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On the Relationship between Democracy and Safety (Results Indicated by Variance Analysis)

Demokrasi ve Güvenlik İlişkisi Üzerine (Varyans Analizinin İşaret Ettiği Sonuçlar)

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ON THE RELATIONSHIP BETWEEN DEMOCRACY AND SAFETY (RESULTS INDICATED BY VARIANCE ANALYSIS)

Abstract

This study aims to acknowledge whether there is a relationship between democracy and safety parameters through democratic country categories. For this purpose, this study compares the averages of the four subgroups. These four subgroups are full democracy, flawed democracy, hybrid regime, and authoritarian regime subgroups. The study's conceptual framework comprises democracy, safety, and democratic peace theory. In the study, one-way analysis of variance (ANOVA) is performed for independent groups to compare multiple group averages. ANOVA results indicate whether there is a statistically significant difference between groups as a whole. The study proposes that people living in democratic countries live in a much safer environment. Data indicate that crime is universal and point out the positive effects of high-income level, prosperity, education and low population density on crime. However, it should be kept in mind that the evaluations in this paper are valid for crimes included in the safety index including theft, violence, bribery, and so on. The results, based on data between 2018 and 2022, reveal that the expanded propositions of democratic peace theory can only be valid for full democracy.

Anahtar Kelimeler: *Democracy, Democratic Peace Theory, Full Democracy, Safety, Variance Analysis.*

DEMOKRASİ VE GÜVENLİK İLİŞKİSİ ÜZERİNE (VARYANS ANALİZİNİN İŞARET ETTİĞİ SONUÇLAR)

Öz

Bu çalışma, demokrasi ve güvenlik parametreleri arasında bir ilişki olup olmadığını, demokrasi ülke kategorileri üzerinden ortaya koymayı amaçlamakta olup çalışmada dört alt grubun ortalamaları karşılaştırılmaktadır. Bu dört alt grup; tam demokrasi, kusurlu demokrasi, hibrit rejim ve otoriter rejim alt gruplarıdır. Çalışmanın kavramsal çerçevesini demokrasi, güvenlik ve demokratik barış teorisi oluşturmaktadır. Çalışmada çoklu grup ortalamalarının karşılaştırılabilmesi amacıyla bağımsız gruplar için tek yönlü varyans analizi (ANOVA) yapılmaktadır. ANOVA sonuçları grupların bir bütün olarak değerlendirildiğinde istatistiksel olarak anlamlı bir fark olup olmadığını göstermektedir. Çalışma, demokratik ülkelerde yaşayan insanların çok daha güvenli bir çevrede yaşadığı önermesine dayanmaktadır. Veriler suçun evrensel olduğunu ama yüksek gelir düzeyi, refah, eğitim ve düşük nüfus yoğunluğunun suçun azalmasına katkıda bulunduğu işaret etmektedir. Ancak bu makaledeki değerlendirmelerin hırsızlık, şiddet, rüşvet gibi güvenlik endeksine dahil edilen suçlar için geçerli olduğu unutulmamalıdır. 2018 ile 2022 yılları arasındaki verilere dayanan sonuçlar, demokratik barış teorisinin genişletilmiş önermelerinin yalnızca tam demokrasi için geçerli olabileceğini ortaya koymaktadır.

Keywords: *Demokrasi, Demokratik Barış Teorisi, Tam Demokrasi, Güvenlik, Varyans Analizi.*

INTRODUCTION

The positive impact of democracy on welfare and human rights is a well-known feature. The studies of Dahl (2017), Huntington (2007), and Lijphart (2014), which notify this positive effect in the literature, are essential. Again, as Huntington (2007) points out, there may be adverse waves of democracy within the framework of the crises, and totalitarian regimes may replace democracy. However, today the increase in the number of democratic countries finally exhibits democracy's performance.

In the literature, some studies unveil that democracy also makes a difference in political security, apart from these apparent achievements. In other words, democratic countries do not commit systematic state violence against their citizens or commit genocide. For example, Harff (2003, pp. 57-73) concludes that the probability of mass murders is higher in authoritarian regimes. The reason why it is such is that elites that advocate an exclusionary ideology and represent an ethnic minority motivate the genocide.

However, is it possible to develop the propositions of the democratic peace theory by taking inspiration from these democratic achievements? Rather than asking which theory is "correct" or works "best," it is more helpful to ask which explanation works best under what circumstances, as Starr (2019, p. 154) said.

1. PROBLEM AND LITERATURE REVIEW

This study's problem is the assumption that people living in democratic countries feel themselves in a much safer environment. This has aroused curiosity about whether the relationship between democracy and safety -the concept safety is detailed under the subtitle conceptual framework- is statistically significant and whether this statistical significance is defensible for a democratic peace theory.

The literature review offers that there is a valuable corpus about democracy. This corpus is created with an interdisciplinary approach. In this valuable corpus, democracy is perused within the framework of the economy, law philosophy, human rights, regime politics, religion, technology, and some other essential parameters and subcategories related to these parameters. Either the relationship of democracy to these parameters is examined, or the effect of these parameters on democracy is studied¹. One of them even evaluates whether democracy can improve population health (Wang, Mechkova and Andersson, 2019).

