

Understanding Consumer Behavior in Kuching's Black Market Gambling: The Psychological, Economic, and Regulatory Impacts of Illicit Gambling Markets

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ABSTRACT

This study investigates the social, psychological, economic, and regulatory elements that influence Kuching, Sarawak, residents' involvement in illegal gaming. Using a non-probability purposive sampling technique and a structured questionnaire, data were gathered from 366 respondents. To get a wide variety of respondents, the survey was administered online. Key findings show that social influence, financial difficulty, and psychological pressure all strongly influence gambling behavior, with accessibility to illicit internet gambling platforms appearing as a key contributing factor. The study also shows that the problem is made worse by lax regulatory enforcement, which lets players bet with little concern about potential legal consequences. Regression analysis shows that both psychological health and economic stability are significantly harmed by consumer involvement in black market gaming. To address the root reasons of gambling habits, the study suggests community-based initiatives, economic interventions, the creation of legal alternatives, and more stringent regulation and oversight of online gaming platforms.

1. Introduction

Throughout centuries, gambling has been an integral part of societies throughout the world. Both legal and illegal gambling are driven by internal human motivations such as excitement, risk and monetary rewards. Despite government regulations and taxes which make gambling legal, there are large fraction of gambling activities that are ongoing outside the jurisdiction of authorities. Black market gambling not only evades government surveillance and taxation, but it also increases the risks of addiction, fraud and financial implications for participants. These issues are widespread in several regions throughout the world, including Southeast Asia, where gambling is a strong part of the culture despite strict rules and regulations (Wardle et al., 2021; Newall & Rockloff, 2022).

There are only few options for legal gaming and strict gambling rules in Malaysia. However, the ease of digital access, cultural attitudes, and discontent with regulated gambling choices have all contributed to the growth of the illegal gambling sector. Controlling illicit gaming activities, which are frequently connected to organized crime and money laundering, is therefore extremely difficult in the region. The shadow economy that the illegal gaming industry produces endangers both legitimate companies and the general welfare of society (Newall & Rockloff, 2022; Gorenko, 2024).

Policymakers aiming to halt the growth of illegal gambling must comprehend consumer behavior regarding gaming on the black market. According to research, people are frequently drawn to unregulated markets by a variety of psychological characteristics, including risk tolerance, thrill-seeking behavior, and financial desperation (Lopez-Gonzalez, 2024). Furthermore, customers may unintentionally turn to the black market in quest of easier-to-access or laxer gaming options due to stringent legal frameworks. Research conducted in nations with comparable regulatory frameworks indicates that increasing limitations on legal markets may lead to a rise in illicit gambling activity, worsening public health concerns and fueling social problems such as addiction and family dissolution (Gorenko, 2024).

In Sarawak, the government has implemented several measures aimed at regulating illicit gaming activities, both in-person and online. The number of people participating in illegal gambling is nevertheless rising despite these measures, especially with the emergence of digital platforms that make it easier for gamblers to access unlawful gaming and betting websites. Since these platforms, which are frequently hosted offshore, offer anonymity and elude local law enforcement, it is challenging to effectively control the industry. In addition to being vulnerable to possible fraud, customers who engage in these activities do not have access to the safeguards provided by facilities that are licensed to conduct gambling, such as dispute resolution procedures and assistance for problem gamblers (Newall & Rockloff, 2022).

The main motivation behind this research is the increasing incidence of illicit gambling in Kuching, Sarawak, which presents hazards to the local economy and society. Economically speaking, the black market takes money out of the legal economy, which has an impact on taxes and the application of regulations. Socially, the absence of consumer protection in the illegal market contributes to a rise in gambling addiction and bankruptcies. To effectively design interventions that strike a balance between consumer freedom and public welfare, it is imperative to comprehend the reasons behind consumers' decisions to engage in unlawful gambling despite the associated risks, as well as how regulatory rules influence their choices.

This study intends to close the research gap by concentrating on Kuching, Sarawak, specifically on consumer behavior in the black market gambling sector. Below are the specific research objectives:

1. To determine the factors influencing consumer participation in black market gambling in Kuching, Sarawak.
2. To examine the relationship between rules and regulations with consumer decision-making in black market gambling in Kuching, Sarawak.
3. To assess the economic and psychological impact of black market gambling on consumers in Kuching, Sarawak.

2. Literature review

2.1 Black market gambling

The unregulated gambling market, or "black market," describes the activities of gambling providers that do not have licenses in certain jurisdictions and are not subject to regulatory scrutiny (International Association of Gaming Regulators, 2024). These activities flourish as governments enforce stricter laws on

legal gambling, driving demand for illicit alternatives. Black market gambling encompasses a wide range of activities, including underground casinos, illegal sports betting rings, and unregulated online gambling platforms. An infamous example is the large-scale illegal sports betting operations tied to organized crime syndicates in Southeast Asia, which manage billions in illicit transactions during major global sporting events like the FIFA World Cup (Wardle et al., 2021). These networks bypass legal frameworks, taking advantage of weak regulatory enforcement, particularly in developing nations.

Another key area of concern is the rise of offshore online gambling platforms, which target users across borders without adhering to local regulations. For instance, many operators based in countries with lenient gambling laws (such as the Philippines) serve international markets, including the U.S. and Europe, through digital channels, evading local taxation and regulatory requirements (Tak et al., 2023). These platforms are particularly difficult to regulate because they exploit jurisdictional loopholes, making enforcement efforts by local authorities ineffective.

