

HUMAN DEVELOPMENT AND CORRUPTION: ANALYSING RELATIONSHIPS AND MANAGEMENT OPPORTUNITIES USING THE OODA LOOP

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Abstract

Research background: Balanced state development is impossible without sustainable human development. In turn, corruption has a significant impact on the level of human development, since a high level of corruption leads to an unfair distribution of income and resources and exacerbates inequality in society.

Purpose: The study aims to determine the features of the relationship between human development and corruption.

Research methodology: This study uses methods of a correlation and cluster analysis; descriptive statistics; visualizing; OODA (Observe, Orient, Decide and Act) loop approach, and Human Development Index and Corruption Perceptions Index as indicators.

Results: The study found a direct positive relationship between the indicators in the whole sample (177 countries for 2022). However, this relationship differs significantly across the groups of countries that were identified in the cluster analyses. The research also revealed differences between clusters in the distribution of the indicators.

Novelty: The novelty of the research consists in the use of the author's methodological approach to studying the relationship between human development and corruption in a cross-country aspect. The author proposes to use the OODA loop for human development management. The implementation of the human development management model based on the Boyd cycle will make it possible to adjust management in real time at all stages, taking into account country specifics and dynamic changes in the environment.

Keywords: human development; corruption; OODA loop

JEL classification: D73, D79, O15, O17

Introduction

Ensuring economic growth is one of the main challenges for any country. Maintaining sustainable rates of economic growth and a balance of economic and social interests is important for the economy and social sphere. Sustainable GDP production volumes are a prerequisite for financing socio-economic programmes and planning all indicators of the state's development. Both the mechanism of equitable benefit distribution in society and the attainment of certain production levels are important for the national economy. As a rule, state investments in education and health contribute to human development, while investments in infrastructure, increasing innovation activity, creating favourable conditions for business development, etc. contribute to economic development.

Economic growth, traditionally measured by GDP, reflects the general level of state welfare and therefore it is considered to be the main indicator of economic activity in society. With the right economic policy, economic growth contributes to improving the quality of life and increasing the income of citizens, as well as the prosperity of the state. However, when benefits are unequally distributed, economic growth does not improve the socio-economic situation, but only exacerbates inequality in society. In this case, access to education and health care for socially disadvantaged segments of the population may be limited, which will ultimately have a negative impact on productive employment opportunities and human development.

A high level of human development has a positive effect on the national welfare, since highly educated, healthy and qualified employees tend to demonstrate greater labour productivity, which leads to higher incomes and stimulates innovation and investment in the economy. A number of studies confirm the relationship between economic growth and human development. For example, Awad et al. (2014) found that there is a bidirectional long-run positive relationship between human development and economic growth through education and employment (Sudan, 1960–2012). Economic growth affects human development in Nigeria (Chikalipah, Okafor, 2019) and Zambia (Chikalipah, Makina, 2019) over the long run.

Although economic growth and human development are important goals for countries and society as a whole, and there is a relationship between them, but not always a high level of GDP correlates with a high level of human development. Sometimes countries with a fairly high level of GDP have a low HDI due to the unequal distribution of income and resources, insufficient attention to the social aspects of development or corruption. In general, the impact of corruption on development is negative. For instance, Pulok and Ahmed (2017)

using the ARDL method found the negative impact of corruption on economic development in Bangladesh. The results of the study by Antoni et al. (2019) for 2000–2018 showed that the level of corruption has a significant negative impact on economic growth in Indonesia in the long run. Abidin et al. (2023) determined through time series studies that corruption has a negative impact on economic development in Malaysia. Igiebor (2019) observes that widespread corruption in Nigeria has a negative impact on economic development. Haw et al. (2023) concluded that there is a significant relationship between economic development and the control of corruption in ASEAN countries and it is directly related to the income level of citizens. Wahyudi et al. (2023) found that human development and the fight against corruption have a significant positive impact on economic growth in 15 lower-middle-income Asian countries in 2016–2020.

Widespread corruption limits development opportunities in both the short and long term. A study by Castro and Pinho (2021) on a sample of 134 countries for the period 2000–2018 found that corruption reduces both GDP per capita and the level of sustainable development in general. The findings of Abu et al. (2015); Abu and Karim (2015) demonstrate that there is a strong Granger causality relationship between economic development and corruption in ECOWAS countries. Corruption can affect all aspects of development, depending on the extent of its spread: economic as well as social, environmental, and financial, etc. In particular, the results of the ARDL assessments revealed that corruption had a negative impact on financial development in Ukraine in the period 1996–2019 (Ziernhold, Jung-Ivannikova, 2021). At the same time, the impact of corruption on economic development is not always unambiguous. For example, Akkoyunlu and Ramella (2020), analysing data from 143 countries in 2000, concluded that corruption negatively affects per capita income, but does not have a significant impact on inequality.

Thus, the issues of the relationship between various aspects of development and corruption have attracted the attention of researchers. In most cases, the results show that there is a link between development and corruption, and, as a rule, corruption has a negative impact on development. Nevertheless, the prevention of corruption necessitates a more thorough analysis of the relationship between corruption and all aspects of development, including human development.

In this context, the aim of the paper is to identify the features of the relationship between corruption and human development, as well as to develop recommendations for human development management taking into account the factor of corruption.

To achieve the goal, the study puts forward the following hypotheses:

- H1 – there is a relationship between the level of corruption and the level of human development.
- H2 – the relationship between the level of corruption and the level of human development varies from country to country.