Although each of these studies is valuable, studies such as Dahl (2017), Huntington (2007), and Lijphart (2014) seem to be essential reference elements in the sources related to democracy. Dahl (2017, pp. 48-107), in his book *On Democracy*, answers questions such as what democracy is, why democracy, what is needed in large-scale democracies, and why institutions are needed. At the same time, he answers why democracy is essential; he gives the following answers: Avoiding tyranny, primary rights, self-determination, general freedom, moral autonomy, human development, defencing fundamental personal interests, peace, political equality, and prosperity. The phrase prevention of tyranny mentioned here draws attention to the scope of this study; that is, it presupposes that democracy does not contain tyranny. In fact, regarding ideal democracy, this argument does not have an objectionable side because, according to Dahl (2017, p.57), democracy prevents cruel and destructive autocrats from taking power. While reaching this conclusion, Dahl (2017, pp.57-58) states as an example that millions of people were killed in the Soviet Union under Joseph Stalin for political reasons, especially Stalin's intense securitization; in Nazi Germany during WWII, millions of people were killed, and between 1975 and 1979 in Cambodia, a quarter of Cambodians were killed by the despotic leader Pol Pot.

In Huntington's *Third Wave* book, which examines the waves of democracy, what stands out within the scope of this study is the finding that external actors immensely helped democratization in the third wave (Huntington, 2007, p. 84). Huntington determined that the third wave of democratization started after 1974, which had a broader impact thanks to the Vatican, the USA, the European Community, and the Soviet Union, which were the primary source of power and morality around the world in the late 1980s since these elements actively worked in favour of liberalization and democratization. According to Huntington, while Rome made Catholic countries' authoritarian regimes lose legitimacy, Brussels encouraged democratization in Eastern and Southern Europe. While Washington promoted democratization for Asia and Latin America, Moscow facilitated the democratization of Eastern Europe. Thanks to these changes in foreign institutions' policy, the third wave of democratization spread to a broader area. Although Huntington points to favourable social and economic conditions in the third wave of democratization with the external actors' influence, he concludes that democratization will not occur without political leaders willing to democratize. Whether leaders see democracy as an

end in itself, as a tool, or as a by-product, in the end, the leader is essential in democratization (Huntington, 2007, p. 103).

Lijphart (2014, pp. 323-326) covers the issue of violence in his book *Models of Democracy*. In his statistical research, he reaches causal values over five variables. These variables are political stability and nonviolence (1996-2009), risk of internal conflict (1990-2004), local conflict index (1981-2009), local conflict index (1990-2009), and deaths from local terrorism (1985-2010). The measure of political stability and nonviolence considers the possibility of destabilizing the government by unconstitutional or violent acts, including terrorism. The internal conflict risk measure has three components: Civil war or coup threat, terrorism and political violence, and popular uprising. The local conflict index measures the conflicts such as guerrilla warfare, assassinations, and riots. In Lijphart's study, the number of samples varied between 30 and 34. India, Israel, and England are not included in the analysis, as they are of extreme value. India has a high amount of violent conflict but is also overpopulated. It is hard to distinguish between internal and external violence in Israel. In the UK, violent conflicts are high due to the Northern Ireland issue. For these reasons, Lijphart did not count these three countries in the analysis. As a result, Lijphart (2014, p. 326) concludes that consensus democracies are less violent than majoritarian democracies.

However, in terms of the scope of this study, the closest literature to the study is the literature on democratic peace theory. This approach, which dates back to Immanuel Kant and later Woodrow Wilson (Kant, 1795; Marine Corps University, 2017), argues that democratic countries tend to fight each other less. Longley (2022) summarizes the propositions of the democratic peace theory as follows: In democracies, citizens have a say in legislative decisions and can hold their leaders accountable, leaders tend to establish diplomatic institutions in the face of international tensions and democracies rarely see countries similar to themselves as enemies, and democracies tend to protect their wealth.

There are also some national-level observations on this theory, and according to these observations, democratic countries do not commit systematic state violence against their citizens or commit genocide. For example, Harff (2003, pp. 57-73) concludes that out of 126 samples that experienced civil war and regime decadence between 1955 and 1997, the probability of mass murders is higher in authoritarian regimes. This is probably because elites that plead an exclusionary attitude of mind and represent an ethnic minority motivate

genocide. International economic dependencies sharply reduce the possibility of civil war and regime instability to bring about genocide (Harff, 2003, p. 73).

However, this result does not include any concern to assert anything about the threat to the safety of individuals and groups at the subnational level, which is not supported by the state or not made by the state itself. International Institute for Democracy and Electoral Assistance (International IDEA), for example, fills this gap. IDEA expresses a strong belief that democracy provides human security by saying that human security emphasizes protecting human life from serious threats, harm and violent conflict and strengthening it against social threats such as disease or crime. Democracy, for International IDEA, ensures the protection of people through institutional guarantees, promotion of human rights, and equality before the law (International Institute for Democracy and Electoral Assistance, 2006, p. 6).

However, an outstanding argument within the scope of this study comes from Albright and Jomaa (2017). They claim that democratically governed societies are more robust, safer, and more secure by referring to the basic premise of the democratic theory of peace. They also stress that the USA and its democratic partners should build their foreign policies by considering this fact, noting that weak states merit private attention and supplies to assist them in their work to strengthen their democratic systems. While doing this, Albright and Jomaa (2017), giving examples from North Korea, Venezuela, ISIS, and Al Qaeda, express that strong democracies provide a safer environment for their citizens. Albright and Jomaa's argument is vital regarding the course and stage of the democratic peace theory because they refer to the link between democracy and safety.