The rapid growth of illegal online gambling has been further fueled by the COVID-19 pandemic, which saw a significant shift in gambling behaviors. With physical casinos and betting shops closed, a large portion of the gambling market migrated online, significantly expanding the black market's reach (Mykhailov & Savina, 2023). This shift was especially noticeable in regions like Europe and North America, where unregulated online platforms saw a surge in users during the lockdowns. In Australia, for example, research revealed that illegal offshore gambling websites saw a sharp increase in traffic during the pandemic, particularly from users looking to engage in sports betting, poker, and casino games (Sproston et al., 2021). These platforms offer little to no player protections, exposing consumers to fraud, unregulated payment systems, and addiction risks.

In Africa, the combination of widespread internet access and high unemployment rates has led to a booming illegal gambling market, particularly in countries like Nigeria and South Africa. Unregulated mobile gambling applications have become popular, luring users with promises of quick financial gain (Bitanihirwe et al., 2022). The prevalence of these platforms not only undermines local economies by diverting funds away from the formal sector but also contributes to widespread gambling addiction, particularly among vulnerable populations.

Given the global nature of black market gambling, enforcement challenges are significant. Governments struggle to combat these illicit operations, particularly those conducted online, due to the anonymity and cross-border nature of internet-based gambling. This dual challenge of accessibility and anonymity underscores the need for a global response to strengthen regulatory frameworks and reduce the appeal of illegal gambling platforms (Weidner, 2022). Tackling the black market requires international collaboration, as evidenced by ongoing efforts in Europe and the U.S., where regulators are working together to track and shut down illegal gambling websites (Newall & Rockloff, 2022). Without coordinated action, the black market will continue to thrive, exploiting regulatory gaps and consumer vulnerabilities.

2.2 Consumer behavior in gambling

The application of computational modeling techniques, such as drift diffusion modeling and reinforcement learning, has offered a modern lens through which we can analyze both compulsive and normative gambling behavior (Hales et al., 2023). These models provide valuable insights into decision-making processes, particularly in conditions of uncertainty, which is a common feature of gambling environments. For example, reinforcement learning demonstrates how gamblers adapt their behavior based on the perceived rewards and penalties they encounter, which helps explain why individuals continue to gamble despite frequent losses—believing that past losses will eventually lead to future gains. Drift diffusion modeling, on the other hand, shows how gamblers gather and process information over time,

influencing whether they make riskier or more conservative bets depending on factors like mood, stakes, and time pressure.

Psychological factors play a pivotal role in shaping gambling behavior and often evolve with time. The motivation to gamble can stem from various internal drivers, such as enjoyment, financial goals, or even as a mechanism to regulate mood. Problem gamblers often gamble as a coping mechanism for emotional distress, using gambling to alleviate negative feelings like anxiety or depression (Neophytou et al., 2023; Thurm et al., 2022). This suggests that mood regulation is central to gambling addiction for certain demographic groups, especially those with pre-existing emotional or psychological vulnerabilities. The interplay of psychological traits such as impulsivity and cognitive distortions, including the gambler's fallacy and illusions of control, further fuels gambling addiction. These distortions make individuals believe that they can influence random outcomes, pushing them to continue gambling in pursuit of "winning back" losses, a phenomenon often referred to as "chasing losses" (Goodin, 2024).

The relationship between environmental triggers and innate personality traits is equally important in explaining consumer behavior in gambling. Problem gambling often arises from a combination of contextual triggers, such as the availability of gambling opportunities or sudden financial stress, and inherent psychological tendencies like risk-seeking or impulsiveness. These psychological processes are reinforced in environments that offer easy access to gambling, especially with digital platforms that make gambling available 24/7, thereby fostering compulsive behavior through constant exposure.

Economic factors also significantly influence gambling behavior. Economic incentives, such as the allure of financial gain, are potent motivators, particularly in the context of online gambling where ease of access and anonymity increase the likelihood of participation (Fadhillah et al., 2023). Research highlights that financial desperation often drives individuals to gamble despite the awareness of potential losses, hoping that gambling will offer a quick financial fix. This is especially true in socioeconomically disadvantaged regions where financial instability is prevalent. For example, studies conducted in Turkey show that lower household income is strongly associated with higher gambling prevalence, as individuals from poorer backgrounds are more likely to perceive gambling as an opportunity to improve their financial situation (Güney et al., 2022).

This underscores the critical link between economic pressure and gambling behavior, as individuals in financially precarious situations are more inclined to engage in risky activities in the hope of attaining short-term gains. Furthermore, gambling's persistent nature is often fueled by loss aversion, where gamblers, driven by the fear of acknowledging their losses, continue gambling to recover what they perceive to be lost opportunities. This cycle often exacerbates financial distress, as individuals are willing to take on increasingly higher risks in a desperate attempt to recover their losses.

The social context is another key driver of gambling behavior. Social acceptance of gambling within a community can normalize participation, as seen in regions where gambling is viewed as a common social activity. Research in Turkey demonstrates that factors such as household welfare, regional disparities, and even spousal substance abuse can encourage gambling (Güney et al., 2022). For instance, a marital partner's substance use may destabilize household dynamics, creating conditions conducive to problem gambling. Additionally, social influences, including peer pressure and exposure to gambling within close-knit social circles, can increase participation, especially in environments where gambling is seen as culturally or socially acceptable.

On the psychological front, research by St Quinton et al. (2022) highlights that frequent gamblers tend to believe less in free will and experience a reduced sense of personal control. This diminished agency leads to more impulsive behavior, with gamblers feeling less responsible for their actions, which in turn contributes to the persistence of gambling. The social learning theory further supports this, suggesting that

individuals are more likely to engage in behaviors that they observe and see as socially validated within their communities. Hence, the combination of social reinforcement and individual cognitive distortion creates a complex, self-reinforcing cycle that sustains gambling behavior.