1. Literature review

Determining the specifics of the relationship between human development and corruption is important because corruption reduces the level of well-being and quality of life of the population through the uneven distribution of resources. By limiting access to education, healthcare and other basic services, corruption is a major obstacle to human development. Thus, Emara (2020), using the ARDL model, determined that corruption has a significant negative impact on human development, both in the short and long term. Sims et al. (2012), based on analyses of data for 68 countries, identified that the relationship between human development and corruption is significantly negative. Akhter (2004) confirms the negative impact of corruption on human development. The experience of 85 countries has shown that less corruption has a positive effect on GDP and human development (Scholl, Schermuly, 2020). At the same time, Sarabia et al. (2020) reached opposite conclusions and found a positive correlation between HDI and the level of corruption in 28 European Union countries for the period 2013–2017.

Corruption has a negative impact on human development in all countries and regions of Latin America and Northern Europe. The institutional environment and the level of economic development explain these differences in outcomes (Urbina, Rodríguez, 2022). Akçay (2006), by analysing panel data from 63 countries, determined that there is a statistically significant negative relationship between corruption and human development. The scholar argues that corruption hampers human development. Khan and Naeem (2020) concluded that corruption and income inequality negatively affect human resource development in 38 developing countries for 2000–2015. Based on a multiple regression analysis of empirical data, Wisitsuan and Chintrakarn (2012) found a negative impact of corruption and a positive impact of human development on economic development.

It should be noted that the impact of corruption on human development is not always unambiguous. For instance, income inequality has a greater negative impact on human development than corruption (Ortega et al., 2014). The assessment of the national culture's influence on corruption and innovation showed that corruption has a stronger impact on

innovation than culture. And reducing corruption is more important for improving human development than increasing innovation (Silva, Moreira, 2020). In the case of Pakistan, corruption has a positive impact on economic growth, while economic growth has a negative impact on human development (Luqman et al., 2021).

The manifestations of corruption affect human development both directly, through inequitable access to education and health services, and indirectly, by reducing investment in infrastructure and social facilities. Bazie et al. (2023), based on an analysis of panel data for 1996–2018, determined that corruption has a significant negative impact on the effectiveness of education and healthcare, including due to a decrease in public funding for these areas in 35 Sub-Saharan African countries. Corruption has a negative impact on human development, especially on health (Ortega et al., 2014; Ortega et al., 2016). In addition, people in countries with low human development are more vulnerable to facing natural disasters also due to high levels of corruption in these countries (Padli et al., 2019).

Corruption is an important factor negatively affecting the redistribution of income and investments in society. For example, remittances from migrant workers to their families in Latin America increase household income and thus stimulate human development. However, a high level of corruption reduces the effectiveness of cash injections due to the complex bureaucratic mechanism for using such funds (Borja, 2020). Moreover, low levels of corruption enhance the positive effect of FDI on human development in developing countries (Reiter, Steensma, 2010).

2. Research methodology

To achieve the goal, the study uses indicators that reflect the level of human development and corruption.

The Human Development Index (HDI) displays the future productivity of a country's citizens as measured by the level of national income per capita. Index equals the geometric mean of such indicators as health, survival, and learning. The index value varies from 0 to 1, where 0 is the worst value and 1 is the best value.

The Corruption Perceptions Index (CPI) is an indicator that measures the prevalence of corruption in the public and economic sectors. The index is calculated on the basis of statistical data and the results of surveys of businessmen and analysts, both foreigners and residents. The index ranks countries from 0 to 100, where 0 is the worst value and 100 is the best value.

This study covers 177 countries for 2022. The number of countries is determined by the availability of comparable data for all analysed indicators. 2022 is the latest year for which there is comparable data for the analysed indicators.

This study uses methods of a correlation analysis, cluster analysis, methods of descriptive statistics, methods of visualizing analysis results, as well as the OODA loop approach.

3. Results

The preliminary stage of the study is to determine the relationship between the analysed indices (Figure 1).

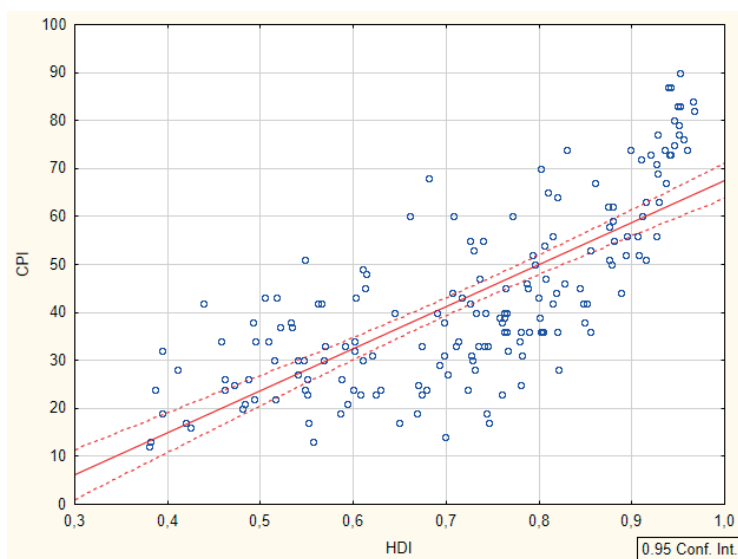


Figure 1. Relationship between CPI and HDI, 2022

Source: own elaboration.

