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Harnessing Innovation to Combat Corruption: Effective Assessment of an Official's Propensity for Corruption

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Abstract: One of the most important tasks in managing the activities of public authorities is to prevent corruption among employees and ensure integrity in the performance of their organisational, managerial or administrative duties. The study of the behavioural patterns of officials who make decisions to commit corrupt acts in their professional duties is central to combating corruption. The systematisation of literature sources and approaches to the study of motives for corruption has shown that the main driving forces of corrupt behaviour are the intentions of individual and collective features, namely, the desire to obtain financial gain, job dissatisfaction, a corrupt environment within an organisation, and impunity for corruption offences. A subject-oriented approach to assessing an official's propensity to engage in corrupt practices is investigated in this article. The peculiarity of the investigated methodology is to determine the behavioural and personal features of an official in professional activity and consider the synergistic effect that arises in the case of a simultaneous positive answer from the respondent to the control questions. The author's methodology for assessing the propensity of an official to engage in corrupt practices includes 16 key questions in the questionnaire. An important element of the proposed methodology is the formation of an "ideal matrix", which contains combinations of factors that increase officials' intentions to engage in corruption. The "ideal matrix" was approved following a brainstorming process with experts. Fifty officials aged 27 to 65 years from institutions and organisations in Sumy (Ukraine) were the subject of the study. According to the assessment, one-third of respondents had a high or medium propensity to engage in corrupt practices. Empirical findings have shown that men are more tolerant of corruption than women are, and people aged 51-65 years have the highest propensity for corruption. This methodology allows for the latent quantification of officials' propensity for corruption and, accordingly, the introduction of measures for preventing criminal corruption early in public administration.

Keywords: assessment; corruption; official; management; public authorities; propensity for corruption.

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1. Introduction. Corruption remains a persistent problem in developed and developing countries, posing significant challenges to governance, economic development and social stability. First, it undermines trust in institutions and the rule of law, deterring domestic and foreign investment (Nguyen & Tran, 2022). A lack of trust hinders entrepreneurship and innovation, as businesses face increased risks and uncertainty (Troisi et al., 2023). Second, corruption distorts the allocation of resources by diverting funds from productive sectors to rent-seeking activities and bribes (Li et al., 2023). This leads to a decrease in the productivity of the national economy and economic welfare deterioration in the country (Milova et al., 2019). Moreover, corruption deepens inequality in income distribution, impedes access to fundamental rights to quality social services, and hinders inclusive growth in the country (Wawrosz, 2019). Due to fraud and corruption, the world's healthcare system has lost an average of approximately $455 billion annually out of $7.35 trillion, or 6.2% of the total (Chang et al., 2021). Ultimately, the pervasive impact of corruption creates a vicious circle that traps economies in a state of backwardness and stagnation, hindering their ability to achieve sustainable and equitable socioeconomic development. Experts estimate that global losses from corruption amount to USD 4.5 trillion at the level of the general government, or approximately 5% of global GDP (Artificial Financial Intelligence, 2023). Corruption has long been perceived as a problem that primarily affects developing countries. However, a more detailed analysis shows that corruption is not limited to developing countries; it is a pervasive phenomenon that knows no borders and affects countries with different levels of development, including developed countries. Despite the introduction of an almost unified regulatory framework and an extensive network of institutional support for combating corruption in public administration in the European Union, the corruption perception index among these countries is not uniform. It ranges from 42 points (Hungary) to 90 points (Denmark) (Transparency International, 2023). Civil servants, who must serve the public interest, are often vulnerable to the temptation of corrupt practices. Civil servants are involved in numerous services with potential corruption risks, such as issuing visas, import permits, customs clearance, construction permits, and land clearance. Thus, it is necessary to stimulate a dialogue on the need for greater transparency, accountability and integrity in all areas of public administration and business.

Understanding the motivations of public officials to engage in corruption requires a detailed examination of the institutional framework within which they operate. Weak governance structures, ineffective accountability mechanisms and a culture of impunity can create favourable conditions for corruption. Conversely, effective anticorruption measures, transparency initiatives and strong ethical leadership can serve as deterrents and reduce the propensity for corrupt behaviour among officials.

A central aspect of understanding and combating corruption is the study of the behavioural patterns of officials who make decisions to commit corrupt acts in their professional duties. The motives for their misconduct are multifaceted and complex. Previous research has identified various individual-level factors, including personal gain, job dissatisfaction and moral disengagement, as driving corrupt behaviour. However, there is a need for a deeper understanding of the interaction between these factors and their combined impact on officials' propensity for corruption.