Taken together, gambling behavior is the result of an intricate web of psychological, economic, and social factors. Understanding these behavioral dynamics requires acknowledging both individual psychological predispositions and broader environmental triggers, such as financial instability or social pressures. Interventions aimed at reducing problem gambling must therefore address the holistic nature of these behaviors, targeting not just the individual but also the structural and social conditions that contribute to the persistence of gambling.

2.3 Factors driving participation in black market gambling

The psychological underpinnings of unlawful gambling are clarified by recent studies. One important component is the propensity for taking risks, which has been strongly correlated with participating in illicit gambling (Seo & Song, 2023). Despite possible legal repercussions, people with high risk-taking tendencies are more inclined to partake in unlawful gambling. It's interesting to note that knowledge of the illegality of such activities can serve as a deterrent, implying that knowledge of the consequences of breaking the law may lessen the likelihood that certain people will engage in illicit gambling. Not to mention, impulsivity and a lack of planning are important psychological traits associated with criminal activity in gamblers (Grant & Chamberlain, 2022). According to research by Mestre-Bach (2018), those who act impulsively and without carefully considering the implications are more likely to engage in unlawful gambling activities. This tendency toward impulsivity along with a predisposition to take risks results in a psychological profile that makes it more likely to partake in illegal gambling activities. These results highlight the necessity of focused interventions to successfully address psychological predispositions and legal repercussions awareness in the fight against unlawful gambling.

Economic factors have a substantial impact on engaging in unlawful gambling, according to recent studies. Monarca et al. (2022) have noted that those with lower income and education levels are more likely to participate in unlawful gambling. In a similar vein, Chava et al. (2022) found that areas with greater unemployment rates, poorer incomes, and lower educational attainment paid more attention to cryptocurrency token offers. Sonsuphap (2022) discovered that the main contributors to illegal lotteries in Thailand were lower-class individuals, including farmers and sellers with poor incomes and levels of education. For people who are struggling financially, illegal gambling is an alluring choice because financial hardship frequently magnifies the attractiveness of quick financial benefits. In addition to fueling illegal gambling, the need for cash resources is a potent incentive that also connects unlawful activities like wildlife trafficking. As demonstrated by Kassa et al. (2021), those who indulge in illicit gaming do so to ease their financial hardship, which is a similar reason to that of wildlife trafficking. The need for financial stability motivates both illegal gambling and wildlife trafficking, pointing to a larger trend of economic forces promoting engagement in multiple illicit activities. These observations highlight the necessity of tackling fundamental economic problems to reduce engagement in illicit activities and encourage more viable, lawful options for advancing one's financial situation.

Several social elements that encourage engagement in illegal gambling are highlighted by recent research: online communities play a central role in spreading gambling behaviors, with active users more likely to be at-risk or problem gamblers (Savolainen et al., 2022); and young men's online wagering practices are shaped by social networks, peer belongingness, and perceived competencies (Nyemcsok et al., 2022). Significant determinants of involvement in illegal gambling activities include age, religiosity, and severity of gambling (Bonny-Noach, 2022). Younger people and those who identify as less religious are more likely to engage in unlawful gambling since these characteristics are linked to a lack of moral and social constraints (Calado et al., 2023). Furthermore, the intensity of current gambling issues may make it

more likely that people would turn to illicit means of funding their gambling habits. By making it easy to access illicit gambling sites and encouraging compulsive gambling habits across national borders, the internet environment exacerbates these problems even further (Oksanen et al., 2021). Online gambling's accessibility and anonymity make it simpler for people to participate in illicit activity without being discovered right away. All the above studies show how social determinants, and the online environment interact to influence unlawful gambling and emphasize the necessity for all-encompassing measures that address social determinants as well as the unique risks connected to online gambling platforms.

2.4 Impact of regulatory framework on black market gambling

In numerous jurisdictions, it has been demonstrated that stricter gambling laws significantly lower overall gambling participation. One famous instance is the 2007 slot machine ban in Norway, which resulted in a precipitous drop in gambling activity. Slot machine usage was very common before the ban, and gambling addiction was growing. The action of the Norwegian government, which involved taking away all slot machines, resulted in a major decrease in the amount of gambling chances available, which in turn led to a decrease in the number of players (Engebø et al., 2021). This is consistent with the more general argument that limiting access to gaming can lower participation by making it harder for customers to partake in gambling activities. Analogous results have been noted in more regulated markets (Weidner, 2022; Sichali et al., 2022). By raising barriers to entrance for customers, stricter advertising limits, age limitations, and licensing requirements all help to reduce the frequency of gambling overall. Additionally, by limiting exposure to gambling triggers, these laws make it more difficult for casual or impulsive gamblers to participate.

However, strict gambling rules may have the unintended effect of discouraging certain customers from seeking out illegal alternatives. Research indicates that in situations where there are insufficient legal gambling options, some people, especially high-risk or regular gamblers, are more likely to resort to illicit gambling activities to satisfy their gambling cravings (Wardle et al., 2021). Because there is frequently less regulation over these black markets, customers may be more vulnerable to scams, unfair business practices, and a lack of safeguards for problem gamblers. The way the business portrays more regulation as something that could spur the expansion of the black market draws attention to how enforcement and consumer freedom must coexist in a delicate balance. Operators and proponents of gambling contend that unduly restrictive legislation drives gambling underground, where it is more difficult to police and regulate, in addition to reducing legal income. Strict gambling rules have been associated with an increase of unlicensed gaming platforms, particularly online, in highly regulated nations like Sweden and Norway (Engebø et al., 2021). These platforms bypass national restrictions, hence anyone looking for less regulated betting conditions can access them.