1.1. The Study's Purpose and Importance

This study aims to inform whether there is a relationship between democracy and safety parameters through democratic country categories. For this purpose, the averages of the four subgroups in accordance with democracy index are compared. In this sense, the null hypothesis (H_0) of the study states that there is no significant difference between the means of the democracy subgroups in the context of safety. The alternative hypothesis (H_1) expresses that there is a significant difference between the means of the democracy subgroups in the context of safety.

The study also evaluates whether the resulting statistical significance will make sense for the extended propositions of democratic peace theory. It is possible to express in terms of a literature review that analysing the relationship between democracy and safety will contribute to eliminating a deficiency in the literature, also giving an idea about the extent to which the fundamental propositions of the democratic peace theory can be extended.

1.2. Limitations and Supposition

In the study, 131 countries for 2022, 124 countries for 2021, 122 countries for 2020, 113 countries for 2019, and 111 countries for 2018 were included in the analysis. The supposition is that people living in democratic countries feel themselves in a much safer environment.

2. CONCEPTUAL FRAMEWORK

The paper's conceptual framework consists of the concepts of democracy and safety. According to the index developed by the Economic Intelligence Unit, democracy subcategories are determined according to five main parameters.

- Electoral process and pluralism,
- Civil liberties,
- The functioning of the government,
- Political participation and
- Political culture.

According to the scores obtained from these parameters, countries are in one of the categories of full democracy, flawed democracy, hybrid regime, and authoritarian regime.

Full democracies: In these democracies, fundamental civil and political liberties and a political culture supporting the development of society are considered. Government functions are satisfactory. The media is free and diversified. It has an efficacious check-and-balance system. The judiciary is independent, and the rule of law is fundamental. There are merely restricted problems in democracies' functioning.

Flawed democracies: This concept refers to countries that have free and fair elections. In these democracies, there is deference for fundamental civil liberties, although there are problems with media freedom being violated. On

the other hand, there are difficulties in governance, such as low political culture and weak political participation.

Hybrid regimes: There is significant disorderliness in the elections. Government oppression of dissenting sides and nominees can be expected. Political culture, political participation, and the functioning of government need to improve. Corruption tends to be prevalent, and the rule of law is poor. Civil society is rickety. The press is under repression. There is no independence of the judiciary.

Authoritarian regimes: These countries have no political pluralism or have heavily restricted political pluralism. Dictatorships essentially dominate these countries. There may be a few stylistic institutions of democracy, yet they possess little in the spirit of democracy. When elections are made, they are not free and fair. Civil liberties violations are ignored. The media is usually in the possession of the state or managed by groups loyal to power. There is suppression of opposition targeting the government and widespread censorship. It is impossible to discuss independent judiciary (Economist Intelligence Unit, 2022, p. 68).

The other concept that determines the conceptual framework is the concept of safety. In this study, the concept of safety is the opposite of the concept of crime. In the database where the data is already taken, the correlation between safety and crime is -1 ($r=-1$), as Figure 1 displays. Therefore, they have a perfect negative relation, meaning that while one variable's value increases, the other decreases. NUMBEO has developed this index. It can be said that it is more appropriate to use the concept of safety instead of security in terms of the crimes included in this index. The crimes in question are as follows: Day and night security, home invasion, robbery, car theft, insults or attacks related to skin, ethnicity and religion, drugs, property crimes, violent crimes, and corruption - bribery crimes. Murder, disappearances, torture, conflicts, and terrorism-related injuries and deaths are not included in this index (NUMBEO, 2024).

As put into words in the literature review section, the theoretical framework in this study is democratic peace theory. The democratic peace theory is not concerned with developing propositions on crime and safety parameters at the national level. However, whether the extension of the propositions of this theory is statistically significant is evaluated in this study. For example, Albright and Jomaa's (2017) evaluation titled "Democracy Remains the Best Path to

Security" is remarkable. In their assessment, Albright and Jomaa (2017) express their trust in democracy as follows: Powerful democracies avoid warfare with each other and possess much lower levels of internal conflict, fatal terrorism, attacks against women, violent crime, and poorness. In the initial line of this expression, the fundamental proposition of the theory of democratic peace is followed by the direct proportion between democracy and safety or the inverse proportion between democracy and crime. Therefore, whether the extension of the propositions of this theory is statistically significant is evaluated in this study.

