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**Nemzetközi tudományos konferencia
a Magyar Tudomány Ünnepe alkalmából**
International Scientific Conference
on the Occasion of the Hungarian Science Festival

Sopron, 2025. november 6.
6 November 2025, Sopron

**FEJLŐDÉSI PÁLYÁK ÉS ÚJ TÖRÉSVONALAK A
FENNTARTHATÓSÁGI ÁTMENET IDŐSZAKÁBAN**

DEVELOPMENT TRAJECTORIES AND NEW DIVIDES IN TIMES OF SUSTAINABILITY TRANSITIONS

Szerkesztők / Editors:

RESPERGER Richárd, SZÉLES Zsuzsanna, TÓTH Balázs István

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Hidden Fault Lines in Sustainability Transitions: Silence, Commitment, Citizenship and Machiavellianism

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Abstract:

The purpose of this study is to examine organizational and psychological factors that may act as hidden fault lines within organizations. The focus is on four constructs frequently linked to organizational effectiveness: Organizational Silence, Organizational Commitment, Organizational Citizenship Behavior (OCB), and Machiavellianism. The study considers these factors as potential barriers or resources that can influence how organizations cope with sustainability and digital challenges. Data were collected through an online survey of 317 Hungarian employees from different sectors. Validated scales were used for all constructs, each showing strong internal consistency. Non-parametric analyses, including Spearman correlation and Kruskal-Wallis tests, were conducted to explore relationship among variables and demographic differences. Findings reveal that higher commitment is associated with less silence and stronger OCB, whereas higher Machiavellianism corresponds with lower commitment and weaker OCB. Sectoral and demographic based differences also emerged, suggesting distinct organizational profiles and vulnerabilities. These results highlight how silence, lack of commitment, low OCB and Machiavellianism may represent hidden psychological and social fault lines. Recognizing such patterns is essential when considering the human side of sustainable management and organizational adaptation.

Keywords: Organizational Silence, Organizational Commitment, Organizational Citizenship Behavior, Machiavellianism, sustainability transition

JEL Codes: D23, M14, O15, Q01, Q56

1. Introduction

Organizations operate in environments characterized by numerous threats to their long-term viability, challenges that affect both competitive market actors and public-sector units alike. To ensure survival, they must deploy their material and human resources effectively (Çınar et al., 2013). The human dimension is particularly critical: employees are not mechanistic units but individuals whose thoughts, emotions, and personality-driven motives shape their reactions in the workplace. Organizations and employees exist in continuous interdependence. While both parties pursue their own interests, each must also meet the expectations of the other. Employers attempt to enhance well-being through adequate working conditions, competitive salaries, and benefits, expecting in return commitment and high performance. Strong organizational commitment is therefore essential across sectors: insufficiently committed employees are more likely to leave, generating costly turnover, recruitment, and integration processes. Reducing turnover requires creating a work environment in which employees feel safe, valued, and willing to contribute beyond formal role requirements.

My research examined how organizational citizenship behavior, organizational commitment, organizational silence, and Machiavellianism manifest within a sample of Hungarian employees, and what patterns link these constructs. The study first explored the relationships

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among the variables, assessing whether and how they correlate. In addition, the research investigated the prevalence of these constructs across key demographic categories - including gender, age, educational levels, job tenure, and occupational fields - to identify potential group-level differences.

2. Literature Review

2.1. Organizational Citizenship Behavior

Research on organizational citizenship behavior (OCB) spans several decades, yet no consensus has been reached regarding its definition or dimensional structure (Podsakoff et al., 2000). The construct originates from early assumptions that job satisfaction shapes employee performance (Organ, 1977; Organ, 1997), and two major theoretical perspectives underpin its explanation. Social exchange theory suggests that satisfied employees reciprocate favorable treatment through extra-role behaviors, while a psychological perspective posits that prosocial, organizationally beneficial actions reflect the positive emotional state associated with job satisfaction (Bateman & Organ, 1983).

Katz and Kahn (1966) identified behavioral forms that support organizational functioning yet fall outside formal role expectations – such as helping colleagues, complying voluntarily with rules, maintaining order, and safeguarding resources – which they termed supra-role behaviors. These discretionary acts, while not enforceable or required, contribute to organizational effectiveness and thus hold substantial value for the organization (Organ, 1988; Organ, 1997).

Across the literature, OCB is consistently characterized as intentional, regulated behavior rather than spontaneous emotional reaction (Organ & Konovsky, 1989; Çınar et al., 2013). Brief and Motowidlo (1986) describe similar conduct as prosocial organizational behavior, encompassing collaboration, protection against threats, constructive suggestions, responsible organizational stewardship, and positive external representation. Such behaviors are viewed as essential to organizational survival and reflect voluntary individual actions serving collective interests.

2.2. Organizational Commitment

Commitment can be directed toward a wide range of targets- work, values, behaviors, organizations, ideologies, or other individuals - and is generally understood as a positive, intentional bond. Despite extensive scholarly attention, no universally accepted definition exists (O'Reilly & Chatman, 1986), as researchers approach the concept from different theoretical perspectives. In workplace settings, commitment may manifest toward the organization, the profession, or personal career goals, and can be conceptualized either as an attitudinal state or as a behavioral pattern (Allen & Meyer, 1990).