Figure 1 shows that there is a direct positive relationship between the indicators for the whole sample.

The next stage of the study finds out whether there is a relationship between CPI and HDI sub-indices. Table 1 presents the results of the correlation analysis.

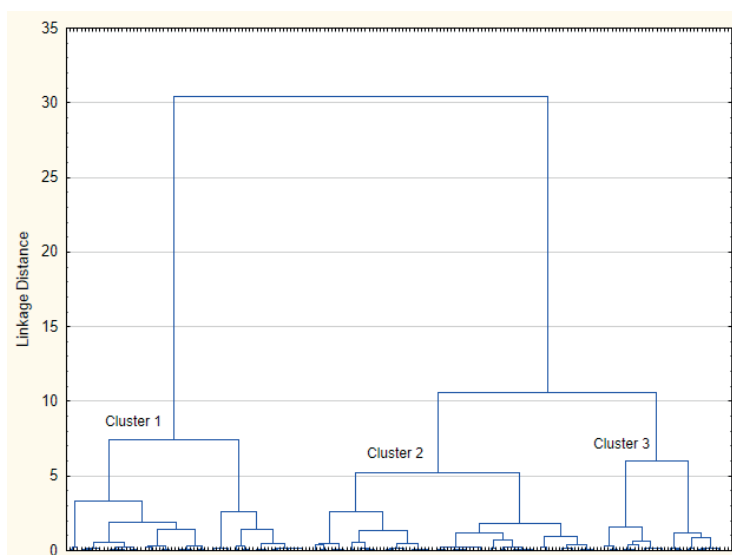
Table 1. Pearson correlations between CPI and HDI (and sub-indices), N=177

Variable	CPI	GNI	MYS	EYS
LEB	0.71	0.77	0.75	0.79
EYS	0.71	0.72	0.80	
MYS	0.64	0.71		
GNI	0.78			
HDI	0.75			

Note: HDI – Human Development Index; CPI – Corruption Perception Index; LEB – Life expectancy at birth; EYS – Expected years of schooling; MYS – Mean years of schooling; GNI – Gross national income per capita.

Source: own elaboration .

Table 1 shows that there is a significant correlation between all the analysed indicators in the sample (both between the indexes themselves and between sub-indexes). Thus, the results of the calculations confirm the existence of a relationship between HDI (and its sub-indices) and the level of perception of corruption in the sample as a whole.



The countries consisting each cluster are in a table in Appendix.

Figure 2. Distribution of countries in clusters by CPI and HDI, 2022

Source: own elaboration.

The paper aims to find out whether this relationship is homogeneous or whether it varies from country to country. The study uses the cluster analysis procedure for this purpose.

The data were standardised before the cluster analysis. Figure 2 presents the results of the analysis. The research accepts the complete linkage method as a rule for combining, and the square of the Euclidean distance as a proximity measure.

As Figure 2 shows, the indicators form three distinct clusters. The next stage of the study focuses on determining the differences between clusters using the K-means method. Analysis of variance is used to identify the significance of the difference between the obtained clusters.

Table 2. Analysis of Variance

Variable	Between SS	df	Within SS	df	F	signif. p
HDI	144.96	2	31.04	174	406.34	0.00
CPI	131.20	2	44.80	174	254.76	0.00

Source: own elaboration.

The value $p < 0.05$ indicates that there are significant differences between the clusters. Therefore, the countries form three different groups depending on the value of the analysed indicators.

Figure 3 demonstrates the average values of indicators in the obtained clusters.

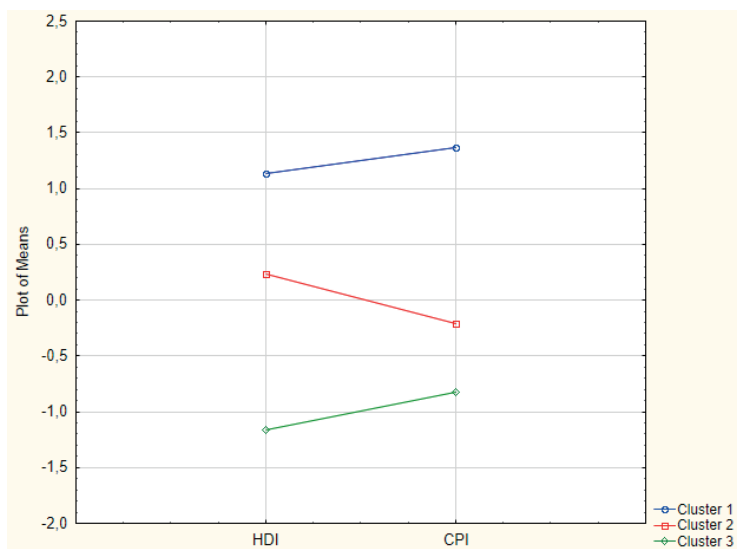


Figure 3. Average CPI and HDI values in clusters

Source: own elaboration.

The average values of indicators by clusters reflect the fact that countries with the highest values of indicators are included in cluster 1, countries with average values of indicators form cluster 2, and, accordingly, countries with low values of indicators form cluster 3. Descriptive statistics for each cluster are presented in Appendix.

This paper provides an analysis of the relationship between indicators by clusters. To realise this assignment, it is necessary to calculate Spearman's rank and Kendall's tau correlation coefficients for each cluster. The choice of these coefficients is due to the fact that the number of observations in each cluster does not exceed 100. The calculations are presented in Table 3.

