intrinsic ego in the deep heart's core when they behave intrinsically motivated, so for there is no reason to care much about the reactions from the other people.

Intrinsic motivated persons contribute themselves to what they are engaging in, so a clearance and equal working condition are important to them. This may explain why formalization can increase SDI considerably.

Even though there can be no connection between SDI and OCB, it is worthy

promoting motivation. The reason is simple: these are two different deeds that promote the collective wellbeing.

5.1.4 Value of education and health

Both OLS and SEM show significant links with education. By SEM, with the involvement of SDI, education($r = 0.156$, $p = 0.000$) significantly impacts OCB; education($r = 0.468$, $p < 0.01$) promotes SDI substantially; by OLS, education ($r = 0.16$, $p < 0.001$) accounts for 16% increase of OCB when one unit of itself grows. By correlation, OCB has positive significant relation with education alone.

Health situation is measured in the sample in two steps, first, rate the physical health, second, the mental health. It makes sense, especially by detecting that psychological health ($r = 1.297$, $p = 0.000$) is a very influential variable for SDI, while on contrary to mental health, which without doubt considerably affects SDI, physical health has no effect.

To summarize, a well-educated person at work place is more likely to be motivated or to contribute extra to the unit; a happy mentally healthy staff is more motivated than the unhappy yet physically healthy colleague.

It is beyond saying that how precious education and health are. This principle applies everywhere in all walks of life, and OCB or SDI is only part of the general life. Hence, great attention should be paid in this area. Even though mental health weighs more in this topic, since the physical and mental health are integrated and correlated, to promote body health is of substantial importance as well.

5.2 Limitations

By reflection there are a lot of drawbacks of this paper appearing. These weak points are not collected provisionally; rather, the author has become aware of a large part of them. The purpose of this section is to confront the limitations and improve or correct them in the future.

At the outset, the way of dealing with missing values in the sample is not optimal. Although it is justified in Section 3.1.1 by two reasons—first, the larger the database, the better the prediction, in that larger samples increase the chance of significance by more reliably reflecting the population mean(Concept Stew Ltd n.d.); second, the software Stata used in this paper to run the program is able to detect in each and every situation the plausible number of observations, depending on the concrete commands, thus generate corresponding results—the incoherent display of observations cause a series of problems. In the previous papers reviewed, seldom will the readers encounter such deviated number of sample. A possible solution to this problem would be: starting as early as possible with the datasets, discovering deficiencies of the sample in time and figure out a good method to deal with it. For example, those questionnaires, in which systematical missing values exist, should be taken out. At the same time, effort should be made to obtain more sample.

Competent professionals—that is why they are of good quality, collect the data applied in this study. There are further improvement for this study in terms of data, that is, getting access to this kind of data for a couple of years. Panel data that enable a more precise prediction prevails cross-sectional data which cannot reflect longitudinal developments or evidences.

By performing OLS regression test, a low R-squared value does not necessarily impacts on the correctness of the conclusions once there is significance, nonetheless, a low R-squared is becomes questionable if you require a certain degree of precision for these conclusions.

The comprehensive method of SEM should be investigated in depth, so that the different results by SEM and OLS, esp. the results of formalization, can be explained.

Speaking of construct validity examination, Jarvis, MacKenzie, and Podsakoff indicated the importance of drawing a distinction between formative and reflective

measurement model in their paper *A critical review of construct indicators and measurement model misspecification in marketing and consumer research* (2003). According to them, both the dependent and independent variables in this paper exemplifies the reflective model, whereas the mediating variable SDI exhibits certain somewhat complex characteristics. Composite model like this is noteworthy, particularly when it comes to internal consistency reliability, the specificities of formative model should be cautiously taken into consideration. The commonly steps for latent underlying construct validity entails estimates of internal consistency reliability (e.g., Cronbach's alpha) and conducting factor analysis and providing some evidence of convergent and discriminant validity, as Jarvis et al. (2003) states. For future study, a systematic validity and reliability test should be undertaken.