2.5 Economic and psychological implications of black market gambling

Since illegal gambling is conducted in secret, it is challenging to gauge its scope and effects on society and the economy (Chopin et al., 2024). Accurate data gathering is practically impossible because these operations are uncontrolled and frequently run in the shadows, preventing them from being discovered by the authorities (Sonsuphap, 2022). Many of the social and economic repercussions of illegal gambling, including addiction, unstable finances, and involvement in organized crime, remain unreported due to this lack of openness. Illegal gambling does not contribute to the formal economy, depriving governments of important tax revenue and diminishing the efficacy of public policy measures. Due to the wide accessibility of illicit internet gambling in South Korea, there has been a rise in addiction rates and financial losses (Yun, 2022). The accessibility and anonymity of these platforms have posed challenges for regulatory organizations seeking to effectively curb illicit gambling operations. As a result, this has helped disadvantaged populations accept the negative effects of gaming. Hence, recommendations have been made

for regulatory authorities to have more investigative powers and to develop online services for legal gaming alternatives (Yun, 2022).

The significant psychological effects of unlawful gambling have been highlighted by recent studies (Grant & Chamberlain, 2022; Thurm et al., 2023), especially for those who suffer from gambling disorders. Research indicates that there is a strong correlation between illicit gambling and crimes related to gaming, which exacerbates the severity of gambling addiction. People who gamble illegally frequently experience more severe depressive symptoms, an earlier onset of symptoms, and a lower quality of life (Grant & Chamberlain, 2022). Higher emotional pain, such as guilt, hopelessness, and worry, is frequently the cause of this illegal action and can exacerbate a person's psychiatric issues. Illegal gambling has far-reaching effects that can harm social and familial ties in addition to the person. As people look for ways to finance their gambling, criminal behaviors like theft and fraud frequently surface, upsetting the balance in the home and starting a vicious cycle of suffering (Adline et al., 2024). These negative social and psychological effects emphasize how urgently focused treatments are needed to address the unique mental health issues related to illicit gaming.

2.6 Conceptual framework and hypotheses

The conceptual framework for this study is shown below:

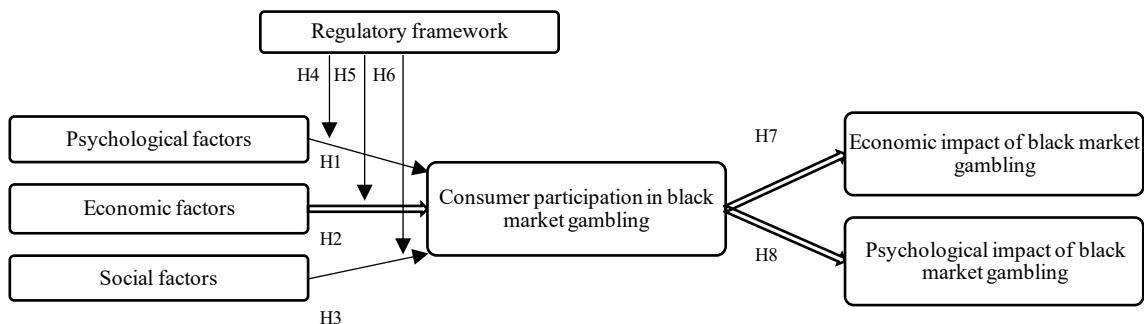


Figure 1. Conceptual framework

Hypotheses are listed below:

- H₁: There is a significant relationship between psychological factors and consumer participation in black market gambling in Kuching, Sarawak.
- H₂: Economic factors significantly influence consumer participation in black market gambling in Kuching, Sarawak.
- H₃: Social factors significantly impact consumer participation in black market gambling in Kuching, Sarawak.
- H₄: The regulatory framework moderates the relationship between psychological factors and consumer participation in black market gambling in Kuching, Sarawak.
- H₅: The regulatory framework moderates the relationship between economic factors and consumer participation in black market gambling in Kuching, Sarawak.
- H₆: The regulatory framework moderates the relationship between social factors and consumer participation in black market gambling in Kuching, Sarawak.

H₇: Consumer participation in black market gambling has a significant impact on economic stability in Kuching, Sarawak.

H₈: Consumer participation in black market gambling has a significant impact on psychological well-being in Kuching, Sarawak.

3. Methodology

3.1 Research design

This study adopts a quantitative research design to examine the factors influencing consumer participation in black market gambling in Kuching, Sarawak, as well as the economic and psychological impacts of such activities. The study also assesses the moderating effect of the regulatory framework on the relationships between psychological, economic, and social factors and consumer participation. A cross-sectional approach was employed, where data will be collected at a single point in time to analyze the variables of interest.

3.2 Population and sampling

The study's population consists of Kuching, Sarawak residents who are at least eighteen years old and have either engaged in or had knowledge of illegal gaming. A non-probability purposive sampling technique was used, making it possible to target particular people who fit the requirements of being at least eighteen years old and have either actively participate in unlawful gambling or possess adequate knowledge of its existence in the society. Targeting a minimum of 350 respondents was necessary to ensure a dependable statistical analysis, as per the Cochran formula. A minimum sample size of 350 respondents was determined to be necessary due to the study's focus on an unknown population proportion (assuming maximum variability, $p = 0.5$), a 95% confidence level, and a 5% margin of error. This figure guarantees sufficient power for statistical analysis, encompassing testing hypotheses and moderating analysis.