Table 3. The correlations between CPI and HDI (and sub-indices)

Variable	CPI	GNI	MYS	EYS	CPI	GNI	MYS	EYS
	Spearman's rank correlations				Kendall's tau correlations			
1 Cluster								
LEB	0.42	0.59	0.05	0.36	0.28	0.41	0.04	0.26
EYS	0.47	0.28	0.06		0.33	0.18	0.06	
MYS	0.29	0.28			0.20	0.19		
GNI	0.53				0.36			
HDI	0.69				0.47			
2 Cluster								
LEB	0.14	0.38	−0.01	0.47	0.09	0.28	−0.01	0.34
EYS	−0.01	0.45	0.22		0.00	0.32	0.16	
MYS	−0.05	0.41			−0.05	0.29		
GNI	0.11				0.08			
HDI	0.09				0.06			
3 Cluster								
LEB	0.02	0.45	0.28	0.24	0.02	0.33	0.21	0.17
EYS	0.06	0.45	0.60		0.03	0.31	0.41	
MYS	−0.17	0.50			−0.12	0.34		
GNI	0.10				0.07			
HDI	0.00				0.00			

Source: own elaboration.

As can be seen from these tables, there is a statistically significant relationship between CPI and LEB, EYS, GNI, HDI as well as GNI and LEB in the group of countries with high values of indicators (cluster 1), while there is no such relationship in the groups with low and medium values of indicators. This fact suggests that high levels of income and human development are accompanied by high levels of CPI. The relationship between GNI and LEB,

EYS, MYS is statistically significant in cluster 2 (average values of indicators) and cluster 3 (low values of indicators). There is also a strong relationship between MYS and EYS in cluster 3. The regularities in calculating Kendall's tau correlation are similar.

The spatial distribution of analysed indicators is necessary for a more detailed analysis. The scatter plots for the clusters are presented in Figures 4–6. The same data scale was used for a better visual comparison.

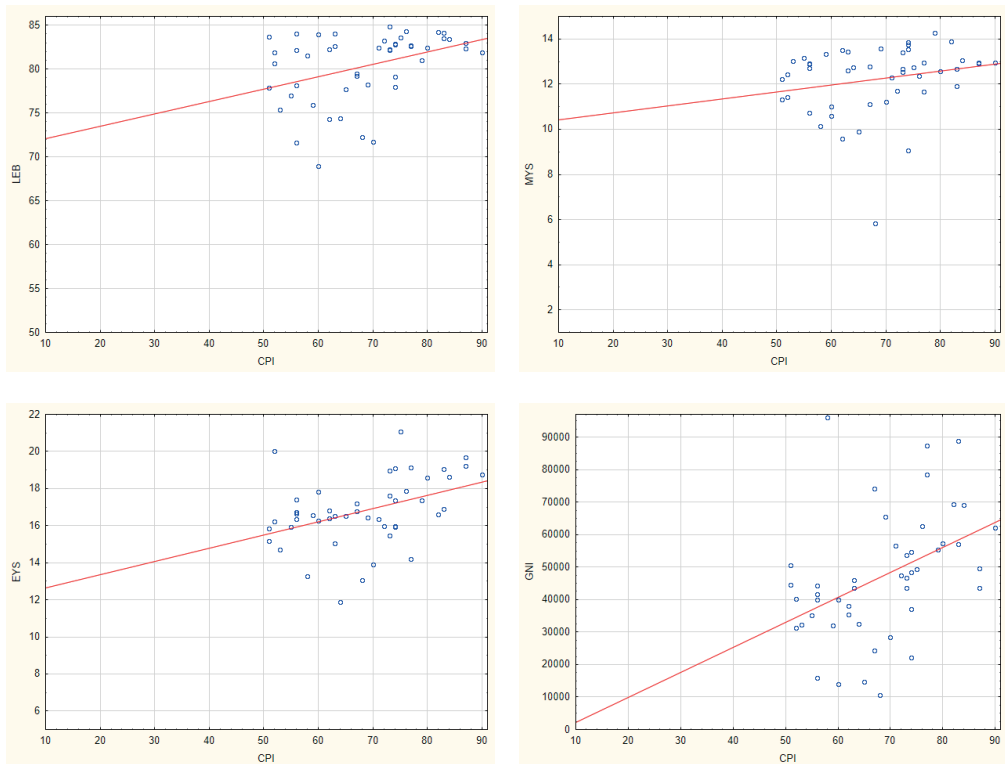


Figure 4. Scatter plot, Cluster 1

Source: own elaboration.

As the figures demonstrate, there is a fairly wide dispersion of indicators in all clusters, except for the GNI and CPI relationship diagram (Figure 6). In most cases, the relationship between the indicators is direct, except for the MYS and CPI diagram (Figures 5, 6) and the EYS and CPI diagram (Figure 5), where the relationship is inverse. This exclusion may be

explained by the significant time lag in comparing these indicators rather than by the positive impact of corruption on the number of years of schooling. The graphs show that a low level of CPI is accompanied by low HDI values both in general and in individual components of the index.

3D surface plots allow us to identify differences between clusters based on mapping the relationship of the three variables in space. This plot fits the resulting spline-smoothed surface to the data points. Figure 7 presents 3D surface plots for the clusters.