Becker (1960) provided one of the earliest theoretical formulations, arguing that commitment is linked to behavioral consistency. He highlighted that consistent behavior alone cannot define the committed state - doing so leads to tautology - and introduced the concept of “side-bets” to explain why individuals persist in courses of action. Side-bets represent investments that individuals have accumulated and that would be lost if they deviated from their established behavioral path. These investments originate from cultural expectations, formal bureaucratic arrangements, and personal adaptation to social contexts.

Organizational commitment is commonly defined as identification with organizational goals, willingness to exert effort, and desire to remain a member (Angle & Perry, 1981). Meyer and Allen's (1990) three-component model conceptualizes commitment as a psychological

state shaped by desires, needs, and obligations. Affective commitment reflects emotional attachment and a desire to stay; continuance commitment captures awareness of the costs of leaving; and normative commitment denotes a felt obligation to remain within the organization.

2.3. Organizational Silence

Employees differ in how openly they express their views about their work, conditions, and supervisors: some communicate their opinions freely, while others withhold them (Van Dyne et al., 2003). When employees voluntarily share concerns or suggestions with higher-level actors, they engage in voice behavior, open expression directed toward improving organizational functioning (Morrison, 2014). Effective communication is beneficial for both employees and employers, as its absence often generates organizational problems.

Understanding silence requires understanding voice. Hirschman (1970) conceptualized voice as expressing concerns to address organizational problems, contrasting it with exit as an alternative response to dissatisfaction; silence, in his interpretation, represents a passive form of loyalty. Silence is multidimensional: it may stem from fear, anger, depression, low self-esteem, or perceived injustice (Pinder & Harlos, 2001). Most definitions frame it as the intentional withholding of important information (Brinsfield, 2012). Jensen (1973) highlighted its dual nature: silence may unite or divide, help or harm, reveal or conceal, convey deep meaning or emptiness, and signal both approval and disapproval.

Morrison and Milliken (2000) introduced the concept of organizational silence, shifting the focus from individual motives to organizational-level forces that normalize silence as a dominant response. They argue that silence suppresses diversity of thought, preventing organizations from benefiting from varied employee perspectives. Organizational silence emerges when employees repeatedly receive cues that their opinions are unwelcome or inconsequential. According to their model, two major factors foster this climate. First, leaders' fear of negative feedback leads to centralized structures and managerial habits that dismiss or punish dissent. Second, leaders' implicit assumptions – such as believing employees are self-interested, that management automatically knows best, and that disagreement is undesirable – reinforce these structural tendencies. The accumulation of these forces creates a climate of silence in which employees perceive speaking as futile or risky, and silence becomes the prevailing organizational response.

2.4. Machiavellianism

Machiavellianism refers to a behavioral pattern marked by manipulation, exploitation, and strategic cunning, grounded in self-interest and disregard for conventional morality (Toker Gökçe, 2015). Christie and Geis (1970) introduced the construct into psychology, defining Machiavellian personalities as individuals who achieve their goals through manipulating others; they identified three core components: approval of deceit, cynicism about human nature, and rejection of traditional moral norms.

High-Mach individuals instrumentalize others for personal gain, show minimal relational commitment, and readily employ any means to achieve their objectives (Paulhus & Williams, 2002; Jones & Paulhus, 2009). They often aspire to leadership roles and may rise to higher organizational positions (Mael et al., 2001). Wilson et al. (1996) found that such individuals conceal their true intentions within groups while exploiting others, leading turbulent and opportunistic lives focused solely on personal advantage. Their personality profile includes distrust, cynicism, egocentrism, interpersonal manipulation, emotional coldness, narcissistic tendencies, and an external locus of control (Zagenczyk et al., 2011).

Within the Dark Triad framework, Machiavellianism and psychopathy are considered the “darkest” traits, while narcissism is relatively lighter (Rauthmann & Kolar, 2012), partly due to

strong behavioral overlap between Machiavellianism and psychopathy (Deluga, 2001). Although traditionally viewed as stable, Machiavellian tendencies may be situationally activated (for instance, by abusive supervision) suggesting a context-dependent component (Greenbaum et al., 2014).

Organizational Machiavellianism, as defined by Kessler et al. (2010), represents the workplace manifestation of Machiavellian attitudes. Organizational Machiavellians do not always behave manipulatively; rather, they selectively employ deception and manipulation when doing so offers strategic personal benefit. Thus, their behavior is opportunistic and advantage-driven, not uniformly malevolent or guided by a fixed moral deficit.

3. Methodology

3.1. Research Objectives and Hypotheses

The relationships among organizational variables have long been of significant interest in scientific research. Existing studies examining the link between Machiavellianism and organizational citizenship behavior (OCB) present an inconsistent picture. In general, the two constructs tend to be negatively associated (Becker & O’Hair, 2007; Koo & Lee, 2022; Abo El-maaty et al., 2023). However, Szabó et al. (2018) identified a positive effect of Machiavellianism on OCB directed toward the organization; no correlation was found between the variables in the individual level.

Zeng et al. (2023) and Sarwar et al. (2025) found positive correlation between OCB and Organizational Commitment.