3.3 Data collection

A structured questionnaire was developed and used to collect primary data. The questionnaire, which was distributed online through social media and messaging applications, consisted of seven sections:

1. Demographic information – age, gender, income, education level
2. Psychological factors – risk perception, addiction, peer influence
3. Economic factors – income level, affordability, economic stress
4. Social factors – cultural norms, social acceptance
5. Regulatory frameworks – awareness of regulations, perception of enforcement
6. Consumer participation – frequency of gambling, types of games
7. Economic and psychological impact – financial losses, stress levels, mental health indicators

3.4 Ethical considerations

Several ethical safeguards were taken because the study on illegal gambling was sensitive. The goal of the study, the fact that participation was optional, and the option to withdraw at any moment were all explained to the respondents. Since no personally identifiable information was gathered, the data will stay anonymous. Data was only utilized for study and was safely kept. The data analysis tool used in this study is the Statistical Package for the Social Sciences or SPSS version 27.

4. Findings

4.1 Demographic characteristics of respondents

A total of 366 respondents participated in this study, providing insight into the consumer behavior surrounding black market gambling in Kuching, Sarawak.

Table 1. Demographic characteristics of respondents

Variable	Categories	Frequency (n)	Percentage (%)
Age	18–24	11	3.0
	25–34	84	23.0
	35–44	100	27.3
	45–54	111	30.3
	55 and above	60	16.4
Gender	Male	344	94.0
	Female	22	6.0
Highest Level of Education	No formal education	14	3.8
	Primary school	60	16.4
	Secondary school	122	33.3
	Diploma	84	23.0
	Bachelor's degree	86	23.5
Monthly Income	Below RM1,000	60	16.4
	RM1,001–RM3,000	206	56.3
	RM3,001–RM5,000	86	23.5
	RM5,001–RM10,000	14	3.8

4.1 Inferential analysis: testing of hypotheses

4.1.1 Psychological factors and consumer participation (H_1), economic factors and consumer participation (H_2) and social factors and consumer participation (H_3)

A multiple regression analysis was conducted to examine the relationship between psychological, economic and social factors with consumer participation in black market gambling. For H_1 , the model's R value was 0.540, which indicates a moderate positive correlation between the psychological factors composite score and consumer participation in black market gambling. Correlations below 0.40 are typically considered weak, those between 0.40 and 0.70 moderate, and those above 0.70 strong (Schober & Vetter, 2020; Denton et al., 2004; Bohannon, 1992). The regression analysis revealed that the model explained approximately 29.2% of the variance in consumer participation in black market gambling, as indicated by an R^2 value of 0.292. The adjusted R^2 value of 0.290 reflects the model's explanatory power after accounting for the number of predictors. The findings suggest that psychological variables influence consumer engagement in illegal gambling in a moderate but significant way.

For H_2 , the model's R value was 0.738, suggesting a substantial positive correlation between economic factors and consumer participation. The R^2 value of 0.544 indicates that approximately 54.4% of the variance in consumer participation is explained by the economic factors composite score. The adjusted R^2 value of 0.543 accounts for the number of predictors, confirming the model's robust explanatory power

(Table 14). The results indicate that economic factors have a strong and statistically significant influence on consumer participation in black market gambling.

The analysis for H_3 revealed that the model had an R value of 0.331, indicating a moderate positive correlation between social factors and consumer participation. The R^2 value of 0.110 suggests that approximately 11.0% of the variance in consumer participation is explained by the social factors composite score. The adjusted R^2 value of 0.107 reflects a similar explanatory power, accounting for the number of predictors in the model. In comparison to other predictors, the results show that social factors have a considerable but comparatively less impact on consumer engagement in illegal gambling.

Table 6. Model summary for H_1 , H_2 and H_3

Model	R	R Square	Adjusted R Square
H_1	0.540	0.292	0.290
H_2	0.738	0.544	0.543
H_3	0.331	0.110	0.107

The overall regression models were statistically significant, as indicated by the ANOVA results (psychological factors: $F(1, 98) = 149.76$, $p < 0.001$); economic factors: $F(1, 98) = 435.472$, $p < 0.001$); and social factors: $F(1, 98) = 44.82$, $p < 0.001$). This suggests that the psychological, economic and social factors composite score is a significant predictor of consumer participation in black market gambling.

Table 7. ANOVA for H_1 , H_2 and H_3

Source	Sum of Squares	df	Mean Square	F	Sig.
H_1					
Regression	123.456	1	123.456	149.76	<0.001
Residual	297.890	98	3.042		
Total	421.346	99			
H_2					
Regression	231.456	1	231.456	435.472	<0.001
Residual	193.890	98	1.976		
Total	425.346	99			
H_3					
Regression	46.891	1	46.891	44.82	<0.001
Residual	378.455	98	3.860		
Total	425.346	99			

The coefficients for the psychological factors composite score revealed a statistically significant positive effect on consumer participation in black market gambling. The unstandardized coefficient (B) was 0.191, suggesting that for each one-unit increase in psychological factors, consumer participation increased by 0.191 units. The standardized coefficient (Beta) was 0.540, indicating a moderate to strong effect size. The coefficient was significant ($t = 12.238$, $p < 0.001$), confirming that psychological factors are a significant predictor of consumer participation.