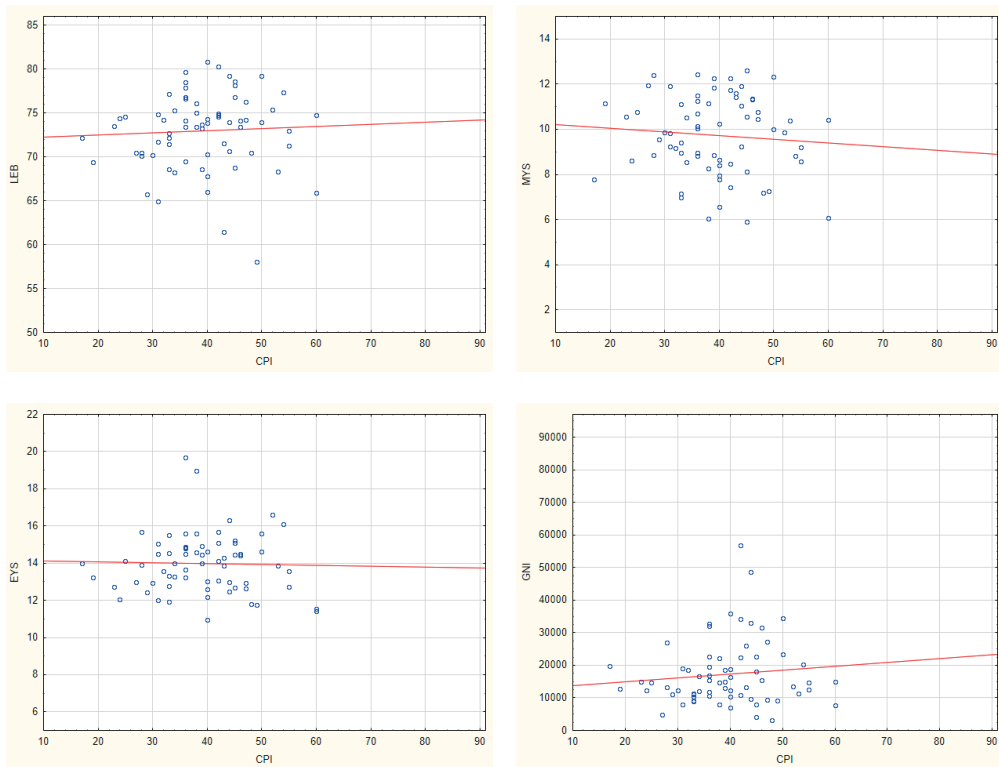


Figure 5. Scatter plot, Cluster 2

Source: own elaboration.

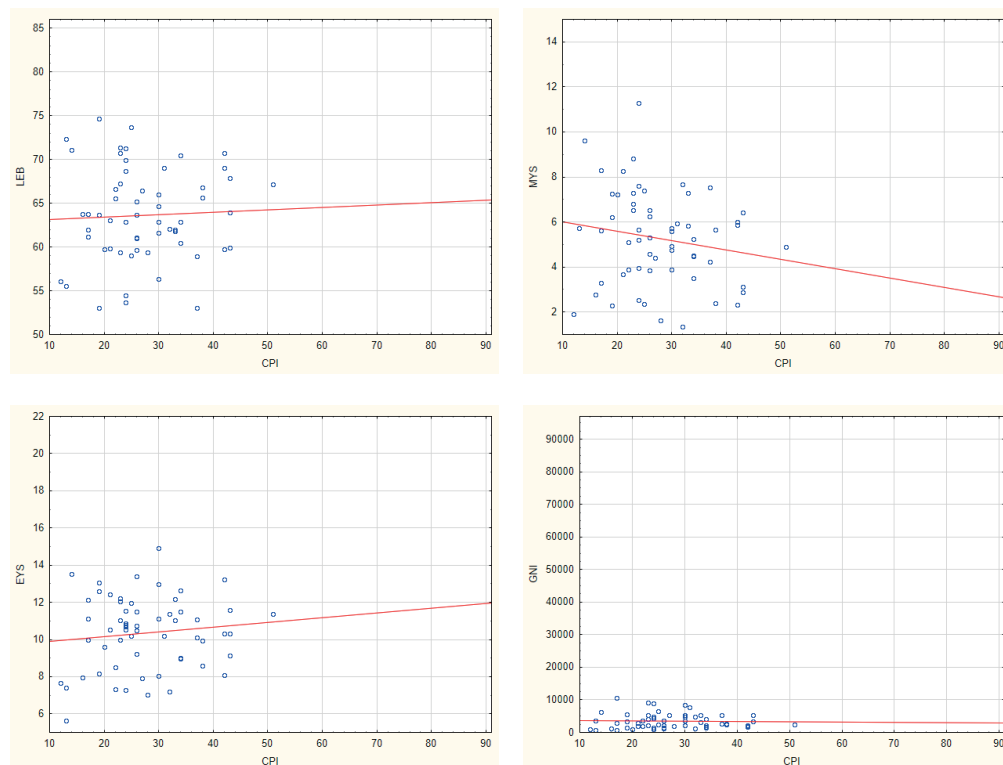


Figure 6. Scatter plot, Cluster 3

Source: own elaboration.

The 3D profiles of indicators (Figure 7) display that the relationship between them is very different across groups. Since splines are a method of non-parametric interpolation, this way of representing dependencies between indicators can be used as a tool for the preliminary forecasting of data in a group, including in conditions of incomplete and inaccurate data.