In Section 3.2 it is stated that despite the tradition and reliability of quantitative methodology, "in light of the peculiarity of social and behavioral study, qualitative or mixed method should be taken into consideration as of future studies." Therefore it is better to adopt mixed method in the future in social studies, especially when it is needed to measure intangible measures in psychological or behavioral fields.

After self-reflection, a series of recommendations are made for the relevant practitioners.

5.3 Practical implication

The suggestions and recommendations made in this section come into being on the basis of the entire work endeavor in this paper. From the basic conceptual and factual recognition from the early preparing stage, from the former intensive pre-research stage, and from the whole process while studying data, running software as well as writing and editing this paper. Concretely, the direct references of these advices can be found in Section 2, Section 4 and Section 5.1 of this paper. Though the academic basis on which this postulates and recommendations are made is as solid as the author expected, the author will try to extract some down-to-earth information from the limited resources.

As follows presented are the four major directions of information—

1. Hire the well-educated

This subsection refers directly to the results discussion in 5.1.4. Key words: education, OCB, SDI

It is obvious that education positively impacts both OCB and SDI. Not only the data, but also the rule-of-thumb practical experiences support this self-evident proposal. It should be noted that hiring well-educated staff does not mean rejecting those who are trained, competent, and diligent yet have not received higher education. This recommendation is made only from a big data point of view.

2. Improve mental health

This subsection also relates to Section 5.1.4. Key words: health, OCB, SDI

Mental healthy employees are more likely to be physically healthy, more engaging and motivated. Even in view of the statistical results, mental healthier people not necessarily conduct citizenship behavior, but they work in a more intrinsically motivated manner, which, as already indicted, is equally crucial to the work place.

3. Utilize formalization and motivation

This subsection links to Section 5.1.1. Key words: Formalization, SDI

Based on the data and empirical recognition, select the best part of formalization which result in transparency, equality, and clearance to the work group, and dispel the negative

part of time- and energy-consuming red tapes or similar policies could be a optimal strategy to avoid hurting people's initiatives in performing OCB, and at the same time, to stimulate the self-helpers' motivations.

The role of intrinsic motivation is self-explanatory. There are theories that extrinsic motivations can be transferred into intrinsic motivation, e.g. motivation is a quasi development continuum over time by assimilating behaviors(Ryan & Deci 2002, p. 18, see also Vallerand & Ratelle 2002). People in charge of team can also adopt some outside policy to stimulate their motivation internalization process.

4. Optimize group structure

This subsection connects to Section 4.3.2 and general findings of other sections. Key words: Education, Gender, Health, Formalization, Tenure, SDI, OCB

A mixed group in which there are positive employees is promising. It is encouraged to integrate the well-educated, the woman, the experienced with long tenure, and the full-time worker to your teams to upgrade the collective morale, since all these listed factors leads to high motivation.

Again, to include a group does not imply to exclude the other. The active can influence the passive, and the latter may occupy virtues like OCB that the former do not have, moreover, their motivation style can change over time as mentioned above.

5. Conclusion

Direct and Indirect Impacts of Formalization and Transformational Leadership on Organizational Citizenship Behavior in Public Sector: Role of Self-Determination—Mediation Test of SDI for latent OCB Antecedents in Swiss perspective: this is the title of this paper. As the title indicates, there are four rudiment variables: formalization, transformation leadership, Organizational Citizenship Behavior and Self-Determination Index. More specifically, OCB is the core research subject, SDI was assumed to be a crucial catalyzer for two latent antecedents of formalization and transformation leadership and OCB, and during the study process, SDI per se gains more weigh as a research target (see Figure 2 in Section 3.2).

A brief review of the academic background is provided: OCB refers to “individual behavior that is discretionary, not directly or explicitly recognized by the formal reward system, and in the aggregate promotes the efficient and effective functioning of the organization” (Organ 1988, p. 4; Organ, Podsakoff, & MacKenzie 2006, p. 3), stands for individual behaviors such as helping others beyond or above regulations. Because of its unique function of promoting work effect and efficiency in an organization, to investigate the antecedents of citizenship behavior is of theoretical and empirical interest. Among possible sources of OCB, the survey of formalization of an organization is under developed, while that on leadership behavior has been fully conducted. As latent linkage in public service study, public service motivation or similar intrinsic motivation are likely to be seen as mediator, whereas since self-determination continuum can reflect human being’s psychological activities more truthfully and more completely, hence, it has been taken into account as a mediator.