For economic factors, the coefficients table indicates a significant positive relationship with consumer participation. The unstandardized coefficient (B) is 0.418, meaning that for every one-unit increase in the economic factors composite score, consumer participation increases by 0.418 units. The standardized coefficient (Beta) is 0.738, reflecting a strong impact of economic factors on consumer participation. The

coefficient is highly significant ($t = 20.847$, $p < 0.001$), supporting that economic factors are a significant predictor of consumer participation (Table 16).

Lastly, the coefficients table shows a positive but relatively weak relationship between social factors and consumer participation. The unstandardized coefficient (B) is 0.157, indicating that each one-unit increase in the social factors composite score results in a 0.157 unit increase in consumer participation. The standardized coefficient (Beta) is 0.331, reflecting a moderate effect size. The coefficient is statistically significant ($t = 6.696$, $p < 0.001$), confirming that social factors significantly predict consumer participation (Table 19).

Table 8. Coefficients for H_1 , H_2 and H_3

Predictor	B	Std. Error	Beta	t	Sig.
Psychological factors	0.191	0.016	0.540	12.238	<0.001
Economic factors	0.418	0.020	0.738	20.847	<0.001
Social factors	0.157	0.023	0.331	6.696	<0.001

4.1.2 Analysis of regulatory framework moderation on the relationship between psychological factors and consumer participation (H_4), of regulatory framework moderation on the relationship between economic factors and consumer participation (H_5) and regulatory framework moderation on the relationship between social factors and consumer participation (H_6)

To investigate whether the regulatory framework moderates the association between psychological, economic and social factors with consumer participation in illegal gambling, a moderation analysis was carried out.

For H_4 , the model explains 44.0% of the variance in consumer participation in black market gambling, according to the R² value of 0.440. This demonstrates the moderate-to-strong ability of psychological variables, the regulatory framework, and their interactions to explain consumer engagement. With the number of predictors considered, the modified R² value (0.435) shows that the model accounts for 43.5% of the variation in consumer engagement. The model appears to fit well and is not overfitted, as indicated by the slight difference between R² and corrected R². As a rule of thumb, a minimal difference of less than 0.01 between R² and adjusted R² suggests that the model generalizes well to other data (Field, 2018).

For H_5 , the model describes 66.8% of the variance in consumer engagement in illegal gambling, according to the R² value of 0.668. This shows that the regulatory framework, economic considerations, and their interactions all play a significant role in explaining consumer engagement. The model is still an excellent match even after taking the number of predictors into account, as evidenced by the adjusted R² value (0.666), which is quite close to the R² value. It shows that the model explains a significant portion of the variation in customer participation.

The H_6 model, which considers social factors, the legal framework, and their interactions, explains 56.2% of the variance in consumer participation in black market gambling, according to the R² value of 0.562. This implies that these variables have a substantial association. The fact that the adjusted R² value (0.558) is nearly identical to the R² value indicates that the model's explanatory ability remains intact even after taking the number of predictors into consideration. This indicates that the model fits the data well.

Table 9. Model summary for H₄, H₅ and H₆

Model	R	R Square	Adjusted R Square
H ₄	0.663	0.440	0.435
H ₅	0.818	0.668	0.666
H ₆	0.749	0.562	0.558

The regression models are statistically significant ($p < 0.001$), according to the ANOVA table below. This suggests that consumer engagement in illegal gambling is highly predicted by the regulatory framework, psychological, economic and social factors, and their interaction.

Table 10. ANOVA for H₄, H₅ and H₆

Source	Sum of Squares	df	Mean Square	F	Sig.
H ₄					
Regression	29.187	3	9.729	94.624	<0.001
Residual	37.219	362	0.103		
Total	66.406	365			
H ₅					
Regression	44.383	3	14.794	243.188	<0.001
Residual	22.022	362	0.61		
Total	66.406	365			
H ₆					
Regression	37.288	3	12.429	154.529	<0.001
Residual	29.117	362	0.080		
Total	66.406	365			

The interaction between each of the psychological, economic and social factors and the regulatory framework is statistically significant ($p < 0.001$), according to the coefficients table. This suggests that the relationship between psychological, economic and social factors with consumer engagement in illegal gambling is, in fact, moderated by the regulatory framework.

Table 11. Coefficients for H₄, H₅ and H₆

Predictor	B	Std. Error	Beta	t	Sig.
Psychological factors and regulatory framework	-0.077	0.15	-1.833	-5.122	<0.001
Economic factors and regulatory framework	0.137	0.14	2.074	9.509	<0.001
Social factors and regulatory framework	-0.156	-0.014	-2.532	-11.142	<0.001

4.1.1 Consumer participation and economic impact (H_7) and consumer participation and psychological impact (H_8)

A simple linear regression analysis was conducted to test whether consumer participation in black market gambling negatively impacts economic stability. The R^2 value of 0.099 indicates that consumer participation in black market gambling explains 9.9% of the variance in economic stability. This suggests a relatively small but notable effect of consumer participation on economic stability. The adjusted R^2 value of 0.096, which is slightly lower, shows a minimal decrease in explanatory power after accounting for the number of predictors.

For the impact of consumer participation on psychological well-being, the adjusted R^2 value of 0.069 indicates a slight reduction in explanatory power after adjusting for the number of predictors. The R^2 value of 0.072 indicates that consumer participation in black market gambling explains 7.2% of the variance in psychological well-being, suggesting a relatively small but statistically significant effect of consumer participation on psychological well-being.