Çınar et al. (2013), Fatima et al. (2015), Aljagathamy (2025) and Babaeinejad et al. (2025) found a negative relationship between organizational silence (OS) and OCB, whereas Acaray and Akturan (2015) reported that acquiescent silence and defensive silence (as subscales of the Organizational Silence) exert negative effects on OCB, while prosocial silence has a positive effect.

Gürer and Çiftçi (2018) identified a very weak positive association between Machiavellianism and the affective and continuance dimensions of organizational commitment. Zettler et al. (2011) found that Machiavellianism was positively associated with forms of commitment based on self-preferences (e.g., career commitment) yet negatively related to commitments requiring attachment to others (i.e., organization, supervisor, team).

Madubueze et al. (2021) and Ajmal et al. (2024) found positive correlation between Organizational Silence and Machiavellianism

Fard and Karimi (2015), Aruoren & Isiaka (2023) and Boz (2025) reported a strong negative relationship between organizational commitment and organizational silence, while Erkutlu and Chafra (2019) found that supervisors with high Machiavellianism scores increase the level of employee silence.

The aim of my research was to examine the constructs using the largest and most diverse sample possible. I sought to determine whether these constructs were present in the sample and, if so, to what extent. One component of the study focused on identifying the relationships among the variables, while the other examined the demographic characteristics of the sample. Accordingly, the analysis included an exploration of gender differences, age groups, educational level, job tenure, and the occupational fields represented in the dataset.

Based on the empirical findings presented above, the present study formulates two main hypotheses:

- H1. There are statistically significant relationships among the examined constructs (organizational citizenship behavior, organizational commitment, organizational silence, and Machiavellianism).
- H2. There are statistically significant differences in the examined constructs across demographic categories.

- H2a. Significant differences are expected between men and women.
- H2b. Significant differences are expected across age groups.
- H2c. Significant differences are expected across levels of educational attainment.
- H2d. Significant differences are expected based on job tenure.
- H2e. Significant differences are expected across occupational fields.

3.2. Description of the Sample

The primary objective in selecting the study sample was to reach a broad range of active employees in Hungary, irrespective of their occupation, educational background, or place of residence, in order to ensure a sufficiently large and diverse pool of respondents. Participation was restricted by two key criteria: individuals had to be at least 18 years old and currently employed. A total of 317 participants took part in the study, and no respondents had to be excluded from the analysis.

For a considerable period during data collection, the distribution of respondents by gender showed a marked predominance of women, approximately a 75–25% ratio. However, following a significant final push to mobilize male participants, the final distribution became more balanced.

Participation in the study required respondents to be at least 18 years old. Age-related data were collected in grouped form, using five predefined age categories.

The sample was predominantly composed of respondents with higher education degrees, while a smaller proportion had secondary, technical or other educational backgrounds.

As the study did not target specific occupations, the questionnaire was completed by individuals representing a wide variety of professional fields. To facilitate data processing, predefined occupational categories were provided, from which respondents could select the one most closely matching their field of work; an “Other” category was also available for occupations not listed. The largest group of respondents were employed in the state or public sector at the time of data collection. They were followed by participants working in healthcare. The next most represented category was “Sales/Commerce”. Employees from the fields of education and information technology also participated in the study in noteworthy numbers relative to the total sample.

The demographic section of the questionnaire also inquired about respondents’ tenure at their current workplace. Participants selected from predefined time intervals. The composition of the sample is presented in *Table 1*.

Table 2: Demographic Description of the Sample (N = 317)

Variable	Level	Counts
<i>Gender</i>	Male	144
	Female	173
<i>Educational level</i>	Elementary	1
	Technical School	28
	High School	72
	University	190
	PhD	10
	Other	16
<i>Job tenure</i>	0–1 year	18
	1–3 years	53

Variable	Level	Counts
<i>Age groups</i>	3–5 years	93
	5–10 years	54
	10+ years	99
	18–30 years	46
	31–40 years	97
	41–50 years	56
	51+ years	118
<i>Place of Residence</i>	Village	46
	Small town	110
	City	83
	Capital city	78
<i>Job sectors</i>	Public administration	39
	Sales/Commerce	25
	Healthcare	24
	Education	23
	IT	26
	Other	180

Source: Author's own compilation

3.3. Data Collection and Scales

The data were collected using a questionnaire created in Google Forms. Before beginning the survey, participants were informed about the nature and purpose of the research and were assured of the anonymity and voluntary nature of their participation. As an expression of their consent to take part, they were required to read an informed consent statement and indicate – by clicking “Continue” button – that they had understood and accepted the information and conditions of participation.

The questionnaire package employed in the study comprised four scales measuring the dimensions under investigation, containing a total of fifty-one items. Completing the questionnaire required 10–15 minutes. The scales used in the research are presented below.

Organizational Citizenship Behavior Scale: The first component of the questionnaire package was the Organizational Citizenship Behavior (OCB) scale developed by van Prooijen and colleagues (van Prooijen et al., 2008). The authors constructed their instrument using those items from Moorman and Blakely's (1995) OCB questionnaire that demonstrated Cronbach's alpha values above 0.70. In the present study, participants responded to nine items using a seven-point Likert scale, indicating the extent to which they agreed with each statement (1 – strongly disagree; 7 – strongly agree).