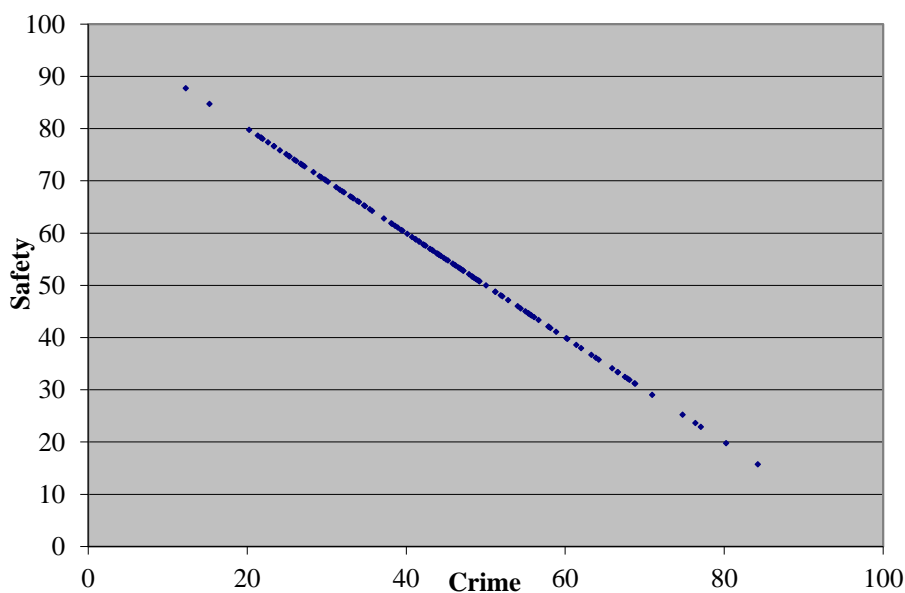


Figure-1. Correlation between Crime and Safety (Figure created by the author based on NUMBEO data)

3. METHOD

This paper will execute a one-way analysis of variance (ANOVA) for independent groups to compare multiple group averages. This analysis is used when variables are measured in more than two independent groups, and it is desired to determine whether the averages of these groups differ significantly from each other. For this analysis, the data must be equally spaced or equally proportional and have a normal distribution.

Since the number of group samples differs and the variances are evenly distributed, Hochberg test results will be considered. The research sample comprises 124 countries for 2021, 122 for 2020, 113 for 2019, and 111 for 2018. This study will use two data sets. Democracy data from the Economist Intelligence Unit (2023; 2022; 2021; 2020; 2019; 2018) will be used for the democracy parameter², and the NUMBEO (<https://www.numbeo.com/crime/rankings.jsp>) data set will be used for the safety parameter.³ The analysis of the data is descriptive-statistical.

Data collection is carried out through the indexes on the sources mentioned above. Country scores in the democracy index are between 0 and 10. According to the democracy index, countries are divided into four categories. The democracy index score between 8.01 and 10 indicates that the countries that get this score are full democracy countries. Similarly, others are countries with flawed democracy between 6.01 and 8.00, hybrid regime between 4.01 and 6.0, and authoritarian regime scoring below 4 (Economic Intelligence Unit, 2022, p. 66-68).

In the safety index, the country grades are between 0 and 100. The safety index, in which the concept of crime is in a perfect negative relation, does not include the following crimes. 1) Homicide and 2) disappearances, conflicts, and terrorism (disappearances, violent conflicts, organized conflicts, terrorism fatalities, terrorism injuries, freedom from torture, and freedom from political killings. Safety index includes crimes such as safe alone daylight, safe alone night, home broken, mugged robbed, car stolen, attacks, insults concerning skin, ethnicity and/or religion, drugs, property crimes, violent crimes, corruption – and bribery (NUMBEO, 2022).

Two other approaches that have a discursive similarity to democratic peace theory and make explicit or implicit reference to each other are the Bush Doctrine and democracy promotion. Washington Post columnist Charles Krauthammer used the term Bush Doctrine on June 4, 2001, to describe the United States' unilateral withdrawal from the Anti-Ballistic Missile Agreement and the Kyoto Protocol. However, the concept in question went through three stages, again with Krauthammer's determination. These follow an order as follows. 1) After the September 11 attacks, Bush said that you are either with us or with the terrorists. From today, any nation that goes on to harbour or promote terrorism will be viewed by the United States as an adversary regime. It was then used for an ultimatum given to Pakistan not to support the Taliban and to

support the United States for an attack on Afghanistan. 2) Upon the emergence of the Iraq War, the utterance of the pre-emptive war doctrine as the primary justification by Bush was described as the Bush Doctrine. 3) Finally, it is used to describe the United States' foreign policy understanding, which reflects an ideal of spreading democracy worldwide, and to describe the Bush years (Krauthammer, 2008; Terzi, 2018, pp. 310-311). The Bush doctrine, on the other hand, is not within the scope of this study as it represents the practical negative examples of democratic expansion at the theoretical level.

Another prominent concept within the framework of definitions related to the democratic peace theory is democracy promotion. For example, Wolff and Wurm (2011, pp. 77-96) evaluate democracy promotion and other theoretical approaches within the framework of utilitarian and normative explanations regarding democratic peace studies. Another exemplary study in this context belongs to Banai (2013, pp. 411-429). However, in terms of the propositions criticized in this study, an evaluation will be made within the framework of the democratic peace theory, and the theoretical framework of the study will be limited to it. In this sense, democracy promotion is not included in the scope of the study.

4. FINDINGS

Table-1. explains whether the variances are homogeneous or not by years. At the 5 percent significance level, the variances are homogeneous as $p > 0.05$. In other words, since the probability results (p) of Levene statistics values are greater than 0.05, the variances are distributed homogeneously.