Table 12. Model summary for H_7 and H_8

Model	R	R Square	Adjusted R Square
H_7	0.315	0.099	0.096
H_8	0.268	0.072	0.069

The ANOVA table below shows that the regression models are statistically significant ($p < 0.001$), indicating that consumer participation in black market gambling significantly predicts economic stability and psychological well-being. This means that the overall model is useful in explaining some of the variability in economic stability and psychological condition.

Table 13. ANOVA for H_7 and H_8

Source	Sum of Squares	df	Mean Square	F	Sig.
H_7					
Regression	31.799	1	31.799	39.970	<0.001
Residual	289.594	364	0.796		
Total	321.393	365			
H_8					
Regression	21.034	1	21.034	28.155	<0.001
Residual	271.944	364	0.747		
Total	292.978	365			

For H_7 , the coefficient (B) for consumer participation in black market gambling is -0.692, which indicates that for each one-unit increase in consumer participation, economic stability decreases by 0.692 units. The negative value supports the hypothesis that higher consumer participation in black market gambling is associated with a decline in economic stability. The standardized coefficient (Beta) of -0.315 shows the strength of the relationship in standardized units, meaning that a one standard deviation increase in consumer participation results in a 0.315 standard deviation decrease in economic stability. The t-value of -6.322 and the p-value of <0.001 indicate that the relationship between consumer participation and

economic stability is statistically significant. The results support H₇, demonstrating that as consumer participation in black market gambling increases, economic stability decreases.

For H₈, the unstandardized coefficient (B) for consumer engagement in illegal gambling is -0.563, meaning that psychological well-being declines by 0.563 units for every unit increase in consumer participation. The idea that a decrease in psychological well-being is linked to increased consumer participation in illegal gambling is supported by this negative value. According to the standardized coefficient (Beta) of -0.268, psychological well-being declines by 0.268 standard deviations for every standard deviation rise in consumer engagement. The statistical significance of this link is indicated by the t-value of -5.306 and the p-value of less than 0.001 (Table 34). The findings are consistent with H₈, which holds that a higher level of consumer involvement in illegal gambling is linked to a lower level of psychological wellbeing.

Table 14. Coefficients for H₇ and H₈

Predictor	B	Std. Error	Beta	t	Sig.
H ₇ Consumer participation	-0.692	0.109	-0.315	-6.322	<0.001
H ₈ Consumer participation	-0.563	0.106	-0.268	-5.306	<0.001

5. Discussion

The study offers insightful information about the variables influencing Kuching, Sarawak residents' involvement in illegal gambling as well as the ensuing psychological and economic effects. The results highlight the significance of social, psychological, and economic factors in influencing gambling behaviors in addition to the regulatory framework's moderating effect.

5.1 Psychological factors

The findings show a strong correlation between psychological variables and consumer involvement in illegal gambling (H₁). The need to gamble and the rush it provides are especially powerful. This is consistent with earlier research by Lopez-Gonzalez (2024), who contends that impulsivity and thrill-seeking are major psychological characteristics that influence gambling behavior. Furthermore, the elevated average scores associated with obsessive conduct align with the results of Goodin (2024), who emphasizes that mental distortions such as the "illusion of control" intensify problem gambling. Due to a lack of regulatory monitoring in the black market, where people are lured to the emotional and cognitive stimulation it offers, psychological factors play a role in the rise in gambling addiction (Newall & Rockloff, 2022).

5.2 Economic factors

One of the main factors influencing gambling behavior is financial difficulty (H₂). The study's participants expressed a significant desire to use gaming as a source of more income, which is consistent with research findings (Fadhilla et al., 2023) that demonstrate how risky behaviors, such as unlawful gambling, are frequently undertaken by people in financial distress. The body of research continuously identifies economic pressures as important factors influencing gambling behavior, especially for lower-class populations (Monarca et al. 2022). The perpetuation of gambling-related problems in these groups is partly due to the perception of rapid financial gain exceeding the knowledge of associated risks (Güney et al. 2022).

5.3 Social factors

Gambling behavior is nevertheless influenced by social influence, albeit somewhat less so than by psychological and economic variables (H₃). According to Bonny-Noach (2022), the study's conclusions demonstrate how participants are impacted by their social networks and the general acceptance of gambling. People find it more difficult to resist participating in gambling activities due to social constraints and the normalization of gambling behavior in communities. This is especially common in areas where gaming is accepted as a common social pastime (Güney et al. 2022).

5.4 Regulatory framework

The relationship between psychological, economic, and social aspects and gambling behavior is significantly moderated by the regulatory framework (H₄, H₅, H₆). People can gamble on the black market without worrying about consequences because of lax enforcement and the belief that there are no harsh penalties for engaging in illicit gambling. This aligns with the findings of Engebø et al. (2021), which emphasizes how more stringent laws can lower participation by restricting access to gaming. But too much control can drive customers to the illegal market, where there is less enforcement (Wardle et al. 2021). This puts lawmakers in a difficult position as they try to police laws without pushing gamblers underground.

5.5 Economic and psychological impacts

The study demonstrates that engaging in illegal gambling has detrimental effects on consumers' finances and mental health (H₇, H₈). High levels of stress, anxiety, and financial strain reported by participants show that psychological suffering and financial instability are important outcomes. Research by Grant & Chamberlain (2022) demonstrates that gambling addiction can result in serious mental health problems as well as financial loss, which validates these findings. Furthermore, the financial consequences of illicit gambling surpass the personal level and influence the regional economy by rerouting cash from legitimate markets (Yun 2022).