As the analysis carried out in the study showed, there are certain relationships between the components of HDI and CPI. And these dependencies differ greatly across groups. Therefore, recommendations on both anti-corruption and human development should also differ significantly across country groups. This study proposes the use the OODA (Observe, Orient, Decide and Act) loop of J. Boyd as a universal model of human development management taking into account the factor of corruption.

John Boyd developed the OODA loop in the 1970s as an air combat decision-making tool for the US Air Force (Boyd, 2018; Ullman, 2007). Currently, the model is widely used in

decision-making processes. The main idea of the model is to quickly make and implement the right decisions through observation and judgment.

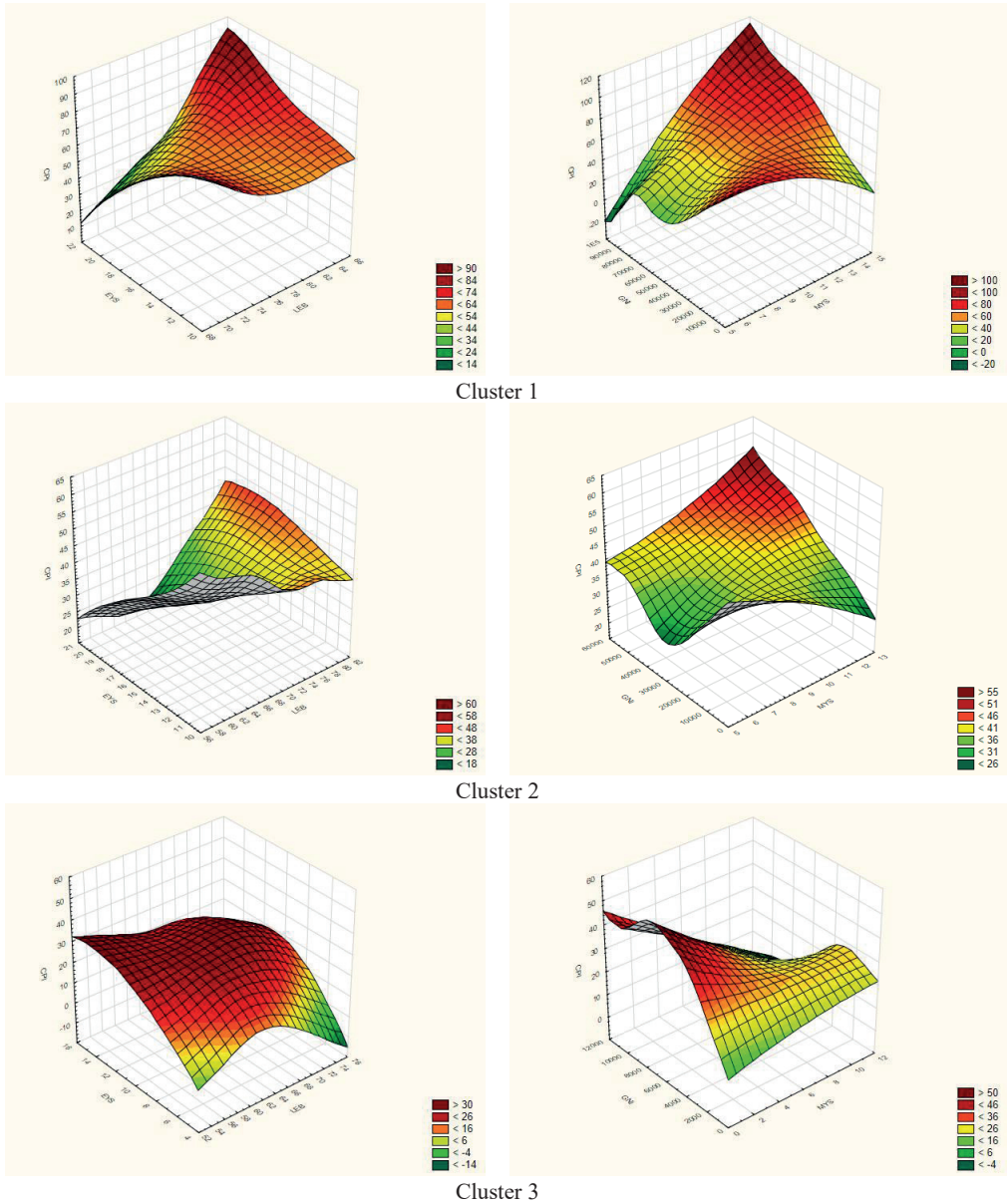


Figure 7. 3D surface plots for clusters

Source: own elaboration.

In a general sense, the OODA loop is a dynamic information model with feedback that uses real-time interaction with the external environment and includes the stages of observation, orientation, decision and action (Figure 8).

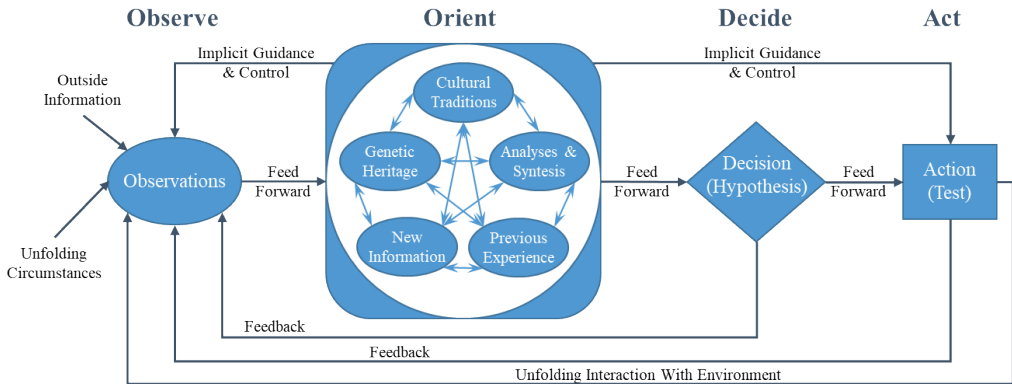


Figure 8. OODA Loop

Source: Boyd (2018).

