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Gbadegesin, Adeniyi S.[1] – Akintunde, Elijah A.[2]

Access to Gambling Services among Vulnerable Population: Implications of Online Sports Betting for Sustainable Development in Nigeria

ABSTRACT

Information and communication technology has increased access to gambling services and made it highly prevalent among youths. The youthful population in Nigeria is constantly confronted with several negative psychological implications of betting. Using a survey method for primary data collection, this study examined access, determinants, and patronage of online sports betting among 300 respondents. The results show that most respondents were young adults within the 18–28 age category. The majority were male and had attained tertiary-level education. About 79% of the respondents were students with an income level below N30,000.00. Additionally, 51.7% of the respondents had engaged in some form of online betting to earn money or gain other benefits, while 48.3% had not. This study indicates that online betting is quite popular, and physical access to betting locations is relatively easy for most respondents.

Keywords: sports-betting, online, access, patronage, determinants, psychological effects

[1] PhD, Independent Researcher, Nigeria, Email: gbadegesinadeniyi@gmail.com, Corresponding author.

[2] PhD, Researcher and Lecturer, Department of Geography and Planning, University of Jos, Plataeu State, Nigeria, PMB 2084 Jos 93001, Tel: +234 3 8376 6284, Email: akinyelea@unijos.edu.ng

INTRODUCTION

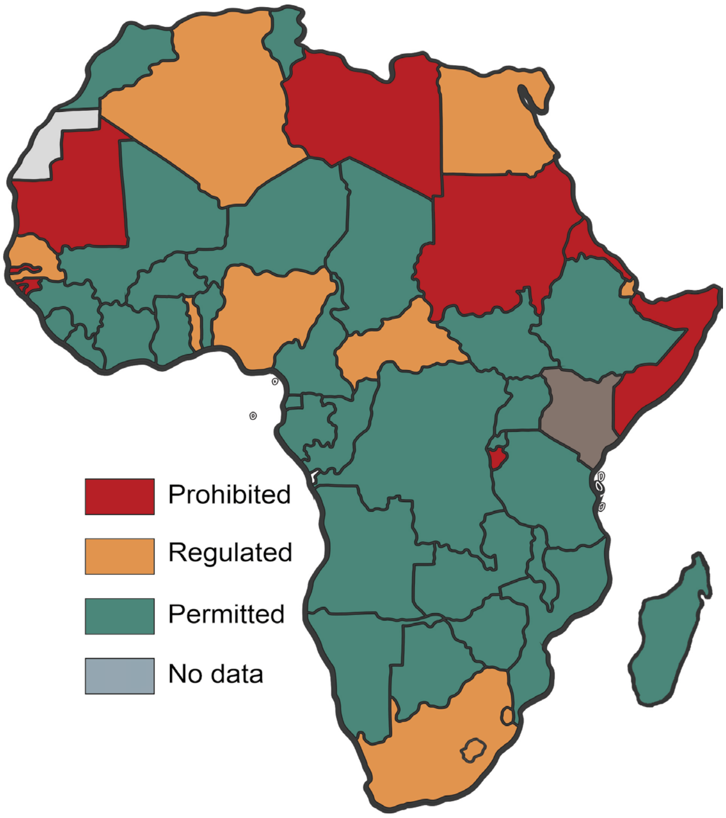
The sports betting industry has grown astronomically in Nigeria, with an estimated 60 million Nigerians actively involved (Okechukwu, 2022). Sports betting is a form of gambling embedded in most societies and forms part of a broader culture of entertainment, leisure, and sports activities (Abebe & Adamu, 2023). While sports betting may be defined in various ways, the present study aligns with the definition provided by Etuk et al. (2022), which describes sports betting as placing a monetary wager on the outcome of one or more sporting events, the occurrence, and/or non-occurrence of an event. Online sports betting (OSB), a type of gambling, often enhances the excitement and enjoyment of sporting activities (Daniel et al., 2015). Sports betting can encourage individuals to become more invested in sports and engage with others over shared interests.