This paper aims at investigating two research questions: (1) What direct and indirect impacts does formalization have on OCB in public sector? (2) What direct and indirect impacts does transformational leadership have on OCB in public sector? Apart from pursuing academic findings, it is hoped that through the investigation, References could be offered to target group such as HR practitioners, rule makers, and team leaders in public sphere.

Three hypotheses originated from the research questions are tested. They are:

Hypothesis 1: Formalization directly positively affects helping citizenship behavior in public sector.

Hypothesis 2: Transformational leadership directly positively affects helping citizenship behavior in public sector.

Hypothesis 3: Self-Determination Indices mediate the relationship between OCB and the two variables of formalization and transformational leadership.

The sample is comprised of 479 Swiss public sector employees from the Bern Tax Department. Quantitative method like Pearson's correlation coefficients, Ordinary Least Squares (OLS), and Structural equation modeling (SEM) are employed. The fundamental relationships to be examined are:

- (1) Relationships between IVs (formalization & transformational leadership) and MV (SDI) are statistically significant.
- (2) IVs show significant direct effects on DV (OCB), without any influx of influence from MV.
- (3) Check if the effect with both IVs and MV involved decreases than the effect when IVs predict alone.

Under the OLS test, hypothesis 1 and 2 are rejected, whereas half of hypothesis 3 is supported by the OLS results, that is, the part related to formalization. Under SEM test, all three hypotheses are rejected.

However, some important common finding of the two methods are found:

1. The opposite estimation to Hypothesis 1—formalization directly hinders OCB—is proven to be true. Both tests show that one unit increase in formalization leads to circa 30% decrease in OCB, and this assumption is combined with a relatively strong confidence in that it will not be denied
2. Contrary to the common expectation, there is no significant relationship between transformational leadership and OCB.
3. SDI does not directly effect OCB.
4. The positive relationship between education and OCB is noticeable, while education plays a crucial role to SDI as well.

On the other hand, some different findings by two tools are worth noticing:

1. OLS proves that formalization negatively indirectly influences OCB, although the mediation effect accounts for merely 5.9%. SEM finds no mediation relations.
2. SEM finds that gender ($r = 2.39$, $p = 0.001$) and psychological health ($r = 1.297$, $p = 0.000$) are two very influential variables on SDI; on contrary to mental health, which without doubt considerably affects SDI, physical health has no effect. As for direct effects with mediator SDI, formalization ($r = -0.287$, $p \approx 0.01$), education ($r = 0.156$, $p = 0.000$), age ($r = -0.024$, $p = 0.000$) and tenure ($r = 0.022$, $p = 0.008$) significantly influence OCB.

To observe the results should break through the surface and make effort to get close to the truth or seek the solutions. For this purpose, the author tried to interpret and discuss the statistical outcomes:

The author postulated that formalization is a latent antecedent of OCB, whereas both by OLS and by SEM the opposite relationship was exemplified. This sample comes from a relatively highly ruled and regulated department, where the working atmosphere is friendly and empowering to some degree. Since formalization is indeed is a complicated concept and issue rather than a pure evil and merely bureaucratic burden that only add to the bloat. Otherwise we would not find out that formalization actually positively relates to SDI. The role of formalization is disputable over decades. Moreover, the question of Swiss context is also worthy raising. In this sample there is a German Swiss overrepresentation, and this group of Swiss prefers less hierarchy than the French Swiss. Even it is not always the case that formalization means hierarchy, these two concepts are somewhat intertwined.

Maybe it could be argued that motivation reflected by SDI does not equal to OCB. In this study, no support is found for the direct linkage between SDI and OCB. It might be interpreted in this way: an intrinsic motivated type of employee prefer wholeheartedly concentrate on the job rather than anything else. In this sense, the overcontribution to his own work is also extra-role behavior to some degree. It is just because this kind of citizenship behavior is hidden in one's own field that it will be even more difficult than the helping behavior to be recognized. This behavior may be named so called self-helping. If someone who helps the others still expects certain reward or appreciation from the outside world, then

the self-helpers can probably be the followers of the proverb “God helps those who help themselves”—they are loyal to their intrinsic ego in the deep heart’s core when they behave intrinsically motivated, so for there is no reason to care much about the reactions from the other people. Intrinsic motivated persons contribute themselves to what they are engaging in, so a clearance and equal working condition are important to them. This may explain why formalization can increase SDI considerably.