2. Literature Review. Scholars are increasingly using interdisciplinary approaches that integrate knowledge from psychology, sociology, political science and economics to comprehensively analyse the factors influencing officials' propensity for corruption. Based on the analysis of historical facts, Beare (1997) proposed four categories of motives for corruption: 1) economic entities voluntarily or coercively pay payments in exchange for permission to engage in legitimate business (bribes/kickbacks); 2) illegal manipulation of votes in elections or manipulation of influence to secure personal financial gain (electoral/preelection corruption); 3) making payments in exchange for permission to engage in illegal activities (protection corruption); and 4) when the ruling elite organises networks of corrupt schemes in many areas of the economy, thereby decomposing the nation's wealth (top-down systemic corruption). Recent studies have emphasised the importance of considering individual, institutional and societal factors as interrelated components that shape the propensity of officials to engage in misconduct.

2.1. Individual motivations behind corruption

One of the important aspects of this research area is the study of individual predictors of corruption among civil servants. Researchers have investigated psychological factors, such as moral reasoning, personality traits and cognitive biases, that influence officials' decision-making regarding corrupt activities. In addition, researchers have studied the role of personal motives, such as greed, ambition and risk perception, in forcing officials to engage in corrupt practices.

Corrupt behaviour can be explained using the moral decision-making model proposed by Hannah et al. (2011). It is based on four psychological mechanisms: moral sensitivity, moral judgement, moral motivation

and moral action. Girodo (2008) developed the Personal Ethical Audit tool, which is based on thirty criteria about individual characteristics, attitudes toward work, professional behavior, and ethical thinking, and allows the formation of a psychological portrait of an employee and the assessment of his or her level of honesty and integrity. Rabl & Kühlmann (2008) proved that a tolerant attitude toward corruption creates a desire to act corruptly. Similar conclusions were reached by Gorsira et al. (2018), who found that public and private sector employees who perceive their organisational climate as more selfish and less ethical are more likely to engage in corruption.

2.2. *Institutional frameworks and corruption*

Recent research has focused on institutional factors, in which scholars have analysed the impact of governance structures, accountability mechanisms and organisational culture on officials' propensity for corruption. Studies highlight the importance of strong institutional frameworks, transparent procedures and effective anticorruption measures to deter misconduct and promote integrity in public institutions. In addition, studies have highlighted the importance of ethical leadership and organisational norms in shaping officials' behaviour and reducing the likelihood of corruption. The main causes of corruption in business are the competitive advantages a company can gain and the level of corruption around it. The study proves that a company may start engaging in corrupt practices, as many business environment representatives are involved, claiming that engaging in corrupt practices is the only way to survive (Momot et al., 2023). A self-report survey of civil servants and business employees revealed that the most significant factors of corruption propensity are a low level of moral and ethical obligation to refrain from corruption, a positive assessment of colleagues regarding corruption and those involved in it, and the benefits of engaging in corrupt practices outweighing the risks (Gorsira et al., 2018). According to a survey of 800 central government officials in Korea, according to Gorsira, performance pay is not only a means of incentivising civil service efforts but also an effective tool for anticorruption policy (Kwon, 2014). At the same time, another group of scholars (Dhillon et al., 2017; Hannah et al., 2011) argued that anti-corruption policy should focus more on improving the collective reputation of the public sector rather than on the use of monetary incentives. In general, recent research trends in assessing officials' propensity to engage in corrupt practices emphasise the need for a comprehensive understanding of the multifaceted factors that influence officials' behaviour. By identifying patterns and predictors, researchers aim to provide information that can form the basis for evidence-based policy interventions and contribute to developing effective strategies to combat corruption and promote ethical governance.

3. Methodology and research methods. The developed scientific and methodological approach to assessing officials' propensity to participate in corruption schemes allows, first, recruitment to civil services to quantify the risk of participation of a given person in unethical business relations; second, the periodic conduct of this survey among employees of the public sector will allow timely identification of destructive behavioural patterns and the adoption of preventive administrative or disciplinary measures against such a person. Most scientific and methodological approaches are devoted to assessing the factors influencing the spread of corruption relations in the country, while the author's proposed approach involves the development of a subject-oriented approach to evaluate the behaviour of officials' propensity for corrupt practices based on their behavioural and personal parameters in their professional activities, as well as the synergistic effect of the combination of individual parameters. In the framework of this study, a questionnaire was developed to generate primary data for assessing officials' propensity to engage in corrupt practices. The questionnaire contains 16 key questions to analyse and consider specific behavioural patterns of officials who desire or commit corrupt acts in their professional activities. Each official in the context of the proposed 16 questions has a different level of susceptibility to corruption (low, medium, or high).