Observation is the obtaining of information in a real-time mode. This stage includes the development of a database for monitoring the situation. The orientation module analyses and processes real-time situation data. The decision-making module is the development of an action plan to solve a problem by collecting, monitoring and analysing information about the problem area. The action stage involves the realisation of the solution, including its adjustment and optimisation in the process of implementation.

This approach is widespread in military theory, in particular: in modelling the process of concentrated firing by air defence systems (Fan et al., 2022), in military intelligence (Suchman, 2022), in convoy planning (Thomas et al., 2008), in command decision making (Bryant, 2006), in manned and unmanned aircraft coordination (Xiong et al., 2019), in rapid response systems for identifying weapons and explosive weapons (Bhatt, Ganatra, 2022), in flight test programs (Newcamp, 2015), for the evaluation of unmanned equipment (Xue, Jiang, 2022), in operational command (Zhang, 2022), and in the management of unmanned swarms (Wu et al., 2022).

Although the approach was originally developed for military use, the scope of the Boyd loop is currently wide. Thus, different spheres are using the OODA loop, including medicine, e.g., in diagnosing using ultrasound (Baron et al., 2022) and operational medical readiness (Von Lubitz, 2008), preventing epidemics in ports (Zhou et al., 2022), preventing aviation accidents (Sherry, Mauro, 2015), construction for quality control in dam laying (Wang et al., 2021) and evaluating the effectiveness of self-managed construction teams (Abdelhamid et al., 2009), decision making by organisations under uncertainty (Vettorello, Eisenbart, Ranscombe, 2019), and counter propaganda activities (Carroll, 2019).

Emergency management in the United States actively uses the Boyd loop (Tanui, 2021), including emergency rescue systems (Huang, 2015) and disaster management for decision making based on Boyd's NORD loop under unpredictable conditions (Von Lubitz et al., 2008). Also, counterterrorism (Tajwer, Shamsi, 2010), cyberterrorism (Veerasamy, 2011), cyberattacks (Bodström, Hämäläinen, 2018; Zanna et al., 2022), cybersecurity training (Priambodo et al., 2022) apply the Boyd cycle as a modelling tool. In some cases, the NORD framework is the basis for accelerator programmes (Spinuzzi et al., 2023) and reflective practices (Ryder, Downs, 2022) in learning and moral decision making (Węgrzyn, 2022). The POP-DOC Loop empowers leaders to act in unpredictable situations (Marcus et al., 2020).

At the same time, the use of the OODA loop in economic research is not widespread, although the application of this method in other industries is successful. The paper aims to fill this gap in the sphere of human development and fight against corruption in their relationship. The approach proposed in the study is relevant because corruption can seriously undermine efforts to improve the well-being of the population and reduce the effectiveness of human development programs and actions. Figure 9 presents the proposed stages of the OODA loop for human development.

It should be noted that effective implementation of the OODA cycle (Figure 9) is possible on the basis of the application of modern information technologies that allow the processing of big data in the real-time mode. Digital tools allow you to reduce decision-making time and quickly and timely adjust actions depending on changes in the current situation.



Figure 9. Stages of the OODA loop for human development

Source: own elaboration.

In addition, the application of the Boyd loop promotes accountability and transparency in the decision-making process, which can reduce the likelihood of corruption and improve the quality of governance in human development. However, the successful application of the

OODA loop in the fight against corruption also requires the political will, civic participation and co-operation of various stakeholders.

4. Discussion and conclusions

Despite the fact that the need to harmonise economic and social interests to ensure sustainable socio-economic development is obvious, in practice these interests are often not aligned. And in this case, corruption is often a significant obstacle. Corruption in government reduces the effectiveness of the implementation of state programs to improve human development, because when the level of corruption is high, the interests of society and the state are not fully realised, but certain interest groups lobby for obtaining undue benefits in their favour. The implementation of corruption schemes reduces the effectiveness of social policy and increases inequality in society. Therefore, measures to improve human development must be accompanied by appropriate measures to fight against corruption. For example, Sims et al. (2012) note that the relationship between corruption and human development can be regulated through the distance of the power and the individual. Silal and Saha (2021) concluded by summarising data from 132 countries that anti-corruption is a mechanism through which the positive impact of e-participation on human development is enhanced. Kisil and Tarasenko (2022) point to the fact that the growth of civic consciousness, along with repressive measures, can help prevent corruption offenses.

The verification of hypothesis H1 showed that there is a relationship between the level of corruption and the level of human development. For the sample as a whole the research revealed a strong positive relationship between the value of Corruption Perceptions Index and all components of the Human Development Index, except for MYS, where the relationship is moderately positive. After distributing the sample countries into clusters, this hypothesis was confirmed only for cluster 1 where there is a statistically significant relationship between HDI and its components with CPI. It should be noted that cluster 1 includes countries with high values of all the analysed indicators. The study did not find such a relationship in clusters with low and medium values of indicators. Thus, we can conclude that the relationship between the level of human development and the level of corruption perception arises when the level of human development increases and the level of corruption decreases. This finding allows us to accept hypothesis H2 that the relationship between human development and corruption is uneven across countries.