Table-1. Test of Homogeneity of Variances

Variable	Criteria	Levene Statistics	Signature (p)	Year
Democracy	Based on Mean	.675	.569	2018
Safety		1.123	.343	
Democracy	Based on Mean	.067	.977	2019
Safety		2.065	.109	
Democracy	Based on Mean	.797	.498	2020
Safety		.837	.476	

Democracy	Based on Mean	2.315	.079	2021
Safety		.550	.649	
Democracy	Based on Mean	2.616	.054	2022
Safety		.510	.676	

Since the variances are homogeneous, looking at the ANOVA results to understand whether the difference between the groups is statistically significant, the following results emerge (Table 2). Table 2 displays a statistically significant difference between the 2020, 2021 and 2022 groups. For 2018, there is a statistical difference between the groups at the 10 percent significance level. For 2019, there is no statistically significant difference between the groups. However, ANOVA indicates whether there is a statistically significant difference between the groups as a whole, but it does not tell which groups have a difference. A different test is needed for this. One of the tests that can be used if the variances are homogeneous but the number of groups is different is the Hochberg test, as mentioned in the methodology section. Detailed results according to the Hochberg test are included in the Appendices.

Table-2. ANOVA Results

Between Groups	Sum of Squares	Mean Square	F	Signature
2018				
Democracy	422.929	140.976	400.719	.000
Safety	1722.294	574.098	2.618	.055
2019				
Democracy	451.495	150.498	407.715	.000
Safety	1391.884	463.961	1.907	.133
2020				

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Democracy	493.702	164.567	479.046	.000
Safety	2483.934	827.978	3.549	.017
2021				
Democracy	544.535	181.512	407.301	.000
Safety	2601.315	867.105	4.034	.009
2022				
Democracy	648.148	216.049	485.887	.000
Safety	2408.312	802.771	3.794	.012

According to 2018 data (Appendix A), there is only a statistical difference between Full Democracy and Hybrid Regime within the 95 percent confidence interval. According to 2019 data (Appendix B), there is no significance between the groups in the 95 percent confidence interval. However, if it is accepted that the variances are not evenly distributed, there is a statistical difference between Full Democracy and Hybrid Regime according to the Games-Howell test results (Appendix C). According to 2020 data (Appendix D), there is a statistical difference between Full Democracy and Flawed Democracy and Hybrid Regime within the 95 percent confidence interval. According to 2021 data (Appendix E), there is a statistical difference between Full Democracy and Flawed Democracy and Hybrid Regime within the 95 percent confidence interval. According to 2022 data (Appendix F), there is only a statistical difference between Full Democracy and Hybrid Regime within the 95 percent confidence interval.

The results show a statistically significant difference in the Full Democracy country group. This group covers Austria, Denmark, Finland, France, Germany, Iceland, Ireland, Luxemburg, Netherlands, Norway, Sweden, Switzerland, and the United Kingdom from Europe. Australia and New Zealand are from the Oceania group, Canada, Chile, Costa Rica, Uruguay are from the American continent group, Republic of Korea, Japan, Taiwan are from the Asian country group, and Mauritius is from the African country group.

The data not only suggest that crime is a universal issue but also highlight the significant influence of factors such as high-income level, wealth, education, and low population density on crime rates. Table 3 below provides a comprehensive overview of selected information for countries in the Full Democracy country group. It's interesting to note that there have been minor changes among the countries in this group over the years. For instance, France demonstrates a certain degree of flexibility and can be classified into a subgroup, namely the Flawed Democracy group. However, this group includes the countries listed in the table below. It is important to mention that currently the World Bank does not have information regarding Costa Rica and Taiwan, and the available information about Taiwan is based on Chinese sources.

Table-3. Country Profiles by Selected Indicators

Country	Population (2022)	Human Capital Index (2020)	GDP per capita (US dollars) (2022)	Unemployment (% of total labour force by 2023)
Australia	26,005,540	0.8	65,099.80	3.6
Austria	9,041,851	0.7	52,084.70	5.3
Canada	38,929,902	0.8	55,522.40	5.4
Chile	19,603,733	0.7	15,355.50	9.1
Denmark	5,903,037	0.8	67,790.10	4.8
Finland	5,556,106	0.8	50,871.90	7.7
France	67,971,311	0.8	40,886.30	7.1
Germany	83,797,985	0.8	48,718.00	3.0
Iceland	382,003	0.7	73,466.80	3.1
Ireland	5,127,170	0.8	103,983.30	4.5
Japan	125,124,989	0.8	34,017.30	2.6
Luxemburg	653,103	0.7	125,006.00	5.3
Mauritius	1,262,523	0.6	10,256.20	4.9
Netherlands	17,700,982	0.8	57,025.00	3.5
New Zealand	5,124,100	0.8	48,418.60	3.7
Norway	5,457,127	0.8	108,729.20	3.5
South Korea	51,628,117	0.8	32,422.60	2.7
Sweden	10,486,941	0.8	56,424.30	7.7
Switzerland	8,775,760	0.8	93,259.90	3.8
Taiwan	23,264,640	No Data	32,625.00	3.3
United Kingdom	66,971,395	0.8	46,125.30	4.4
Uruguay	3,422,794	0.6	20,795.00	8.4

Source: Data extracted from the World Bank (2024) and National Statistics, Republic of China (Taiwan) (2024).

CONCLUSION

This paper has used the mean differences for independent groups to evaluate whether there is a relationship between democracy and safety. It has implemented a one-way analysis of variance (ANOVA) for independent groups to compare multiple group averages. When the 5-year data between 2018 and 2022 is analysed, this is a distinctive feature of full democracy.