The proposed scientific and methodological approach to assessing officials' propensity to participate in corruption schemes involves the following tasks in a phased manner:

– the formation of an "ideal" matrix of correspondence between the characteristics of the behavioural patterns of officials and their propensity to engage in corrupt activities;

– calculate the absolute quantification assessment of the respondent's motives related to the public administration, which act as the motivating reasons for engaging in corrupt activities;

– calculating an absolute quantification assessment of the respondent's motives, provided that they are most likely to engage in corrupt activities;

– determination of the relative quantification of the motives of the respective respondent related to the public administration.

An "ideal" matrix reflecting the correspondence between the characteristics of the behavioural patterns of the officials (16 questions) and their propensity for corrupt activities (low, medium, high) was formed at the first stage of the proposed approach. This "ideal matrix" was developed based on the brainstorming results of a group of experts (10 people). The expert group included specialists from academia, local governments and the management of municipal institutions. Based on the results of the expert discussion of typical corrupt officials' behaviour and the systematisation of experts' opinions, an "ideal matrix" was proposed to match the behavioural patterns of officials and their propensity to engage in corrupt activities in terms of 16 key questions (Table 1). For example, when answering question 1, "Do you think corruption hinders the effective functioning of the public administration sector?", the respondent can provide one of three answers: "I agree" (these are indicators of low, medium and high propensity for corruption), "I disagree" (these are indicators only for high propensity for corruption), and "I find it difficult to answer" (medium propensity).

Table 1. Indicators of the "ideal" matrix of correspondence between the characteristics of behavioural patterns of an official and propensity for corruption

Characteristics of behavioural patterns	Official's propensity for corruption								
	Low			Medium			High		
	A	D	DA	A	D	DA	A	D	DA
1. Do you believe that corruption hinders the effective functioning of public administration?	+			+		+	+	+	+
2. Do you agree with the statement that you understand how to achieve a decent level of remuneration provided you perform your duties in good faith at work	+			+		+		+	+
3. Do you agree with the statement that impunity is the main cause of corruption in Ukraine?		+			+	+	+		+
4. Do you agree with the statement that you are close to European values in the field of public administration?	+			+		+		+	+
5. Do you approve the practice of electronic declaration of assets, income and expenses for officials at all levels and their family members?	+					+		+	
6. Would you agree to a long-term business trip to an EU country to improve your professional knowledge	+			+				+	+
7. Would you agree to work with relatives whose competence is beyond doubt?		+	+	+		+	+	+	+
8. Due to the imperfection of the tax system in Ukraine, do you accept the possibility of bonuses for employees "in envelopes", since part of this income will still return to the state through indirect taxes		+			+		+		+
9. Would you agree to a long-term loan to buy a car at a low interest rate?	+			+			+	+	+
10. Do intangible forms of incentives at work (gratitude, certificates, rank, state awards, etc.) matter to you?		+				+	+		+
11. Do you agree with the statement that one effective anti-corruption body with significant powers is better than the functioning of numerous anti-corruption bodies in Ukraine		+			+	+	+		
12. Are you ready to submit reports on your own activities to public control more often than once every six months?	+			+				+	
13. Do you agree with the statement that the necessary condition for promotion is the length of time spent in the position		+			+		+		+
14. Would you agree to live in a company apartment that is more comfortable than your own?	+		+	+	+	+	+	+	+
15. In your opinion, do you see any sense in strikes for the rights of ordinary employees at work?	+		+	+		+		+	+
16. In your opinion, are electronic petitions appropriate in Ukraine?	+			+		+		+	+

Note: A – agree; D – disagree; DA – difficult to answer.
Sources: developed by the authors.