Young people across many parts of Sub-Saharan Africa (SSA), including Nigeria, South Africa, and Kenya, are increasingly exposed to gambling practices (Ssewanyana & Bitanihirwe, 2018). SSA countries are home to a rapidly growing youthful population (Ashford, 2007), with eight of the world's top 10 countries with the youngest populations currently located in SSA. By 2050, the region is projected to encompass all 10 (Canning et al., 2015). In a survey evaluating gambling-related activities among 3,879 youths aged 17–35 years in six SSA countries (Kenya, Uganda, South Africa, Ghana, Nigeria, and Tanzania), it was found that 54% of youths in SSA had engaged in some form of gambling activity (Geopoll, 2017).

Advancements in information and communication technology (ICT) have broken down geographic boundaries and enhanced accessibility to diverse services and products globally, including betting (Lim & Han, 2021; Zinovieva, 2023). The patronage of betting-oriented websites has transformed the geography of gambling consumption, shifting from conventional visits to betting locations or centers to remote betting from home or any convenient location using internet-connected devices (Lejoyeux, 2012). Globally, online sports betting has become increasingly prevalent among young people and continues to gain prominence in both developed and developing countries (Brevers et al., 2022). Online gambling is accessible 24/7 from anywhere in the world, allowing individuals to bet continuously in private while taking advantage of the interactive and immersive nature of the online environment (Abadee, 2020; Julia et al., 2018).

Sports betting has become normalized and appealing to many bettors, particularly due to the ease of access. Social factors such as perceived social pressure, poverty, unemployment, and the pursuit of entertainment are identified as potential drivers of sports betting behavior (Etuk et al., 2022). From an African perspective, online sports betting has been recognized as the most popular form of gambling in present-day Nigeria (Oyebisi et al., 2012). Similarly, many countries worldwide permit unrestricted sports betting, often encouraging the activity through partnerships with national regulatory bodies. However, some countries have acknowledged the negative impacts of gambling and introduced rules and regulations to control betting activities (Figure 1).

Figure 1. Gambling regulations in Africa



Source: Uplatform (2024)

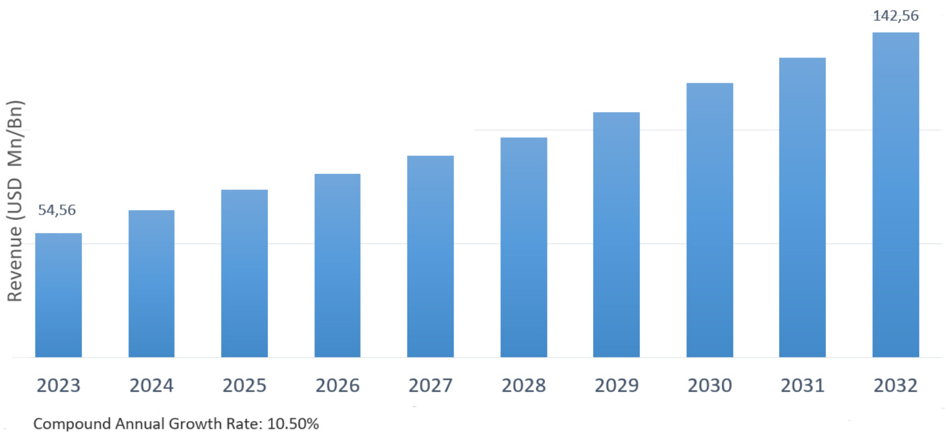
The third edition of the American Psychiatric Association's *Diagnostic and Statistical Manual* clinically established gambling as a health or psychological disorder, raising significant public health concerns (Corn & Schaefer, 1999). Research conducted among public basic school students in the Sene East District revealed that many students engaged in betting to earn money for their needs and entertainment, which negatively impacted their educational attainment (Adu, 2023). Similarly, Hakansson and Komzia (2023) observed that gambling activities could hinder the attainment of Sustainable Development Goals (SDGs).

The rise of online sports betting and its widespread promotion have generated considerable public concern. The relationship between gambling exposure and participation poses implications for sports, health and well-being, and social policy. Research into online sports betting is therefore crucial, as this behavior can become addictive and lead to harmful social and mental health consequences such as depression, anxiety, crime, illicit drug use, and gambling disorders.