Even though there can be no connection between SDI and OCB, it is worthy promoting motivation. The reason is simple: these are two different deeds that promote the collective wellbeing.

In this paper the conventionally admitted positive links between transformational leadership and OCB does not exist either. On reviewing previous literatures, one can almost confidently confirm the positive relationship between transformational leadership and OCB. Thus it is therefore tough to try to figure out the possible reasons. Given the condition that the data editing, analyzing, and processing are correct, then latent sources might be as follows: first, the author need to re-mention that in this sample, the employees give their leaders high marks by rating transformational leadership items—a possibility might come into being when the majority of leaders behave equally empowering and transform similar encouraging or exciting visions, it becomes normal and will not be treasured respectably than when there is only one outlier transformer among all the evil leaders; second, maybe the Swiss, especially the German Swiss are very independent and self-disciplined, which reduces the functioning power of a transformational leadership behavior.

Both OLS and SEM show significant links with education. Health situation is measured in the sample in two steps, first, rate the physical health, second, the mental health. To summarize, a well-educated person at work place is more likely to be motivated or to contribute extra to the unit; a happy mentally healthy staff is more motivated than the unhappy yet physically healthy colleague.

The main limitations of this paper are: (1) At the outset, the way of dealing with missing values in the sample is not optimal. The incoherent display of observations cause a series of problems. In the previous papers reviewed, seldom will the readers encounter such deviated number of sample. A possible solution to this problem would be: starting as early as

possible with the datasets, discovering deficiencies of the sample in time and figure out a good method to deal with it. For example, those questionnaires, in which systematical missing values exist, should be taken out. At the same time, effort should be made to obtain more sample. (2). Panel data that enable a more precise prediction prevails cross-sectional data which cannot reflect longitudinal developments or evidences. (3) By performing OLS regression test, a low R-squared value does not necessarily impacts on the correctness of the conclusions once there is significance, nonetheless, a low R-squared is becomes questionable if you require a certain degree of precision for these conclusions. (4) The comprehensive method of SEM should be investigated in depth, so that the different results by SEM and OLS, esp. the results of formalization, can be explained. (5) The commonly steps for latent underlying construct validity entails estimates of internal consistency reliability (e.g., Cronbach's alpha) and conducting factor analysis and providing some evidence of convergent and discriminant validity, as Jarvis et al. (2003) states. For future study, a systematic validity and reliability test should be undertaken. (6) It is better to adopt mixed method in the future in social studies, especially when it is needed to measure intangible measures in psychological or behavioral fields.

After self-reflection, a series of recommendations are made for the relevant practitioners. The suggestions are based on the entire work endeavor in this paper. Following information is provided: (1) Hire the well-educated. It is obvious that education positively impacts both OCB and SDI. Not only the data, but also the rule-of-thumb practical experiences support this self-evident proposal. It should be noted that hiring well-educated staff does not mean rejecting those who are trained, competent, and diligent yet have not received higher education. This recommendation is made only from a big data point of view. (2) Improve mental health. Mental healthy employees are more likely to be physically healthy, more engaging and motivated. Even in view of the statistical results, mental healthier people not necessarily conduct citizenship behavior, but they work in a more intrinsically motivated manner, which, as already indicted, is equally crucial to the work place. (3) Utilize formalization and motivation. Based on the data and empirical recognition, select the best part of formalization which result in transparency, equality, and clearance to the work group, and dispel the negative part of time- and energy-consuming red tapes or similar policies could be a

optimal strategy to avoid hurting people's initiatives in performing OCB, and at the same time, to stimulate the self-helpers' motivations. The role of intrinsic motivation is self-explanatory. There are theories that extrinsic motivations can be transferred into intrinsic motivation, e.g. motivation is a quasi development continuum over time by assimilating behaviors (Ryan & Deci 2002, p. 18, see also Vallerand & Ratelle 2002). People in charge of team can also adopt some outside policy to stimulate their motivation internalization process. (6) Optimize group structure. A mixed group in which there are positive employees is promising. It is encouraged to integrate the well-educated, the woman, the experienced with long tenure, and the full-time worker to your teams to upgrade the collective morale, since all these listed factors leads to high motivation. Again, to include a group does not imply to exclude the other. The active can influence the passive, and the latter may occupy virtues like OCB that the former do not have, moreover, their motivation style could change over time.