According to 2018 data, there is only a statistical difference between Full Democracy and Hybrid Regime. According to 2019 data, there is no significance between the groups. However, if it is accepted that the variances are not distributed equally, there is still a statistical difference between Full Democracy and Hybrid Regime according to the Games-Howell test results. According to 2020 data, there is a statistical difference between Full Democracy and Flawed Democracy and Hybrid Regime. According to 2021 data, there is a statistical difference between Full Democracy and Flawed Democracy and Hybrid Regime. According to 2022 data, there is only a statistical difference between Full Democracy and Hybrid Regime. These results are obtained with a 95 percent confidence interval. Table 4 summarizes the results in terms of the study's hypothesis. To reiterate, the alternative hypothesis (H_1) displays that there is a statistically significant difference between the democracy subgroups in the context of safety. In this context, there is *mostly* a statistically significant difference between the democracy subgroups in the context of safety, and this difference is in favour of full democracy as appendices make clear.

Table-4. Hypothesis Results

Year	Null Hypothesis (H_0)	Alternative Hypothesis (H_1)
2018	X	√
2019	√	X
2020	X	√
2021	X	√
2022	X	√

Although the data indicate that crime is universal, they also point that high-income levels, wealth, education, and low population density have a positive effect on crime. However, the reader should keep in mind that the evaluations

here are valid for crimes such as theft, violence, bribery, and so forth included in the safety index.

In the light of the data in question, the extended propositions of democratic peace theory cannot be ignored. In other words, the proposition that the spread of democracy will increase safety may be justified, but this may only be valid for full democracies and countries with the characteristics required by full democracy.

NOTES

1. For details of selected studies in this context, see Hamlett (2003, pp. 112-140), Schemel (2000, pp. 99-120), Schwartz and Fayer (2006, pp. 292-328), Novak (2007, pp. 87-101), Sloam (2008, pp. 509-524), Ungurenau (2008, pp. 405-429), Aslaksen (2010, pp. 421-431), Davis (2010, pp. 91-97), Grace (2012, pp. 500-506), Balaev (2014, pp. 311-330), Choi and James (2014, pp. 899-926), Kayama and Narukawa (2014, pp. 436-443), Kreiss (2015, pp. 1-11), Tocqueville (2016), Avilés and Celis (2017, pp. 4-12), Olatunji (2013, pp. 67-79), Sartori (2017), Uygun (2017), Burns (2020, pp. 246-249), Zafirovski (2020, pp. 252-302), Nadeau, Daoust and Dassonneville (2021, pp. 1-18), (2021), Wesche (2021, pp. 65-68), Fernandez (2022, pp. 274-276).

2. In the literature, there are studies on the success and quality of democracy indices and whether democracy can actually be measured, and which one can be preferred (Knutsen, 2010, pp. 109-128; Alexander, Inglehart and Welzel, 2011, pp. 41-62; Geissel, Kneuer and Lauth, 2016, pp. 571-579; Kneuer, 2016, pp. 666-678; Pickel, Breustedt and Smolka, 2019, pp. 645-655; Boese, 2019, pp. 95-127). In this study, Economist Intelligence Unit (EIU) index data with more samples (countries), also clearly cited and referenced by wide circles such as the business world, the press, politics, and academia, has been studied without entering into these discussions.

3. The safety parameter of the NUMBEO index represents the exact equivalent of the crime element. There is currently no alternative index replacing NUMBEO regarding the safety index. Current literature discussions on the safety index are also shaped by topics such as traffic, food, and health (drug use). For such studies, see, for example, Kweon and Kim (2009, pp. 13-19), Tadic, Savovic, Misita, Arsovski, and Milanovic (2012, pp. 3-13), Kayama and Narukawa (2014, pp. 436-443). In this sense, for the study, NUMBEO (<https://www.numbeo.com/crime/rankings.jsp>) provides a more suitable data

set for the safety parameter, which is in perfect negative correlation with the crime variable.

APPENDICES

APPENDIX-A

Multiple Comparisons for 2018

Dependent Variable	(I) Category	(J) Category	Mean Difference (I-J)	Significance
Hochberg	1	2	7.19122	.360
		3	12.62100*	.037
		4	7.86782	.421
	2	1	-7.19122	.360
		3	5.42978	.627
		4	.67660	1.000
	3	1	-12.62100*	.037
		2	-5.42978	.627
		4	-4.75318	.861
	4	1	-7.86782	.421
		2	-.67660	1.000
		3	4.75318	.861

1 means full democracy

2 means flawed democracy

3 means hybrid regime

4 means authoritarian regime

* The mean difference is significant at the 0.05 level.

APPENDIX -B

Multiple Comparisons for 2019

Dependent Variable	(I) Category	(J) Category	Mean Difference (I-J)	Significance
Hochberg	1	2	6.97403	.417
		3	11.00892	.127
		4	7.52356	.481
	2	1	-6.97403	.417
		3	4.03489	.905
		4	.54953	1.000
	3	1	-11.00892	.127
		2	-4.03489	.905
		4	-3.48536	.973
	4	1	-7.52356	.481
		2	-.54953	1.000
		3	3.48536	.973

1 means full democracy

2 means flawed democracy

3 means hybrid regime

4 means authoritarian regime

* The mean difference is significant at the 0.05 level.