Online sports betting market has experienced significant growth in recent years (Figure 2), transforming the traditional gambling landscape. This expansion can be attributed to technological advancements, increased internet access, and shifting societal attitudes toward gambling. This study assesses the patronage behavior of online sports betting sites and the characteristics of individuals who engage in online betting.

Socio-demographic factors such as age, gender, education, income, and social status are well-established determinants of consumer behavior across various industries. In the context of online sports betting, these factors likely shape participation rates and individual preferences as well. Age is a particularly significant socio-demographic variable, as it reflects generational attitudes toward gambling. Younger generations, such as millennials and Generation Z, are more inclined toward digital platforms due to their familiarity with technology and comfort with online activities. In contrast, older individuals may have limited exposure to online platforms and prefer traditional offline betting methods. Gender is another critical factor influencing online sports betting behavior. Historically, gambling has been perceived as a male-dominated activity. However, recent studies indicate a narrowing gender gap, with increasing participation by women in sports betting. Understanding how gender affects patronage can provide valuable insights into the shifting dynamics of the online sports betting market. Education and income also play key roles in shaping consumer behavior and preferences. Higher education and income levels are often associated with greater disposable income and a higher propensity to engage in online betting. Additionally, education may enhance individuals' understanding of odds and probability, influencing their betting strategies. Examining the relationship between education, income, and online sports betting behavior can deepen understanding of the target audience and their preferences.

Figure 2. Rise and projection in global online sports betting market (USD billion)



Source: Zion Market Research (2024)

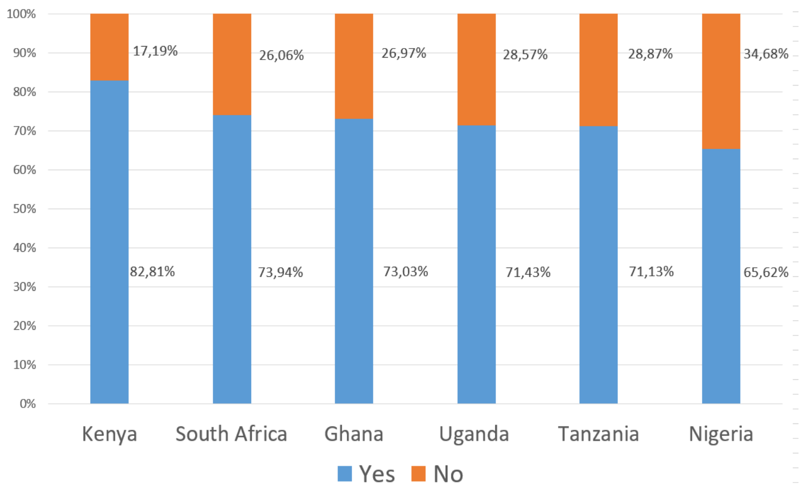
Social status further impacts online sports betting participation. Individuals with higher social status may engage in online sports betting as a form of status signaling or due to social influence, perceiving it as a prestigious or exclusive activity. Conversely, those with lower social status may face resource constraints, reducing their likelihood of participation.

Studying the socio-demographic determinants of online sports betting patronage is crucial for understanding consumer behavior in this rapidly growing industry. This research can guide marketing strategies, inform policy development, and support the implementation of responsible gambling measures, ensuring a safer and more enjoyable user experience.

This study specifically examines the socio-demographic factors influencing the patronage of online sports betting sites. It aims to explore how characteristics such as age, gender, income, education, and occupation impact individuals' decisions to engage in online sports betting and how these factors vary across demographic groups. By identifying the determinants of online sports betting behavior, this research seeks to contribute to the development of effective strategies and policies that promote responsible gambling practices and mitigate the potential negative consequences of online sports betting.

Despite the increasing popularity and accessibility of online sports betting sites, there remains limited understanding of the socio-demographic factors influencing individuals' patronage. Ssewanyana and Bitanihirwe (2018) highlighted a paucity of studies examining gambling behavior, including its frequency, monetary involvement, forms, and motivations. While some information exists about the involvement of youth in online betting in Africa (Figure 3), little is known about the prevalence of gambling disorders and the high-risk groups in Sub-Saharan African (SSA) countries. Identifying these determinants is crucial for developing effective strategies to mitigate potential harms associated with online sports betting and to promote responsible gambling behavior.