Increasing the level of human development can help reduce corruption. Educated and informed people are usually more aware and more likely to oppose corruption and support transparency and honesty in public institutions. Highly educated people, as a rule, have higher wages and more opportunities for employment and self-realisation, which reduces their motivation to participate in corruption schemes and shadow activities. Furthermore, well-developed education systems and public awareness can contribute a civic culture and active citizenship, which reduces the likelihood of tolerating corruption. As a rule, societies with a high level of transparency and accountability to the public tend to be less likely to be corrupt. It is noted that the level of human development depends on the quality of the institutional environment (Stryzhak et al., 2022). According to the findings of Bajada and Shashnov (2019), as institutions in a society develop, their ability to resist corruption improves.

The application of the OODA loop in public administration practice allows for an extended approach to human development management, since the Boyd loop is essentially an iterative process. That is, the implementation of an OODA loop means that once one cycle is completed, it repeats itself over and over again, allowing decisions and strategies to be improved based on new information and changing conditions. In this way, Boyd loop management can provide a systematic approach to addressing the problem of corruption in human development, taking into account the specificities of its manifestation in a particular country. This study contributes to the explanation of the relationship between human development and corruption and can be used as a theoretical basis for a package of anti-corruption policies. The eradication of corruption and the corresponding reduction of inequalities in the distribution of resources and benefits will ensure the potential for human development in the long term. At the same time, the study has certain limitations, primarily due to the analysis of indicators for one year. In our opinion, future research should be aimed at identifying the causal relationship between human development and corruption in dynamics.

Appendix

Table A1. Descriptive Statistics for clusters

Variable	Mean	Min	Max	Standard Deviation
1 Cluster (47 cases) – Australia, Austria, the Bahamas, Barbados, Belgium, Bhutan, Canada, Chile, Cyprus, Czechia, Denmark, Estonia, Finland, France, Georgia, Germany, Greece, Hong Kong, Iceland, Ireland, Israel, Italy, Japan, Korea (South), Latvia, Lithuania, Luxembourg, Malta, the Netherlands, New Zealand, Norway, Poland, Portugal, Qatar, Saint Vincent and the Grenadines, Saudi Arabia, the Seychelles, Singapore, Slovakia, Slovenia, Spain, Sweden, Switzerland, the United Arab Emirates, the United Kingdom, the United States of America, Uruguay				
HDI	0.90	0.68	0.97	0.06
LEB	80.33	68.97	84.82	3.98
EYS	16.79	11.89	21.08	1.87
MYS	12.21	5.84	14.26	1.52
GNI	47,055.53	10,624.87	95,944.38	19,370.64
CPI	68.36	51.00	90.00	10.84
2 Cluster (70 cases) – Albania, Algeria, Argentina, Armenia, Azerbaijan, Bahrain, Belarus, Bolivia, Bosnia and Herzegovina, Botswana, Brazil, Bulgaria, Cabo Verde, China, Colombia, Costa Rica, Croatia, Cuba, Dominica, the Dominican Republic, Ecuador, Egypt, El Salvador, Fiji, Gabon, Grenada, Guyana, Hungary, India, Indonesia, Iran, Jamaica, Jordan, Kazakhstan, Kuwait, Kyrgyzstan, Lebanon, Libya, Malaysia, the Maldives, Mauritius, Mexico, Moldova, Mongolia, Montenegro, Morocco, Namibia, North Macedonia, Oman, Panama, Paraguay, Peru, the Philippines, Romania, the Russian Federation, Saint Lucia, Sao Tome and Principe, Serbia, South Africa, Sri Lanka, Suriname, Thailand, Trinidad and Tobago, Tunisia, Türkiye, Turkmenistan, Ukraine, Uzbekistan, Vanuatu, VietNam				
HDI	0.76	0.61	0.89	0.06
LEB	72.97	58.06	80.84	4.33
EYS	13.97	10.96	19.68	1.58
MYS	9.73	5.916	12.62	1.748
GNI	17,103.46	3,243.98	56,729.18	9,966.66
CPI	39.16	17.00	60.00	9.02
3 Cluster (60 cases) – Afghanistan, Angola, Bangladesh, Benin, Burkina Faso, Burundi, Cambodia, Cameroon, the Central African Republic, Chad, Comoros, Congo, Côte d'Ivoire, the Democratic Republic of the Congo, Djibouti, Equatorial Guinea, Eritrea, Eswatini, Ethiopia, Gambia, Ghana, Guatemala, Guinea, Guinea-Bissau, Haiti, Honduras, Iraq, Kenya, Laos, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritania, Mozambique, Myanmar, Nepal, Nicaragua, Niger, Nigeria, Pakistan, Papua New Guinea, Rwanda, Senegal, Sierra Leone, the Solomon Islands, Somalia, South Sudan, Sudan, Syria, Tajikistan, Tanzania, Timor-Leste, Togo, Uganda, Venezuela, Yemen, Zambia, Zimbabwe				
HDI	0.54	0.38	0.70	0.08
LEB	63.64	52.10	74.61	5.24
EYS	10.33	5.63	14.93	1.97
MYS	5.28	1.34	11.29	2.07
GNI	3,493.18	690.66	10,662.66	2,282.00
CPI	27.60	12.00	51.00	8.75

Source: own elaboration.

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