APPENDIX -C

Multiple Comparisons for 2019

Dependent Variable	(I) Category	(J) Category	Mean Difference (I-J)	Significance
Games-Howell	1	2	6.97403	.183
		3	11.00892*	.025
		4	7.52356	.304
	2	1	-6.97403	.183
		3	4.03489	.726
		4	.54953	.999
	3	1	-11.00892*	.025
		2	-4.03489	.726
		4	-3.48536	.875
	4	1	-7.52356	.304
		2	-.54953	.999
		3	3.48536	.875

1 means full democracy

2 means flawed democracy

3 means hybrid regime

4 means authoritarian regime

* The mean difference is significant at the 0.05 level.

APPENDIX -D

Multiple Comparisons for 2020

Dependent Variable	(I) Category	(J) Category	Mean Difference (I-J)	Significance
Hochberg	1	2	10.91114*	.033
		3	13.49739*	.022
		4	9.22222	.179
	2	1	-10.91114*	.033
		3	2.58625	.986
		4	-1.68892	.998
	3	1	-13.49739*	.022
		2	-2.58625	.986
		4	-4.27517	.902
	4	1	-9.22222	.179
		2	1.68892	.998
		3	4.27517	.902

1 means full democracy

2 means flawed democracy

3 means hybrid regime

4 means authoritarian regime

* The mean difference is significant at the 0.05 level.

APPENDIX -E

Multiple Comparisons for 2021

Dependent Variable	(I) Category	(J) Category	Mean Difference (I-J)	Significance
Hochberg	1	2	10.52682*	.041
		3	14.58744*	.007
		4	10.55425	.070
	2	1	-10.52682*	.041
		3	4.06063	.845
		4	.02744	1.000
	3	1	-14.58744*	.007
		2	-4.06063	.845
		4	-4.03319	.892
	4	1	-10.55425	.070
		2	-.02744	1.000
		3	4.03319	.892

1 means full democracy

2 means flawed democracy

3 means hybrid regime

4 means authoritarian regime

* The mean difference is significant at the 0.05 level.

APPENDIX -F

Multiple Comparisons for 2022

Dependent Variable	(I) Category	(J) Category	Mean Difference (I-J)	Significance
Hochberg	1	2	6.90114	.324
		3	13.81250*	.006
		4	8.03007	.201
	2	1	-6.90114	.324
		3	6.91136	.294
		4	1.12893	1.000
	3	1	-13.81250*	.006
		2	-6.91136	.294
		4	-5.78243	.540
	4	1	-8.03007	.201
		2	-1.12893	1.000
		3	5.78243	.540

1 means full democracy

2 means flawed democracy

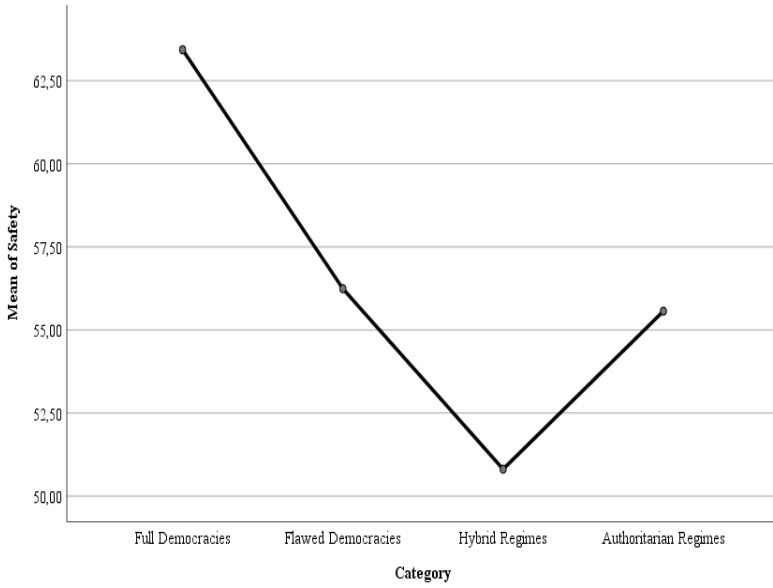
3 means hybrid regime

4 means authoritarian regime

* The mean difference is significant at the 0.05 level.