Figure 3. Participation in gambling among youths in selected African countries



Source: Adika, N. (GeoPoll, 2024)

In Nigeria, gambling is notably prevalent and widely accepted among the youth, driven by advancements in technology and the legalization of gambling (Aguocha et al., 2019). Bridging the knowledge gap regarding the variables associated with online sports betting and gambling is essential for designing effective preventive and treatment programs. This research aims to investigate and analyze the socio-demographic factors influencing the patronage of online sports betting sites, focusing on individual characteristics such as age, gender, education, income, and geographic location. The study addresses the following specific objectives:

1. Identify the determinants of patronage for online sports betting sites.
2. Examine the socio-demographic characteristics of online sports bettors.
3. Analyze the frequency of patronage of online sports betting sites.

4. Determine the socio-economic effects of online sports betting on individuals and households.
5. Examine gender variations in the patronage of online sports betting sites.

LITERATURE REVIEW

Several models/concepts exist in the study of gambling-related issues and the human and natural factors. To identify the causes and contributing factors of harmful gambling, Flack and Morris (2017) applied the Theory of Planned Behaviour (TPB) to explain the influence of gambling attitudes (expected emotional and financial outcomes from gambling), social norms (perceived approval and gambling behaviour of significant others) and cognitive biases (confidence in the ability to determine the outcome of gambling) on the intention to gamble, gambling frequency, and gambling problems. The TPB is useful in predicting human behavior (Akintunde, 2017). The concept of vicious cycle of poverty when applied to gambling studies consistently showed that the poorest strata of the society are those who often spend most of their income on gambling thus leading to a vicious cycle of poverty with every attempt to get financial gains through gaming leading consequently to the spiral effect of losses (Dellis et al., 2013; Rizeanu, 2015; Ssewanyana & Bitanihirwe, 2018). The framework of Harmful Gambling (Abbott et al., 2018), often known as "the framework" has proved to be insightful. The objective of the framework was to develop a clear, thorough, and conceptual framework that would address a wide range of factors related to the risks and effects of harmful gambling at the individual, family, and community levels. Eight inter-related factors depicted in the framework represent the major themes in gambling which include the specific (gambling environment, exposure, gambling types, and treatment resources) to the general (cultural, social, psychological, and biological influences). The eight factors explain the risk and effects of harmful gambling at different levels.

According to Daniel et al. (2023) gambling is prevalent among undergraduates and a significant proportion develop addictive disorders related to gambling thus making many students requiring mental health rehabilitation. In the study of Aondowase et al. (2023), the ubiquity of sports betting advertisements, the pressure from peers and the proliferation of bet shops have been found to be the major determinants of sports betting activities among youths in Makurdi metropolis. The study recommended the need for effective regulatory systems for gambling advertising and urgent restrictions across a range of media channels to prevent exposure to promotions that may encourage young people's interest and involvement in sports gambling. Okechukwu (2022) also stressed the need for strict controls to sports gambling activities in Nigeria to prevent negative public health consequences. The measures are required to control both legal and illegal online and offline sports betting activities in Nigeria. The study also called for further implementation of an effective mental health-care delivery policy to tackle gambling addiction and associated psychiatric comorbidities in Nigeria.

In another study by Seal et al. (2022), it was observed that the probability of betting on sports decreased with increasing age and was lower for women and people with university education.

However, the observed gender difference varied with age, with the greatest difference found among the young. Similarly, the number of sports bets made also declined with age. The gender difference in the number of sports bets also varied with age significantly among the young men. Sports betting was also related to friendship circles. Valenciano-Mendoza et al. (2023) noted that multiple sociodemographic variables have been studied in relation to sports betting and generally, males have greater tendencies for sports betting. The co-occurrence of certain pathologies, especially substance use or other addictive disorders, was observed to be another determinant.