Organizational Commitment Scale: Organizational commitment was assessed using the Organizational Commitment Questionnaire (OCQ) developed by Mowday, Steers, and Porter (1979), based on the earlier work of Porter and Smith (1970). The instrument was validated in six languages, including Hungarian, by Kanning and Hill (2013). For improved clarity and readability, I refined several of the Hungarian translations they provided. Respondents rated each item on a seven-point Likert scale (1 – strongly disagree; 7 – strongly agree).

Organizational Silence Scale: To examine the hypotheses related to organizational silence, I used the questionnaire developed by Knoll and van Dick (2011). Participants indicated

their level of agreement with each statement on a seven-point Likert scale (1 – strongly disagree; 7 – strongly agree).

Machiavellianism Scale: Machiavellianism was measured using the Machiavellian Personality Scale (MPS), created by Dahling, Whitaker, and Levy (2009) and validated in Hungarian by Talmácsi et al. in 2012. The scale consists of fifteen items, including four reverse-scored items. Respondents evaluated the statements on a seven-point Likert scale (1 – strongly disagree; 7 – strongly agree).

4. Results and Findings

To evaluate the questionnaire data, I used JASP version 0.19.1. and Microsoft Excel. For all statistical tests, the conventional significance level of $p = .05$ was applied.

I calculated the mean scores and standard deviations of the variables. The composition of the sample is presented in *Table 2*.

Table 2: Descriptive Statistics

	OCB	OS	Mach	OC
<i>Valid</i>	317	317	317	317
<i>Median</i>	49.00	50.00	56.00	61.00
<i>Mean</i>	48.17	46.99	59.00	63.39
<i>Std. Deviation</i>	8.444	13.95	16.10	17.14
<i>Shapiro-Wilk</i>	0.971	0.974	0.959	0.990
<i>P-value of Shapiro-Wilk</i>	< .001	< .001	< .001	.032
<i>Minimum</i>	29.00	12.00	28.00	18.00
<i>Maximum</i>	63.00	84.00	102.0	105.0

Source: Author's own compilation

I conducted reliability analyses for each scale. The Cronbach's alpha coefficients were as follows: OCB scale $\alpha = .838$ ($N= 9$); OS scale $\alpha = .856$ ($N= 12$); OC scale $\alpha = .900$ ($N= 15$); and the Mach scale $\alpha = .858$ ($N= 15$). Based on these values, all scales used in the questionnaire can be considered reliable.

The next step involved testing for normality. Tests of normality (Shapiro-Wilk test) indicated that the variables did not follow a normal distribution, therefore non-parametric analyses were used.

4.1. H1: Examining the relationship between variables

The following section presents the correlations among the variables, providing insight into the direction and magnitude of the associations between the constructs.

As shown in *Table 3*, the strongest correlation was observed between Organizational Commitment and Organizational Citizenship Behavior indicating that highly committed employees are more likely to engage in extra-role, prosocial behaviors. Organizational Silence demonstrated negative associations with both OCB and OC, suggesting that silence weakens cooperation and psychological attachment to the organization. Machiavellianism was negatively related to OCB and OC, confirming its role as an interpersonal and ethical risk factor. It

also showed a small but significant positive correlation with Silence, indicating that individuals with higher Machiavellian tendencies may be more prone to withholding information. These results collectively depict a psychological “fault-line” structure, in which manipulative tendencies and silence reduce engagement and cooperative behavior.

Table 3: Spearman's Correlations

Variable		OCB	OS	Mach	OC
OCB	n	—	—	—	—
	Spearman's rho	—	—	—	—
	p-value	—	—	—	—
OS	n	317	—	—	—
	Spearman's rho	-0.199***	—	—	—
	p-value	< .001	—	—	—
Mach	n	317	317	—	—
	Spearman's rho	-0.443***	0.177**	—	—
	p-value	< .001	0.002	—	—
OC	n	317	317	317	—
	Spearman's rho	0.662***	-0.308***	-0.332***	—
	p-value	< .001	< .001	< .001	—

* $p < .05$, ** $p < .01$, *** $p < .001$

Source: Author's own compilation

4.2. H2: Examining the demographic characteristics of the sample

H2a: Differences between Genders

Gender differences were examined using the Mann-Whitney U test. The results are presented in *Table 4* and *Table 5*. Women reported significantly higher levels of Organizational Citizenship Behavior and Organizational Commitment compared to men. Women also showed lower levels of Organizational Silence, indicating a greater willingness to speak up and share information. In contrast, men exhibited markedly higher Machiavellianism scores than women, suggesting stronger tendencies toward strategic self-interest and manipulative behavior. Overall, these findings highlight clear gender-related behavioral patterns that may contribute to distinct psychological fault lines within organizational functioning.