The elements of the "ideal" matrix of indicators of compliance with an official's behavioural pattern characteristics with corruption I_{ij} are determined by the following ratio:

$$IL_{ji} = \begin{cases} 1, \text{if in terms of j} - \text{characteristic of the behavioral pattern it is possible to get positive} \\ i - \text{response regarding low propensity for corruption} \\ 0, \text{if in terms of j} - \text{characteristic of the behavioral pattern it is possible to get negative} \\ i - \text{response regarding low propensity for corruption} \end{cases} \quad (1)$$

where IL_{ji} is a binary feature, the value of the "ideal" matrix of indicators of compliance with the characteristic of motives for low propensity for corruption;

$$I\mathrm{M}_{ji} = \begin{cases} 1, \text{if in terms of j} - \text{characteristic of the behavioral pattern it is possible to get positive} \\ i - \text{response regarding medium propensity for corruption} \\ 0, \text{if in terms of } j - \text{characteristic of the behavioral pattern it is possible to get negative} \\ i - \text{response regarding medium propensity for corruption} \end{cases} \quad (2)$$

where $I\mathrm{M}_{ji}$ is the binary feature, the value of the "ideal" matrix of indicators of compliance with the characteristic of motives for medium propensity for corruption;

$$IH_{ji} = \begin{cases} 1, \text{if in terms of } j - \text{characteristic of the behavioral pattern it is possible to get positive} \\ i - \text{response regarding high propensity for corruption} \\ 0, \text{if in terms of } j - \text{characteristic of the behavioral pattern it is possible to get negative} \\ i - \text{response regarding high propensity for corruption} \end{cases} \quad (3)$$

where IH_{ji} is a binary feature, the value of the "ideal" matrix of indicators of compliance with the characteristic of motives for a high propensity for corruption.

The next step is to fill in the matrix of compliance with the characteristics of the propensity motives for corruption by the respective respondent—a person working in the public administration.

$$a_{ji} = \begin{cases} 1, \text{if in terms of } j - \text{characteristic of motives, respondent gives a positive} \\ i - \text{response regarding high propensity for corruption} \\ 0, \text{if in terms of } j - \text{characteristic of motives, respondent gives a negative} \\ i - \text{response regarding high propensity for corruption} \end{cases} \quad (4)$$

where a_{ji} is the binary feature, the value of the matrix of indicators on compliance with the characteristics of the corruption motives, filled in by the respondent.

The next stage of the developed scientific and methodological approach is to calculate the absolute quantitative assessment of the respondents' motives for engaging in public administration, which motivate corruption activity. Two components are used to calculate the absolute quantitative assessment of the respondent's motives: the sum of binary indicators in terms of "agree", "disagree" and "difficult to answer", as well as an additional "synergistic effect" that occurs in the case of a simultaneous positive answer from the respondent to two questions—an indicator of the propensity for corruption. Mathematically, this synergistic effect can be formalised by calculating the integer part of the arithmetic mean of the sum of binary indicators' products by the feature ranks of

motives, i.e., $\left[\frac{1}{2}\sum_{j=1}^{16}\left(a_{ji}\cdot IL_{ji}\cdot r_j\right)\right]$, but upon meeting the following conditions $\begin{cases} a_{1i}+a_{3i}=2 \\ a_{2i}+a_{13i}=2 \\ a_{4i}+a_{6i}=2 \\ a_{5i}+a_{8i}=2 \\ a_{9i}+a_{14i}=2 \\ a_{15i}+a_{16i}=2 \end{cases}$, i.e.,

the respondent's simultaneous positive response to two questions from the list.

$$LE = \max_i \left(\sum_{j=1}^{16}\left(a_{ji}\cdot IL_{ji}\cdot r_j\right) + \left[\frac{1}{2}\sum_{j=1}^{16}\left(a_{ji}\cdot IL_{ji}\cdot r_j\right)\right] \Big|_{\begin{cases} a_{1i}+a_{3i}=2 \\ a_{2i}+a_{13i}=2 \\ a_{4i}+a_{6i}=2 \\ a_{5i}+a_{8i}=2 \\ a_{9i}+a_{14i}=2 \\ a_{15i}+a_{16i}=2 \end{cases}} \right), \quad (5)$$

where LE is the sum of the binary features of low propensity for corruption;

$\left[\frac{1}{2}\sum_{j=1}^{16}\left(a_{ji}\cdot IL_{ji}\cdot r_j\right)\right]$ – integer part of a number $\frac{1}{2}\sum_{j=1}^{16}\left(a_{ji}\cdot IL_{ji}\cdot r_j\right)$;

$[\ldots]|_{\left[\begin{matrix}a_{1i}+a_{3i}=2\\ a_{2i}+a_{13i}=2\\ a_{4i}+a_{6i}=2\\ a_{5i}+a_{8i}=2\\ a_{9i}+a_{14i}=2\\ a_{15i}+a_{16i}=2\end{matrix}\right.}$ – integer part of the number if the respondent gave positive answers for both of the above motives.