6. Recommendations

6.1 Regulating and monitoring online gambling platforms

Policymakers should think about more stringent regulation and oversight of online gambling platforms to combat the accessibility of unlawful gambling, especially when it comes to the internet. Yun's (2022) research highlights the anonymity of online gambling sites, which poses challenges for regulatory compliance. As in South Korea and Norway, governments could collaborate with Internet service providers (ISPs) to prevent access to unauthorized gambling websites (Engebø et al., 2021). Reducing participation

may also result from tightening regulatory control of digital payment systems to stop users from using illicit gaming services.

6.2 Developing legal online alternatives

Online gambling is preferred because it is more convenient. Governments might think about creating or supporting regulated, lawful online gambling sites as a countermeasure. While guaranteeing player protection and taxation, providing safe, authorized, and well-regulated online gambling alternatives might entice customers away from the illegal sector. Research indicates that customers are more likely to choose legal online alternatives when they are accessible, particularly if they include precautions against fraud and addiction (Newall & Rockloff, 2022).

6.3 Collaboration with international regulators

Governments working together with international regulatory authorities may be able to identify and sabotage the financial flows that support these offshore platforms in addition to preventing access to illicit gambling websites. Through the utilization of pooled resources, like cooperative enforcement operations and cross-border investigations, law enforcement agencies can more efficiently detect and punish operators who take advantage of jurisdictional gaps. International cooperation can also be used to create uniform legislation that will make it harder for operators of illicit gambling to operate freely in the global digital arena by presenting them with consistent legal difficulties in several jurisdictions. This coordinated strategy erodes the infrastructure that underpins illicit gambling networks.

Through the European Gaming and Betting Association, which encourages responsible gaming and consistent regulation among EU member states, numerous EU nations work together to tackle unlawful internet gambling. To combat criminal operators that target their nationals, nations like France, Germany, and Italy can pool resources, intelligence, and enforcement activities thanks to this partnership. Other examples include Finland, Sweden, and Norway who have joined forces to police gaming laws, particularly for unlicensed operations who target their citizens. To exchange information, block unlawful websites, and stop financial transactions connected to unlicensed gaming companies, Norway's Norwegian Gambling Authority collaborates with its Swedish and Finnish counterparts. As part of their collaboration, payment processors connected to illegal gaming are blocked.

6.4 Economic interventions

Given that financial hardship has a significant impact on gambling behavior, it is imperative to implement interventions that target underlying economic concerns (Monarca et al., 2022). Programs for financial literacy, income support plans, and easy access to credit at reasonable rates are a few examples. Financial literacy initiatives can provide people with the fundamental knowledge and skills needed to manage their finances, including budgeting, saving, and the long-term effects of gambling. These programs might also cover debt management techniques, which would lessen the possibility that people will resort to gambling as a short-term solution to money issues. According to Kassa et al. (2021), these measures will not only lessen the allure of gambling as a means of earning a living but also give people workable options to better their financial circumstances.

6.5 Community-based programs

A major factor in gambling behavior is social impact (Bonny-Noach 2022). Programs rooted in the community that promote non-gambling pastimes and oppose the normalization of gambling may lessen social pressure to engage. To lessen the dependency on gambling as the main social activity, these initiatives

might concentrate on planning sports, arts, and cultural events that not only offer amusement but also promote a feeling of community. Peer support networks that provide advice and instruction on the risks associated with gambling may also be useful in encouraging a shift in behavior within communities (Güney et al. 2022). Furthermore, the reach and efficacy of these programs can be increased by the participation of respected individuals, local organizations and leaders in the community. Important community leaders can change the way the community views gambling by actively challenging gambling practices and supporting alternative activities. This community-based strategy fosters a movement among participants toward better, more positive modes of social interaction.

7. Conclusion

This study has shed important light on the variables driving Kuching, Sarawak residents' involvement in illegal gambling as well as possible remedies to lessen its detrimental effects. The results show that social, psychological, and economic factors all play a major role in driving gambling behaviors, and that the problem is made worse by the accessibility of online gambling sites. Furthermore, the proliferation of illegal gambling operations has been made possible by the lax enforcement of regulatory frameworks, which has had detrimental effects on participants' mental and financial well-being.

To tackle these problems, a multifaceted strategy is required. Reducing the availability of illegal gambling requires stricter regulation and supervision of online gambling sites, as is the case in nations like South Korea and Norway. Creating safe, regulated online alternatives that are lawful can entice customers away from the illicit market by offering safer choices. Moreover, breaking up the infrastructure of offshore gaming enterprises requires international cooperation in enforcement and regulation. Economic interventions are essential in addressing the underlying financial challenges that lead people to gamble, such as income support programs and financial literacy initiatives. If people are given the resources and encouragement to handle their money well, the allure of gambling as an easy way to get quick cash will decrease. Additionally, social concerns need to be addressed through neighborhood-based initiatives that support non-gambling pastimes and oppose the mainstream of gaming. Peer support networks have the potential to significantly impact social norms and promote healthy social interactions in conjunction with community leaders and organizations.

In summary, combating illegal gaming necessitates a thorough approach that incorporates community involvement, financial assistance, and regulatory enforcement. One way to lessen the negative impacts of unlawful gambling on people and society is to address the systemic as well as individual elements that influence gambling behavior. Policymakers and community leaders can use the recommendations as a guide to conduct targeted initiatives that safeguard consumers and foster a more sustainable social and economic environment.

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Conflict of interest statement

The author agrees that this research was conducted in the absence of any self-benefits, commercial or financial conflicts and declare the absence of conflicting interests with the funders.

Authors' contributions

Rudy Ujang carried out the research, data collection, formal analysis and wrote and revised the article.

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