In this study there is no evidence to prove that OCB is directly positively affected by formalization or transformational leadership, instead, the significant negative link between formalization and OCB exists. The role of SDI as a mediator fails, except that in OLS test, it slightly mediates the negative impacts formalization has on OCB.

As discussed above, motivation may not necessarily lead to citizenship behavior; in similar study fields it might be inappropriate to choose SDI as a mediator.

However, SDI *per se* deserves learning and promoting. Though the results demonstrate more significant relationships with SDI rather than with OCB, they show an improved direction in future study.

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Appendix 1 Variable Measurement by Questionnaire items

Variables	Items	Rater
<i>Dependent variable</i>		
OCB – Helping	<p>To what extent is it the case as of this particular co-worker?</p> <ol style="list-style-type: none">1. This co-worker volunteers to do things for this work group2. This co-worker helps orient new employees in this group3. This co-worker assists others in this group with their work for the benefit of the group4. This co-worker gets involved to benefit this work group5. This co-worker helps others in this group learn about the work6. This co-worker helps others in this group with their work responsibilities	Supervisor
<i>Mediator</i> SDI	$SDI = (3 \times intrinsic) + (1.5 \times identified) - (1 \times introjected) - (2 \times external) - (3 \times amotivated)$	
Intrinsic	<ol style="list-style-type: none">1. Because it has become a fundanmental part of <i>who I am</i>2. To me it is important to contribute I common welfare3. Because it is very fun to do something new	Self-report
Identified	<ol style="list-style-type: none">1. Because it is a part of how I want to lead my life2. Because I have chosen this job to reach my career goal3. Because this is the kind of work that enables me to obtain a certain life style	
Introjected	<ol style="list-style-type: none">1. Because I want to try my best in my life2. Because this ist the kind of work I have chosen for reaching certain important goals3. Because I want to perform very well at work, otherwise I would be very disappointed	
External	<ol style="list-style-type: none">1. For income it offers me2. Because this kind of job gives me security	
Amotivated	<ol style="list-style-type: none">1. I do not know why; we are over expected	
<i>Independent variables</i>		

Formalization	<ol style="list-style-type: none"> 1. For my job there exist clear requirments and targets 2. My job responsibilities are clearly writtenly recorded 3. In my organisation the planned performance is based on the stipulated standards 4. Written time and work plans as well as job description are available to orienate myself at work 	Employees
Rev	<ol style="list-style-type: none"> 5. Written rules and guidelines to regulate my assignments do not exist here 6. Bureacracy stands for complicated administrative regulations and procedures, which have negative impacts on the work performance. How will you judge the degree of bureaucracy in your organization? 7. The members of my team receive at least once a year convincing feedback about their performance 8. The members of my team receive feedbacks about their performance regularly from their manager 9. We receive feedbacks about the quality of teamwork regularly 	
Transformational Leadership	<p>How often does your superior behave like the following:</p> <ol style="list-style-type: none"> 1. Communicates clear and positive future vision 2. Treats the staff as individuals, supports and encourages their development 3. Conveys encouragement and recognition to the staff 4. Fosters trust and cooperation among teammembers 5. Encourages to reflect on problems in a new way and scrutinizes assumptions 6. Is clear about his/her value and sets an example of what he/she preaches 7. Evokes pride and respect in others and inspires with his/her high competence 	
Control variable	<p>Gender, age, health, education, tenure, length of working with the current leader, volume of work, and mother tongue.</p>	