In the study of Owonikoko (2020) the study found that youths involved in Football Betting (FB) usually play online by themselves or register in a bet company outlet and it is driven largely by widespread unemployment and poverty among the youths. However, the rising FB among youth in Nigeria was found to be directly correlated to increase in violence and criminal activities. The paper recommended the need to address widespread unemployment and poverty which continue to propel youths into betting. In the study of Tade et al. (2023), a striking result as that many embraced betting to make extra money, for entertainment, as hobby and socialization. While winning from betting has assisted some people in starting businesses and payment of utilities while loses was associated with negative outcomes such as depreciated health, strain in family relationships, and trust gaps.

In the study that explored the current landscape of in-play sports betting as well as its implications for gambling behavior, addiction, and mental health, Killick and Griffiths employed a systematic approach and observed that betting has surged in popularity due to advancements in technology, increased accessibility through mobile devices and thus leading to a significant rise in the number of those engaging in this form of gambling. The pressure to continuously engage with betting during events may exacerbate these conditions. Given its rapid growth, there is an urgent need for effective policies to mitigate risks associated with this gambling format. The study underscored the complexities surrounding in-play sports betting. The findings suggest that in-play betting poses significant risks that warrant attention from researchers, clinicians, and policymakers alike. The study by Braverman and Shaffer (2010) investigated the early behavioural markers of high-risk internet gambling, aiming to identify patterns that could predict the development of gambling-related problems. The research employed longitudinal data with the aid of k-means clustering analysis to categorize gamblers based on their behaviours during the first month of gambling. The increasing prevalence of internet gambling raises significant public health concerns, particularly regarding addiction. Previous studies have indicated that around 5% of gamblers experience issues, with a smaller percentage developing pathological gambling behaviors.

Griffiths et al. (2006) provided a comprehensive examination of the psychosocial effects associated with internet gambling to synthesize various studies and findings related to the implications of internet gambling on individuals' mental health and social well-being. The study showed that psychosocial consequences that internet gambling can lead to include several adverse psychosocial outcomes like increased rates of anxiety, depression, and social isolation among gamblers. The review emphasized that these issues are often exacerbated by the anonymity and accessibility of online gambling platforms, which can lead to compulsive gambling behaviors. Identifying the vulnerable demographics as adolescents and individuals with pre-existing mental health conditions, who are more susceptible to the negative impacts of internet gambling. The study positions internet gambling within the broader context of behavioral addictions, drawing parallels with substance use disorders. Their findings underscore the importance of empowering youths and addressing both individual vulnerabilities and broader societal factors in tackling the challenges posed by internet gambling (Tésits & Soponyai, 2006).

The research of Sidiq et al. (2024) indicates a growing trend of online gambling among teenagers in Panimbang District, raising concerns about its accessibility and appeal. The authors examine various mental health issues associated with online gambling, including anxiety, depression, and social isolation. They provide statistical evidence linking increased gambling activity to deteriorating mental health among adolescents. The article concludes with suggestions for interventions aimed at mitigating the negative effects of online gambling on youth. This includes educational programs and parental guidance to foster awareness and healthy coping mechanisms.

Pappa et al. (2016) in their research highlighted that higher gaming frequency is correlated with both positive and negative psychosocial outcomes. While the study argued that online gaming can serve as a platform for social interaction, which may enhance social skills for some adolescents, there are risks associated with excessive gaming, such as increased anxiety and depression levels. The findings suggest that while online gaming can have beneficial aspects, it also poses risks that need to be managed. The authors advocate parental guidance and awareness regarding gaming habits to support healthy psychosocial development. Critselis et al. (2013) assessed the prevalence of internet gambling practices and its impact on psychosocial development with a focus on the association between gambling practices and internet addictive behavior among adolescents attending public schools in Nicosia, Cyprus. The study found that adolescents who participated in Internet gambling had a significantly higher likelihood of exhibiting Internet addictive behavior. This indicates that those who gamble online are over five times more likely to develop addictive behaviors related to internet use compared to non-gamblers. The findings suggest that frequent participation in internet gambling is linked to significant psychosocial maladjustment among adolescents. The study advocates increased awareness and preventive measures to address the potential risks associated with adolescent gambling behaviors online.

METHODS

Previous studies have identified youths and adolescents as populations particularly vulnerable to patronizing gambling and betting services. Despite several legislative efforts to limit gambling among young people, modern technology—such as online gaming apps and gambling platforms—has significantly increased their exposure to the risks of problem gambling (Ssewanyana & Bitanihirwe, 2018; Riley et al., 2021). This study specifically targeted undergraduate students in Nigerian universities as respondents. A survey method was employed for data collection from 300 undergraduates, who were randomly selected as participants.