$$ME=\max_i\left(\sum_{j=1}^{16}\left(a_{ji}\cdot IM_{ji}\cdot r_j\right)+\left[\frac{1}{2}\sum_{j=1}^{16}\left(a_{ji}\cdot IM_{ji}\cdot r_j\right)\right]|_{\left[\begin{matrix}a_{1i}+a_{3i}=2\\ a_{2i}+a_{13i}=2\\ a_{4i}+a_{6i}=2\\ a_{5i}+a_{8i}=2\\ a_{9i}+a_{14i}=2\\ a_{15i}+a_{16i}=2\end{matrix}\right.}\right), \quad (6)$$

where ME is the sum of binary features of the medium propensity for corruption.

$$HE=\max_i\left(\sum_{j=1}^{16}\left(a_{ji}\cdot IH_{ji}\cdot r_j\right)+\left[\frac{1}{2}\sum_{j=1}^{16}\left(a_{ji}\cdot IH_{ji}\cdot r_j\right)\right]|_{\left[\begin{matrix}a_{1i}+a_{3i}=2\\ a_{2i}+a_{13i}=2\\ a_{4i}+a_{6i}=2\\ a_{5i}+a_{8i}=2\\ a_{9i}+a_{14i}=2\\ a_{15i}+a_{16i}=2\end{matrix}\right.}\right), \quad (7)$$

where HE is the sum of binary features of high propensity for corruption.

Based on formulas (5)-(7), the motives of the relevant respondents engaged in public administration are quantified. These are the motivating reasons for engaging in corruption activities:

$$\text{EMR}=\max\{LE, ME, HE\} \quad (8)$$

The next step in the developed scientific and methodological approach is to calculate an absolute quantitative assessment of the respondent's motives, given the maximum propensity for corruption:

$$LEI=\max_i\left(\sum_{j=1}^{16}\left(IL_{ji}\cdot r_j\right)+\left[\frac{1}{2}\sum_{j=1}^{16}\left(IL_{ji}\cdot r_j\right)\right]|_{\left[\begin{matrix}a_{4i}+a_{6i}=2\\ a_{9i}+a_{14i}=2\\ a_{15i}+a_{16i}=2\end{matrix}\right.}\right), \quad (9)$$

where LEI is the sum of binary features of low propensity for corruption in an "ideal" situation.

$$MEI=\max_i\left(\sum_{j=1}^{16}\left(IM_{ji}\cdot r_j\right)+\left[\frac{1}{2}\sum_{j=1}^{16}\left(IM_{ji}\cdot r_j\right)\right]|_{\left[\begin{matrix}a_{1i}+a_{3i}=2\\ a_{4i}+a_{6i}=2\\ a_{9i}+a_{14i}=2\\ a_{15i}+a_{16i}=2\end{matrix}\right.}\right), \quad (10)$$

where MEI is the sum of the binary features of medium propensity for corruption in an "ideal" situation.

$$HEI=\max_i\left(\sum_{j=1}^{16}\left(IH_{ji}\cdot r_j\right)+\left[\frac{1}{2}\sum_{j=1}^{16}\left(IH_{ji}\cdot r_j\right)\right]|_{\left[\begin{matrix}a_{1i}+a_{3i}=2\\ a_{2i}+a_{13i}=2\\ a_{4i}+a_{6i}=2\\ a_{9i}+a_{14i}=2\\ a_{15i}+a_{16i}=2\end{matrix}\right.}\right), \quad (11)$$

where HEI is the sum of binary features of high propensity for corruption in an "ideal" situation.

Based on formulas (9)-(11), the motives of relevant respondents engaged in public administration are quantified. These are the motivating reasons for engaging in corruption in the "ideal" situation:

$$\text{EMRI}= \max\{LEI, MEI, HEI\} \quad (12)$$

Based on formulas (5) and (12), there is a relative assessment of the motives of the relevant respondent engaged in public administration. These are the motivating reasons for engaging in corruption. The final step is to determine the relative quantification of the motives of the respondents engaged in the public administration sector, which act as the motivating reasons for engaging in corruption. At this stage, the maximum score of the respondent's responses is first determined, considering the synergistic effect. It allows for identifying low, medium or high features. In the next step, the calculated absolute quantitative assessment of the respondent's motives is weighted by the quantitative evaluation of the respondent's motives in an "ideal" situation, depending on the feature identified in the previous step.