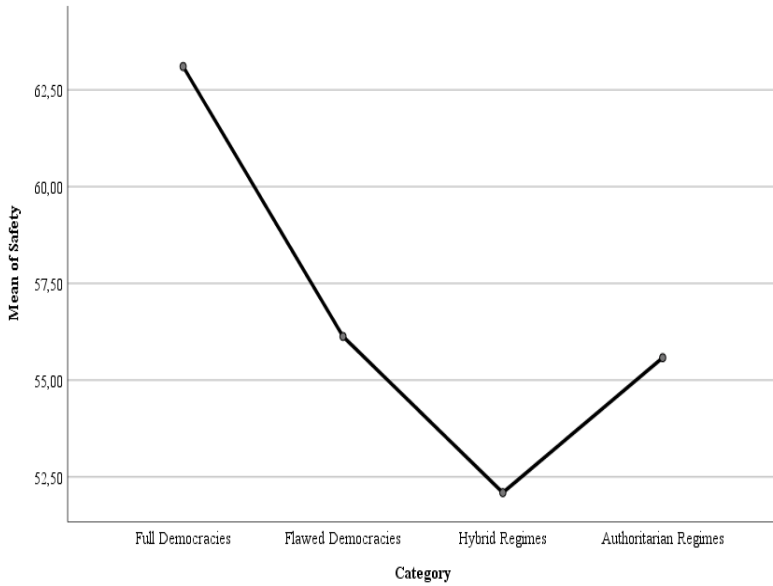
APPENDIX -G

Mean Plot for 2018



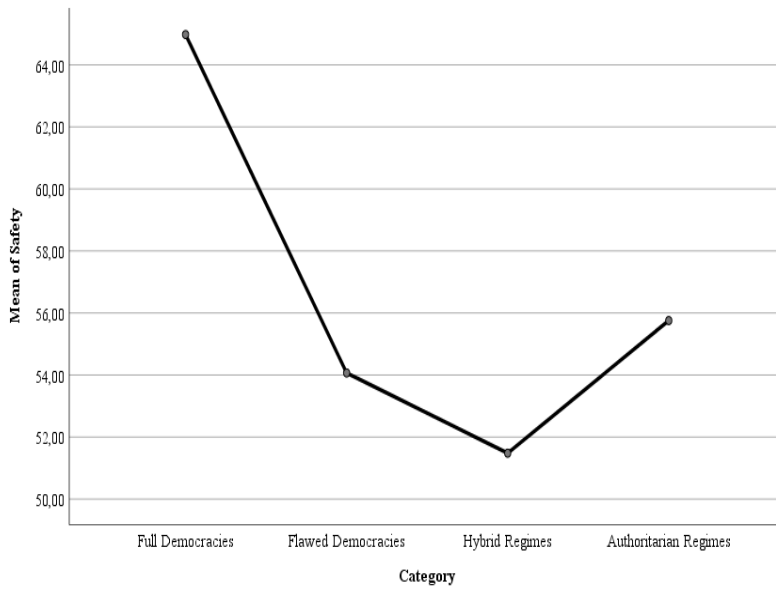
APPENDIX -H

Mean Plot for 2019



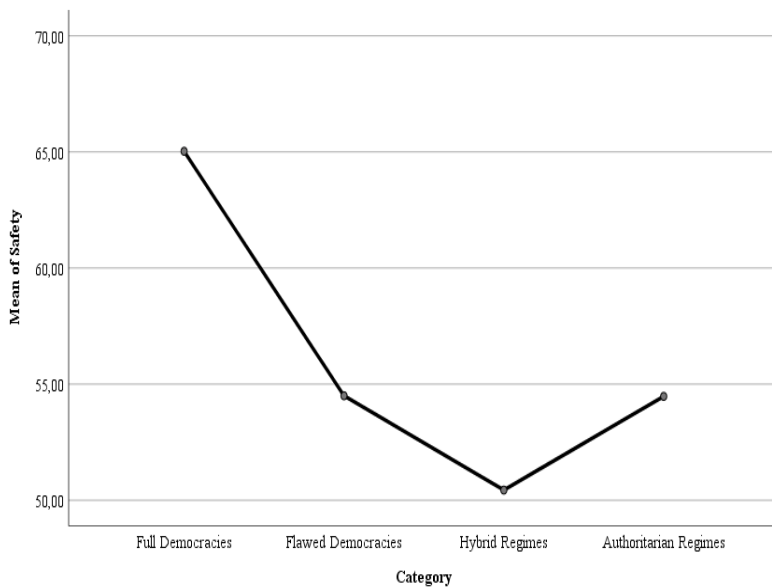
APPENDIX -I

Mean Plot for 2020



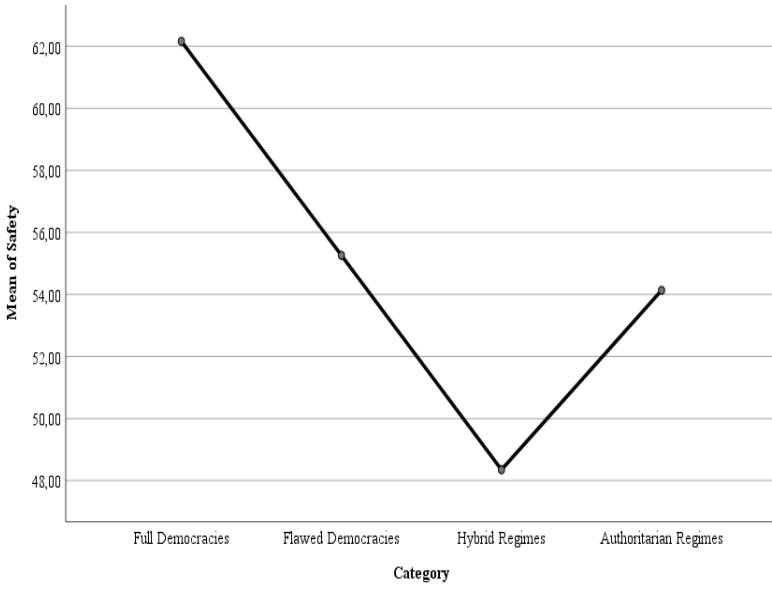
APPENDIX -J

Mean Plot for 2021



APPENDIX -K

Mean Plot for 2022



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