Table 4: Mann-Whitney Test Results

	OCB	OS	Mach	OC
<i>Mann-Whitney U</i>	4911.50	10630.50	4487.00	7793.50
<i>Z</i>	-9.292	-2.248	-9.811	-5.740
<i>Asymptotic sign. (2-tailed)</i>	<.001	.025	<.001	<.001
<i>Effect size (r)</i>	0.521	0.126	0.551	0.322

Source: Author's own compilation

Table 5: Group Descriptives

	Group	N	Mean	SD	SE	Coefficient of variation	Mean Rank	Sum Rank
<i>OCB</i>	Male	144	43.32	7.966	0.664	0.184	106.6	15352
	Female	173	52.21	6.492	0.494	0.124	202.6	35052
<i>OS</i>	Male	144	49.34	9.601	0.800	0.195	171.7	24722
	Female	173	45.03	16.499	1.254	0.366	148.4	25682
<i>Mach</i>	Male	144	68.49	15.893	1.324	0.232	214.3	30865
	Female	173	51.10	11.309	0.860	0.221	112.9	19538
<i>OC</i>	Male	144	57.69	14.686	1.224	0.255	126.6	18234
	Female	173	68.14	17.622	1.340	0.259	186.0	32170

Source: Author's own compilation

H2b: Differences among the Age Groups

For examining the additional demographic characteristics (age groups, educational level, job tenure, and the occupational fields with the highest respondent counts), the Kruskal-Wallis test was applied, followed by Dunn's test with Holm's correction as the post hoc procedure.

Age-related differences on the OCB scale were examined using the Kruskal-Wallis H test, which revealed a strong and significant effect of age on the variable $H(3, N= 317) = 91.791$ $p < .001$; post hoc Dunn tests indicated that younger employees differed substantially from older age groups.

The 18–30 age group scored significantly lower than the 41–50 years ($Z= -1.656$ $p < .001$) and 51 years and above age groups ($Z= -4.333$ $p < .001$). Employees aged 31–40 also scored lower than 41–50 age group ($p < .001$) and 51 years and above group ($Z= -2.132$ $p < .001$).

On the Organizational Silence Scale a small but significant age effect was found $H(3, N= 317) = 8.319$ $p = .040$. However, the pattern of differences was weak and largely inconsistent. Post hoc Dunn tests showed that only one comparison remained significant after Holm correction: employees aged 18–30 reported higher levels of silence compared to those aged 51 years and above ($Z= 2.764$ $p = .034$). All other pairwise contrasts were non-significant (all $p > .05$). Overall, these results suggest that younger employees may be slightly more prone to withholding information than the oldest groups, but organizational silence does not appear to be strongly age dependent.

The Kruskal-Wallis test indicated a significant effect of age on Organizational Commitment scale $H(3, N= 317) = 38.590$, $p < .001$, suggesting that commitment levels systematically differ across age groups. Dunn's post hoc analysis revealed that participants aged 31–40 demonstrated significantly lower organizational commitment than those aged 51 years and above ($Z= -5.701$ $p < .001$). Participants aged 41–50 also reported significantly lower commitment than the 51 year and above group ($Z= -2.611$ $p < .001$). Furthermore, participants aged 51 years and above showed significantly higher commitment compared to 18–30 age group ($Z= -4.333$ $p < .001$).

Significant age-related differences were found in Machiavellianism, as indicated by the Kruskal-Wallis test $H(3, N= 317) = 66.109$, $p < .001$. Post hoc Dunn tests showed that younger and middle-aged employees reported substantially higher Machiavellian tendencies compared to older age groups. Individuals aged 18–30 scored significantly higher than those aged 41–50 and 51 years and above. Similarly, the 31–40 group scored higher than the 41–50 and 51 years

and above groups. No significant differences were observed between the two youngest groups or between the two oldest groups. These findings reveal a clear downward trend in Machiavellianism with increasing age, suggesting that manipulative or strategically self-serving tendencies diminish as employees gain maturity, experience and organizational stability.

Table 6: Dunn's Post Hoc Comparisons – Age Groups

Comparison	z	W _i	W _j	r _{rb}	p	p _{bonf}	p _{holm}
18-30 - 31-40	-0.640	197.4	207.9	0.080	.522	1.000	.522
18-30 - 41-50	3.496	197.4	133.6	-0.379	< .001	.003	.001
18-30 - 51+	5.118	197.4	115.9	-0.537	< .001	< .001	< .001
31-40 - 41-50	4.828	207.9	133.6	-0.441	< .001	< .001	< .001
31-40 - 51+	7.327	207.9	115.9	-0.588	< .001	< .001	< .001
41-50 - 51+	1.195	133.6	115.9	-0.080	.232	1.000	.464

Note: Rank-biserial correlation based on individual Mann-Whitney tests.

Source: Author's own compilation

H2c: Differences in the Educational level

The Kruskal-Wallis test revealed a significant effect of educational attainment on Machiavellianism $H(4, N= 317) = 47.084, p < .001$, indicating that Mach levels vary across qualification categories.

Dunn's post hoc comparisons with Holm's correction showed that individuals with a PhD ($Mdn= 82.500$) reported significantly higher Machiavellian tendencies compared to respondents with a technical school ($Mdn= 52.500; Z= -3.124 p < .001$) or high school degree ($Mdn= 51.000; Z= -4.046 p < .001$). Moreover, university graduates ($Mdn= 60.500$) also scored higher than participants with only high school education ($Z= -5.452 p < .001$). These differences suggest that higher educational attainment – particularly postgraduate degrees – may be associated with elevated levels of strategic interpersonal manipulation. No significant effects of education were observed for the other constructs.

H2d: Differences in Job Tenure

Organizational Citizenship Behavior differed significantly across tenure groups, as indicated by the Kruskal–Wallis test $H(4, N=317) = 65.069 p < .001$.