$$VEMR = \frac{EMR}{\begin{bmatrix} LEI, if\ LE=EMR \\ MEI, if\ MEI=EMR \\ HEI,, if\ HEI=EMR \end{bmatrix}} = \frac{\max\{LE,ME,HE\}}{\begin{bmatrix} LEI, if\ LE=\max\{LE,ME,HE\} \\ MEI, if\ MEI=\max\{LE,ME,HE\} \\ HEI,, if\ HEI=\max\{LE,ME,HE\} \end{bmatrix}} \quad (13)$$

During the survey of officials from various institutions and organisations in Sumy, a nondisclosure declaration was signed since the results contained confidential data. It is worth noting that, in general, practical testing of the proposed methodology for assessing the propensity of a public official to participate in corruption schemes has proven to be effective.

4. Results. The subject of the study includes officials of Sumy institutions and organisations responsible for performing organisational, administrative or economic tasks in these institutions. When conducting the survey, the officials signed a nondisclosure declaration of the survey results, as the results contained confidential data. The survey involved 50 respondents aged 27 to 65 years, 68% of whom were men and 32% of whom were women. The survey involved employees of the following age groups: under 30 (16%), 31-50 (58%), and 51-65 (26%) (Table 2).

Table 2. Description of the respondents

Features		**Number of people**	**Specific weight, %**
Gender	**male**	34	68
	female	16	32
Age	**up to 30 years old**	8	16
	31-50 years old	29	58
	51-65 years old	13	26
	TOTAL	50	-

Sources: developed by the authors.

The survey of respondents was conducted in two periods: October 2022-November 2022 and October 2023-November 2023. Such a survey of a similar range of respondents in two periods enables us to analyse the dynamics of officials' propensity to engage in corruption at the beginning of the Russian–Ukrainian War and one year later. The respondents were asked to voluntarily answer a general question that was not included in the author's methodology for assessing officials' propensity to commit corruption, namely, "Have you received gifts, services or monetary rewards for a certain administrative permit or service?" ("yes", "no", "I do not want to answer"). According to the respondents' answers to this question, 9 people answered positively (18% of the total), which means that they were involved in receiving an unlawful financial benefit, which is a sign of corrupt practices. It is also worth noting that 19 respondents (38%) did not want to answer this question, which may also indicate their involvement in corrupt practices.

Transforming respondents' responses into binary indicators is essential for assessing officials' propensity to commit corruption (formula 4). The peculiarity of the method developed by the author is to consider a combination of factors that increase officials' intentions to engage in corrupt practices (formulas 5-7). The respondents' answers were compared with the data of the "ideal" matrix, which resulted in the total number of points in terms of different types of corrupt behaviour (low, medium or high propensity for corruption).

The type of corrupt behaviour is determined based on the maximum number of points that the respondent received in the survey (formula 8).

Based on formulas (9)-(11), the general indicators for the "ideal" matrix are determined and presented in Table 3. The generalised indicators in Table 3 are used to determine the relative level of officials' propensity for corruption. Formula (13) is used to calculate the relative level of officials' propensity for corruption, which allows us to determine the degree of confidence that a particular person is involved in the relevant corruption behaviour. Figure 1 summarises the results of calculating the level of officials' propensity for corruption of institutions and organisations in Sumy (Ukraine).

Table 3. Generalised indicators for the "ideal" matrix of corrupt behaviour

Official's propensity for corruption	Sum of answer options			Maximum value
	agree	disagree	difficult to answer	
LEI	23	6	3	23
MEI	23	5	41	41
HEI	28	24	54	54

Sources: developed by the authors.

A survey of 50 officials and their responses revealed that in the period from October to November 2023, 8% of respondents (4 people) had a high level of propensity for corruption-related activities, while 22% (11 people) had a moderate level (Table 4, Figure 1).

Table 4. Results of the assessment of officials' propensity for corruption

Official's propensity for corruption	Gender		Age		
	male	female	up to 30 years old	31-50 years old	51-65 years old
High	3	1	0	2	2
Middle	8	3	2	4	5
Low	23	12	6	23	6

Sources: developed by the authors.