Appendix 2 Log File of Stata

Sample characteristics

```
. tabulate gender
. gen agegrp1=(age>=60) if age <.
. gen agegrp2=(age>=50 & age<60) if age<.
. gen agegrp3=(age>=40 & age<50) if age<.
. gen agegrp4=(age>=30 & age<40) if age<.
. gen agegrp5=(age>=20 & age<30) if age<.
. gen agegrp6=(age>=10 & age<20) if age<.
. tabulate agegrp1
. tabulate agegrp2
. tabulate agegrp3
. tabulate agegrp4
. tabulate agegrp5
. tabulate agegrp6
. mean age
. tabulate tenure
. tabulate education
. tabulate lengthwleader
. tabulate volumework
. tabulate healthphysi
. tabulate healthpsych
. tabulate mothertongue
```

#Cronbach's alpha:

```
*1. Formalization before and after adding 3 feedback items
. alpha form1 form2 form3 form4 form5 form6, std
. alpha Feedback1 Feedback2 Feedback3 form1 form2 form3 form4 form5 form6, std
*2. Transformational Leadership
. alpha fh1 fh1 fh2 fh3 fh4 fh5 fh6 fh7, std
*3. OCB
. alpha ocb1 ocb2 ocb3 ocb4 ocb5 ocb6, std
*4. SDI
. alpha intrinsic1 intrinsc2 intrinsic3 identified1 identified2 identified3 introjected1
introjected2 introjected3 external1 external2 amotivation, std
. alpha intrinsic1 intrinsc2 intrinsic3 identified1 identified2 identified3 introjected1
introjected2 introjected3 external1 external2 amotivation, std item label
```

#Descriptive Statistics

```
. summarize form tl ocb sdi
```

#Correlation

```
. estpost correlate ocb sdi tl form,matrix listwise
. esttab, unstack not noobs compress
. estpost correlate ocb sdi tl form age gender education tenure lengthwleader volumework
healthphysi healthpsych mothertongue,matrix listwise
. esttab, unstack not noobs compress
```

#OLS

```
. regress ocb form tl
. estimates store m1, title(Model 1)
. regress ocb form tl sdi
. estimates store m2, title(Model 2)
. estout m1 m2, cells(b(star fmt(3)) se(par fmt(2)))
*CVs included
. regress ocb form tl age gender education tenure lengthwleader volumework healthphysi
healthpsych mothertongue
. estimates store m1, title(Model 1)
. regress ocb form tl sdi age gender education tenure lengthwleader volumework healthphysi
healthpsych mothertongue
. estimates store m2, title(Model 2)
. estout m1 m2, cells(b(star fmt(3)) se(par fmt(2)))
. estout m1 m2, cells(b(star fmt(3)) se(par fmt(2))) legend label varlabels(_cons Constant)
. estout m1 m2, cells(b(star fmt(3)) se(par fmt(2))) legend label varlabels(_cons Constant)
stats(r2 df_r bic)
. estout m1 m2, cells(b(star fmt(3)) se(par fmt(2))) legend label varlabels(_cons Constant)
stats(r2 df_r bic, fmt(3 0 1) label(R-sqr dfres BIC))
```

#SEM Mediation test

```
. sem (sdi <- form) (sdi <- tl) (ocb <- sdi form tl)
. estat teffects
. estat gof, stats(all)
*CVs included
. sem (sdi <- form age gender education tenure lengthwleader volumework healthphysi
healthpsych mothertongue) (sdi <- tl age gender education tenure lengthwleader volumework
healthphysi healthpsych mothertongue) (ocb <- sdi form tl age gender education tenure
lengthwleader volumework healthphysi healthpsych mothertongue)
. estat teffects
. estat gof, stats(all)
```


Declaration of Independence

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Ich erkläre hiermit, dass ich diese Arbeit selbständig verfasst und keine anderen als die angegebenen Hilfsmittel benutzt habe. Alle Stellen, die wörtlich oder sinngemäss aus Quellen entnommen wurden, habe ich als solche kenntlich gemacht. Mit ist bekannt, dass andernfalls der Senat gemäss dem Gesetz über die Universität zum Entzug des auf Grund dieser Arbeit verliehenen Titels berechtigt ist.

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