Post hoc Dunn tests revealed that employees with longer tenure reported substantially higher levels of OCB. Significant differences emerged between the 1–3 years group and both the 10 year and above. Similarly, employees with 3–5 years of tenure scored lower than those with 5–10 years and those with more than 10 years. No other comparisons reached significance after Holm correction. Overall, these results demonstrate a clear upward trend: organizational citizenship behavior increases progressively with tenure, with the highest levels observed among employees who have been with their organization for more than a decade.

Table 7: Dunn's Post Hoc Comparisons – Job Tenure

Comparison	<i>z</i>	<i>W_i</i>	<i>W_j</i>	<i>r_{rb}</i>	<i>p</i>	<i>p_{bonf}</i>	<i>p_{holm}</i>
0-1 - 1-3	-0.641	47.07	57.75	0.029	.521	1.000	1.000
0-1 - 3-5	-0.194	47.07	50.24	-0.041	.846	1.000	1.000
0-1 - 5-10	-1.696	47.07	76.82	0.549	.090	.898	.539
0-1 - 10+	-2.875	47.07	93.55	0.794	.004	.040	.032
1-3 - 3-5	0.776	57.75	50.24	-0.132	.438	1.000	1.000
1-3 - 5-10	-1.640	57.75	76.82	0.309	.101	1.000	.539
1-3 - 10+	-3.794	57.75	93.55	0.508	< .001	.001	.001
3-5 - 5-10	-2.385	50.24	76.82	0.392	.017	.171	.120
3-5 - 10+	-4.905	50.24	93.55	0.601	< .001	< .001	< .001
5-10 - 10+	-1.531	76.82	93.55	0.288	.126	1.000	.539

Note: Rank-biserial correlation based on individual Mann-Whitney tests.

Source: Author's own compilation

Organizational Silence did not differ significantly across tenure groups. The Kruskal-Wallis test yielded a non-significant result $H(4, N= 317) = 6.113 p = .191$, indicating that the length of time spent at the organization was not associated with employees' likelihood of withholding opinions, concerns or information. Consistently, none of the pairwise Dunn post hoc comparisons reached significance after Bonferroni or Holm correction (all $p > .05$). These findings suggest that organizational silence appears to be largely independent of tenure and is more likely influenced by organizational climate and leadership-related factors rather than by employees' time within the organization.

The Kruskal-Wallis test showed a significant effect of job tenure on Organizational Commitment scale $H(4, N= 317) = 38.103 p < .001$, indicating that commitment levels differ across tenure groups. Dunn's post hoc tests revealed that employees with 3–5 years of tenure exhibited significantly lower organizational commitment than those with 5–10 years ($Z= -2.844 p = .036$) and with the 10 years and above ($Z= -5.446 p < .001$). Moreover, the 1–3-year group reported significantly lower commitment than those with more than 10 years of tenure ($Z= -4.641 p < .001$). No other pairwise comparisons reached statistical significance after correction.

Significant differences in Machiavellianism were found across tenure groups $H(4, N= 317) = 42.408 p < .001$. Post hoc Dunn tests indicated that employees with 3–5 years of tenure showed significantly higher Machiavellian tendencies than those with 5-10 years ($Z= 4.553 p < .001$) and those with 10 years and above of tenure ($Z= 6.154 p < .001$). No other pairwise comparisons reached significance after Holm correction (all $p > .05$). These results suggest that Machiavellian behavior peaks during the mid-tenure period, a stage where employees may be striving to consolidate their position and advance within the organization and subsequently declines as tenure increases and individuals gain stability and organizational embeddedness.

H2e: Differences among the Job Sectors

Organizational Citizenship Behavior varied significantly across job sectors, as indicated by the Kruskal-Wallis test $H(4, N= 317) = 31.633 p < .001$.

Post hoc Dunn tests revealed that employees working in Education reported the lowest levels of OCB. The Education sector scored significantly lower than Sales/Commerce, Healthcare and IT. Employees in Public Administration showed low levels of OCB as well, scoring significantly lower than Sales/Commerce, Healthcare and IT. No other significant differences were observed among the sectors. Overall, these results demonstrate substantial sector-based variation in OCB, with the Sales/Commerce sector exhibiting the strongest prosocial behavioral norms and Education the weakest.

Table 8: Dunn's Post Hoc Comparisons – Job Sectors and OCB

Comparison	z	W _i	W _j	r _{rb}	p	p _{bonf}	p _{holm}
<i>Public administration - Sales/Commerce</i>	-3.691	53.23	90.74	0.545	< .001	.002	.002
<i>Public administration - Healthcare</i>	-3.292	53.23	87.10	0.489	< .001	.010	.006
<i>Public administration - Education</i>	1.135	53.23	41.39	-0.157	.256	1.000	1.000
<i>Public administration - IT</i>	-2.612	53.23	79.46	0.377	.009	.090	.045
<i>Sales/Commerce - Healthcare</i>	0.321	90.74	87.10	-0.068	.748	1.000	1.000
<i>Sales/Commerce - Education</i>	4.307	90.74	41.39	-0.703	< .001	< .001	< .001
<i>Sales/Commerce - IT</i>	1.015	90.74	79.46	-0.171	.310	1.000	1.000
<i>Healthcare - Education</i>	3.950	87.10	41.39	-0.697	< .001	< .001	< .001
<i>Healthcare - IT</i>	0.681	87.10	79.46	-0.107	.496	1.000	1.000
<i>Education - IT</i>	-3.353	41.39	79.46	0.569	< .001	.008	.006

Note: Rank-biserial correlation based on individual Mann-Whitney tests.