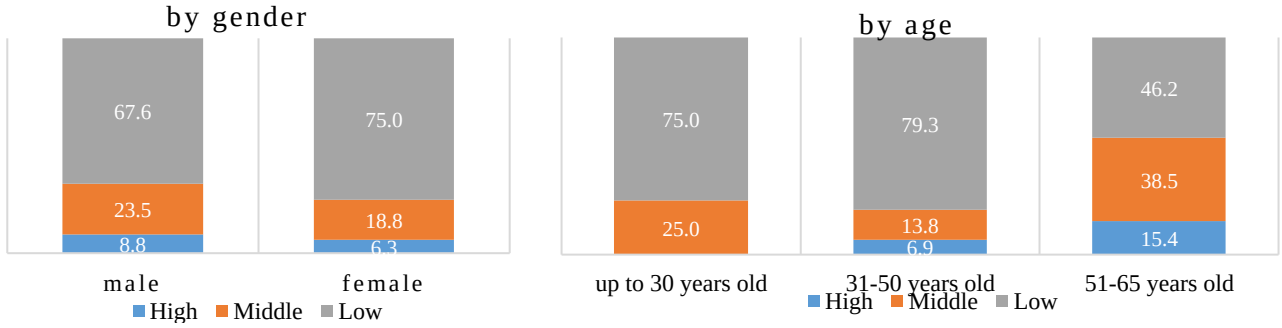

Figure 1. Results of the assessment of officials' propensity for corruption
Sources: developed by the authors.

The figure demonstrates that men are more tolerant of corruption than women, with 8.8% and 23.5% of male respondents reporting high and medium levels of corruption, respectively, compared to 6.3% and 18.8% of women, respectively. In relation to the age structure, 15.4% of officials aged 51 to 65 years have a high level of corruption susceptibility, while the percentage of officials aged 31-50 years is 6.9%. This means that the accumulated experience in public administration and the existing vertical and horizontal relationships in the organisational structure of the company encourage corrupt behaviour among officials. An alarming fact is that one-quarter of respondents under the age of 30 have an average level of corruption susceptibility.

It is worth noting that, in general, practical testing of the proposed methodology for assessing the propensity of a public official to engage in corruption schemes has proven to be effective. The results of the assessment of the propensity for corruption (30% of respondents had a high and medium level) correlate with

the answers about participation in corruption among these officials (18% of people confirmed participation in corrupt relations, and 38% of people did not want to answer).

5. Conclusions. The assessment of officials' propensity for corruption is a critical tool for maintaining integrity, efficiency and transparency in the public sector, which encourages officials to perform their duties in good faith, increases transparency in the organisation and ensures the effective functioning of the institution. Assessing the propensity of a candidate for a public administration position at the stage of hiring and systematically conducting this assessment of current employees allows for timely identification of their intentions to engage in corrupt practices. The calculation of the absolute quantitative assessment of public officials' motives to engage in corrupt activities consists of two components: 1) the sum of binary features based on the answers indicating the presence of motives for opposing activities and 2) the consideration of the synergistic effect that arises when the respondent simultaneously answers certain control questions positively. The assessment revealed that 8% and 22% of respondents had a high and medium level of propensity to engage in corrupt activities, respectively. In addition, it was estimated that men are more tolerant of corruption than women are, and people aged 51-65 years have the highest propensity for corruption. Combating corruption among public officials requires a comprehensive approach that includes a variety of management measures, such as defining and implementing procedures to identify and manage conflicts of interest, establishing internal audit services to regularly monitor the activities of public officials, and conducting regular training and seminars for officials to raise awareness of corruption risks and methods to counteract them.

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References

1. Artificial Financial Intelligence (2023). Estimating the Costs of Corruption and Efficiency Losses from Weak National and Sector Systems: Working Papers. [Link]
2. Beare, M. E. (1997). Corruption and organised crime: Lessons from history. *Crime, Law and Social Change*, *28*(2), 155-172. [Google Scholar] [CrossRef]
3. Chang, Z., Rusu, V., & Kohler, J. C. (2021). The Global Fund: why anti-corruption, transparency and accountability matter. *Globalisation and Health*, *17*(1), 1-11. [Google Scholar] [CrossRef]
4. Dhillon, A., Nicolò, A., & Xu, F. (2017). Corruption, intrinsic motivation, and the love of praise. *Journal of Public Economic Theory*, *19*(6), 1077-1098. [Google Scholar] [CrossRef]
5. Girodo, M. (2008). Specialised Corruption Investigations. Soft Law Controls. *Siak Journal*, *1*, 13–19. [Link]
6. Gorsira, M., Steg, L., Denkers, A., & Huisman, W. (2018). Corruption in organisations: Ethical climate and individual motives. *Administrative Sciences*, *8*(1), 4. [Google Scholar] [CrossRef]
7. Hannah, S. T., Avolio, B. J., & May, D. R. (2011). Moral maturation and moral conation: A capacity approach to explaining moral thought and action. *Academy of Management Review*, *36*(4), 663-685.. [Google Scholar] [CrossRef]
8. Kwon, I. (2014). Motivation, discretion, and corruption. *Journal of Public Administration Research and Theory*, *24*(3), 765-794. [Google Scholar] [CrossRef]
9. Li, R., Wang, Q., Li, L., & Hu, S. (2023). Do natural resource rent and corruption governance reshape the environmental Kuznets curve for ecological footprint? Evidence from 158 countries. *Resources Policy*, *85*, 103890. [Google Scholar] [CrossRef]
10. Milova, T., Troshkina, K., Horlov, Y., & Dobkowski, J. (2019). Country's Brand and Corruption Level: Cointegration Analysis. *Marketing and Management of Innovations*, *3*, 366-373. [Google Scholar] [CrossRef]
11. Momot, T., Chekh, N., Prylypko, S., Filonych, O., & Cherednychenko, O. (2023). Corruption in business: motives and influence of shadow economy. *Business: Theory and Practice*, *24*(1), 206-215. [Google Scholar] [CrossRef]
12. Nguyen, X. M., & Tran, Q. T. (2022). Corruption and corporate investment efficiency around the world. *European Journal of Management and Business Economics*, *31*(4), 425-438. [Google Scholar]
13. Rabl, T., & Kühlmann, T. M. (2008). Understanding corruption in organisations - development and empirical assessment of an action model. *Journal of Business Ethics*, *82*(2), 477-495. [Google Scholar] [CrossRef]
14. Transparency International (2023). Corruption Perceptions Index. [Link]
15. Troisi, R., Nese, A., Blanco-Gregory, R., & Giovanniello, M. A. (2023). The Effects of Corruption and Innovation on Sustainability: A Firm-Level Analysis. Sustainability (Switzerland), *15*(3), 1848. [Google Scholar] [CrossRef]

16. Wawrosz, P. (2019). Productive of the Service Sector: Theory and Practice of Corruption Declining. *Marketing and Management of Innovations*, *4*, 269-279. [Google Scholar] [CrossRef]

Інновації в боротьбі з корупцією: ефективне оцінювання схильності державних службовців до корупції

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Одним із найважливіших завдань в управлінні діяльності державних органів є запобігання корупції серед працівників та забезпечення доброчесності при виконанні їх організаційно-розпорядчих чи адміністративних обов'язків. Центральне місце в протидії корупції посідає вивчення поведінкових патернів службових осіб, які ухвалюють рішення щодо здійснення корупційних дій при виконанні своїх професійних обов'язків. Систематизація літературних джерел та підходів до дослідження мотивів до корупції засвідчила, що основними рушійними силами корупційної поведінки є намір індивідуальних та колективних характеристик, а саме бажання отримати фінансову вигоду, незадоволеність роботою, корупційне середовище всередині організації, а також безкарність за вчинення корупційних правопорушень. У статті розроблено суб'єктно-орієнтований підхід до оцінювання схильності службової особи до корупційної практики. Особливістю розробленої методики є визначення поведінкових та особистісних характеристик службової особи під час здійснення нею професійної діяльності, а також врахування синергетичного ефекту, що виникає у випадку одночасної позитивної відповіді респондента на контрольні питання. Авторська методика для оцінювання схильності службової особи до корупційної практики містить 16 ключових запитань, які були включені до опитувальника. Важливим елементом запропонованої методика є формування «ідеальної матриці», яка містить комбінації факторів, які посилюють наміри службових осіб до корупційної практики. «Ідеальна матриця» була схвалена за результатами проведення мозкового штурму з групою експертів. Об'єктом дослідження виступили 50 службових осіб установ та організацій міста Суми (Україна) віком від 27 до 65 років. За результатами оцінювання встановлено, що третина респондентів мали високий та середній рівень схильності до корупційної діяльності. Емпіричні розрахунки засвідчили, що чоловіки є більш толерантними до корупції у порівняні з жінками та державні службовці у віці від 51-65 років мають найвищі показники схильності до корупції серед досліджуваних інших вікових груп Дана методика дозволяє латентно кількісно оцінити рівень схильності службової особи до корупційної діяльності, та відповідно запровадити комплекс заходів для раннього попередження злочинних корупційних діянь у сфері державного управління.

Ключові слова: оцінювання, корупція, службові особи, управління, публічне управління, схильність до корупції.