Source: Author's own compilation

No significant differences in Organizational Silence were observed across job sectors. The Kruskal-Wallis test indicated that levels of OS did not vary meaningfully by occupational field $H(4, N= 317) = 5.781 p = .216$. Consistent with this finding, none of the pairwise comparisons from the Dunn post hoc test reached significance after Bonferroni or Holm correction (all $p > .05$). These results suggest that organizational silence appears to be relatively sector-independent and may be shaped more strongly by organizational culture and leadership dynamics than by the broader industry context.

Kruskal-Wallis test indicated a statistically significant effect of job sector on Organizational Commitment scale $H(4, N= 317) = 12.060 p = .017$. However, Dunn's post hoc comparisons showed that only one pairwise difference remained significant after Bonferroni-Holm correction. Specifically, employees working in Public Administration reported Organizational Commitment significantly lower than those employed in the Healthcare sector ($Z = -3.016 p =$

.026). No other pairwise comparisons reached statistical significance following adjustment for multiple testing. Accordingly, the results suggest that sector-related differences in organizational commitment are limited and primarily driven by the comparatively higher commitment observed among healthcare employees relative to those in public administration.

The Kruskal-Wallis test indicated a statistically significant difference in Machiavellianism scores across the examined occupational fields, $H(4, N=317) = 17.785 p = .001$. This result suggests that the distribution of Machiavellian tendencies is not uniform across professional domains. Post hoc Dunn tests with Holm correction provided a more fine-grained understanding of these group differences. The most notable and robust finding emerged between the Education and Healthcare fields, where employees working in Education exhibited significantly higher Machiavellian tendencies than those in Healthcare. A similarly significant difference was observed between Education and Sales/Commerce, again indicating elevated Machiavellianism in the Education sector. Additionally, those in Education scored significantly higher than respondents working in IT.

Table 9: Dunn's Post Hoc Comparisons – Job Sectors and Machiavellianism

Comparison	z	W _i	W _j	r _{rb}	p	p _{bonf}	p _{holm}
<i>Public administration - Sales/Commerce</i>	1.847	77.65	58.88	-0.289	.065	.648	.389
<i>Public administration - Healthcare</i>	2.492	77.65	52.00	-0.342	.013	.127	.089
<i>Public administration - Education</i>	-1.492	77.65	93.22	0.176	.136	1.000	.543
<i>Public administration - IT</i>	1.755	77.65	60.02	-0.228	.079	.792	.396
<i>Sales/Commerce - Healthcare</i>	0.607	58.88	52.00	-0.155	.544	1.000	1.000
<i>Sales/Commerce - Education</i>	-2.995	58.88	93.22	0.570	.003	.027	.025
<i>Sales/Commerce - IT</i>	-0.102	58.88	60.02	-0.017	.918	1.000	1.000
<i>Healthcare - Education</i>	-3.560	52.00	93.22	0.594	< .001	.004	.004
<i>Healthcare - IT</i>	-0.714	52.00	60.02	0.120	.475	1.000	1.000
<i>Education - IT</i>	2.923	93.22	60.02	-0.502	.003	.035	.028

Note: Rank-biserial correlation based on individual Mann-Whitney tests.

Source: author's own compilation

The results reveal that Education consistently stands out as the occupational field associated with higher Machiavellian tendencies, particularly when contrasted with Healthcare, Sales/Commerce, and IT. Conversely, Machiavellianism appears comparatively lower in Healthcare and IT, with no evidence of strong differences among the remaining fields after

adjustment. These findings highlight that occupational environments may differ in their susceptibility tolerance of strategic, manipulative, or self-serving interpersonal styles, with Education emerging as an unexpectedly high-scoring field in this sample.

5. Conclusions and Practical Implications

5.1. Conclusions of the Study

The study revealed several patterns regarding the relationships among Organizational Citizenship Behavior (OCB), Organizational Silence (OS), Machiavellianism, and Organizational Commitment (OC). First, the correlational analysis showed that OCB and OC were strongly and positively associated whereas both constructs were negatively related to Machiavellian tendencies. These findings reinforce existing theoretical claims that prosocial workplace behaviors and affective bonds to the organization are incompatible with strategically manipulative orientations. Organizational Silence demonstrated a more complex pattern: while its overall correlation with Machiavellianism was weakly positive, silence was negatively related to both OCB and OC, suggesting that withholding information functions as a barrier to cooperative and commitment-enhancing behavior.

Demographic analyses indicated that several variables moderate the expression of these constructs. Age was a significant factor for Machiavellianism and Organizational Commitment, with older employees reporting lower Machiavellian tendencies and higher commitment. Job tenure also differentiated groups, primarily for Machiavellianism and OCB. Job sector effects emerged consistently for Machiavellianism and, to a lesser extent, for Organizational Commitment, pointing to meaningful contextual influences embedded in occupational cultures.

Overall, the results highlight that prosocial organizational functioning (high OCB, high commitment, low silence) systematically conflicts with Machiavellian behavioral strategies. These patterns collectively suggest that interpersonal trust, openness, and cooperation remain vulnerable to individual dark-trait dispositions and to structural features of the work environment.

The examined constructs represent psychosocial mechanisms that, although rarely addressed in sustainability frameworks, constitute critical latent fault lines affecting an organization's long-term viability. Corporate sustainability is not limited to ecological or financial performance; it also requires a resilient social infrastructure that fosters transparency, ethical decision-making and workforce stability. The results of the present study underline that these human-factor variables can either support or undermine such resilience.

High levels of Machiavellianism, combined with elevated organizational silence, may form a particularly harmful pattern. These traits may weaken internal transparency, inhibit upward communication, and may delay the reporting of errors, ethical breaches or operational risks. Such "systemic muting" reduces the organization's adaptive capacity and increases the likelihood of reputational and compliance-related failures.

Conversely, organizational commitment and OCB function as positive sustainability resources. They contribute to talent retention, knowledge continuity, cooperative problem solving, and social capital accumulation. These dynamics may mitigate turnover-related costs and support the organization's long-term human resource sustainability. The findings also indicate that demographic subgroups (e.g., workers with shorter tenure or younger age groups) may show declining commitment or reduced citizenship behaviors, highlighting emerging vulnerabilities in the internal labor market.

Finally, the detection of demographic asymmetries - such as age-related differences in commitment or sector-specific variations in Machiavellian tendencies - emphasize that sustainability cannot be achieved without acknowledging workforce heterogeneity. Organizations must tailor motivational, leadership and communication strategies to different groups to ensure

that social sustainability is not compromised by unaddressed generational or occupational divides.

Overall, the results demonstrate that the four constructs examined may operate as behavioral sustainability indicators: when misaligned, they can obstruct ethical functioning and long-term organizational stability; when aligned, they strengthen the internal foundations of sustainable corporate performance.

5.2. Practical Implications

The empirical findings reveal several dynamics with direct implications for HR and sustainable workforce management. Low levels of organizational citizenship behavior and commitment among younger employees and in public administration sector indicate the need for targeted engagement strategies, including enhanced job resources, recognition, and autonomy. Elevated Machiavellian tendencies highlight the importance of ethics-focused leadership development, integrity training, and clear behavioral standards integrated into performance management and onboarding. Although organizational silence showed limited demographic variation, its negative association with commitment and OCB underscores the need to strengthen psychological safety through transparent feedback, structured voice mechanisms, and confidential reporting, with particular attention to younger employees. Sectoral and tenure-related disparities further demonstrate the necessity of context-sensitive HR policies tailored to occupational fields and career stages to support retention, workforce stability, and a sustainable organizational culture.

5.3. Limitations of the Study

This research is subject to several methodological limitations that should be acknowledged when interpreting the findings. First, cross-sectional design does not allow for causal inferences, limiting conclusions to associations rather than temporal dynamics. Second, all variables were assessed using self-report questionnaires, which may introduce common method variance and social desirability bias. The sampling strategy also poses constraints: data were collected through online convenience sampling (primarily via Facebook), resulting in a non-representative sample and restricting the generalizability of the results.

5.4. Direction of Future Research

Future studies could build on these findings through more robust methodological and conceptual expansions. First, longitudinal research designs are needed to examine the temporal stability of the constructs and to clarify causal relationships between Machiavellianism, organizational silence, commitment and OCB. Second, qualitative approaches, such as semi-structured interviews or focus groups, could provide deeper insight into the mechanisms underlying silence behaviors and manipulative tendencies, capturing nuances that quantitative self-report scales may overlook. Third, sector-level comparative analyses with larger, more balanced samples (e.g., healthcare vs. financial sector) would help determine whether the observed patterns generalize across different organizational environments. Finally, future research should incorporate sustainability-related indicators, such as ethical risk assessments or ESG dimensions, to examine how these psychological constructs interact with broader organizational sustainability practices.

6. Summary

The findings of this study provide relevant insight into the prevalence and interrelations of organizational citizenship behavior, organizational commitment, organizational silence, and Machiavellianism among Hungarian employees across diverse sectors. The results indicate that

OCB and organizational commitment are strongly connected and generally decline in the presence of heightened silence and Machiavellian tendencies. Silence emerged as both a correlation and potential amplifier of reduced commitment and diminished citizenship behavior, highlighting its role as a latent risk factor in organizational functioning. Machiavellianism demonstrated negative associations with prosocial workplace behaviors, suggesting that self-serving orientations undermine cooperative and discretionary actions that normally support organizational effectiveness.

Demographic analyses revealed meaningful differences across gender, age groups, educational backgrounds, tenure categories, and occupational fields, underscoring the contextual sensitivity of these constructs. Taken together, the results suggest that lower commitment, weaker citizenship behavior, elevated silence, and higher Machiavellianism may operate as hidden fault lines that compromise organizational cohesion, transparency, and long-term sustainability. Strengthening communication climates, promoting ethical leadership, and developing HR practices that enhance psychological safety may mitigate these risks and support more resilient organizational environments.

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