A pretest of the instrument was conducted with 50 entries, resulting in a Cronbach's alpha reliability value of 0.77. Data on socio-economic factors, demographics, access, frequency, and patronage of online sports betting were gathered from individuals aged 18 and above through Kobocollect and Google surveys. Links to the surveys were distributed among young people aged 18 and older. To minimize sampling error and potential bias, a simple random sampling technique was used, ensuring that every member of the population had an equal chance of being selected for the survey. The completed questionnaires were sorted, coded, and analyzed using both descriptive and inferential statistics in the Statistical Package for the Social Sciences (SPSS), version 21.

RESULTS

Demographic characteristics

The findings revealed that the majority of respondents were young adults, with 86.7% falling within the 18–28 years age range. Additionally, a significant proportion of the respondents were male (72.7%) and held tertiary-level education qualifications (95.7%). Regarding employment status, a substantial number were students (79.0%). In terms of income, most respondents (51.3%) reported earning less than N30,000.00, while 28.3% reported having no income at all. Concerning marital status, the majority were single (92.7%). These socio-demographic characteristics suggest that the sample population is predominantly young, male, well-educated, and single, with a notable proportion reporting low or no income. The findings align with the observations of Aguocha et al. (2018, 2019), who similarly identified young people as the dominant group among online bettors (Table 1).

Access and patronage of online betting sites

The results indicate that a majority of respondents (51.7%) have engaged in some form of online betting to earn money or other forms of gain, while 48.3% have not. This finding suggests that online betting is a popular activity among youth, corroborating the assertions of Turner (2008). Regarding proximity to betting centers, a significant percentage (69.7%) reported having a betting center nearby, while 30.3% did not. This demonstrates that physical access to betting locations is relatively easy for most respondents. Additionally, 36.3% reported that the nearest betting center was less than 50 meters away, while only 12% of respondents indicated that betting centers were located approximately 300 meters away. These findings highlight the ease of access to betting facilities, both online and physical.

In terms of betting frequency, 46.7% of respondents reported never engaging in betting, while 22.7% reported betting more than once a week, and 13% reported betting once every week. This suggests that although online betting is popular among some respondents, a considerable portion of the population does not engage in it regularly.

Overall, the findings indicate that online betting is widely practiced among youth, with most having easy access to both physical and online betting facilities. These results align with the findings of Badji et al. (2023), who observed that the availability of gambling venues increases gambling rates and that individuals residing near such venues are more likely to engage in gambling (Table 2).

Table 1. Demographic characteristics

Demographic characteristics	Options	Frequency	Percent
Age	18–28 years	260	86.7
	29–39 years	36	12.0
	40–50 years	3	1.0
	>50 years	1	0.3
	Total	**300**	**100.0**
Sex	Female	82	27.3
	Male	218	72.7
	Total	**300**	**100.0**
Level of education	Informal	1	0.3
	Secondary	12	4.0
	Tertiary	287	95.7
	Total	**300**	**100.0**
Employment status	Employed	10	3.3
	Self-employed	36	12.0
	Student	237	79.0
	Unemployed	17	5.7
	Total	**300**	**100.0**
Level of income	>110,000	5	1.7
	30,000–50,000	23	7.7
	30,000–50,000	21	7.0
	50,000–70,000	6	2.0
	70,000–90,000	1	0.3
	70,000–90,000	1	0.3
	90,000–110,000	2	0.7
	90,000–110,000	2	0.7
	less than 30,000	154	51.3
	None	85	28.3
	Total	**300**	**100.0**
Marital status	Divorced	1	0.3
	Married	21	7.0
	Single	278	92.7
	Total	**300**	**100.0**

Table 2. Betting characteristics

Betting characteristics	Options	Frequency	Percent
Engaged in any form of online betting to earn monetary or other forms of gain	No	145	48.3
	Yes	155	51.7
	Total	**300**	**100.0**
A betting center close to you	No	91	30.3
	Yes	209	69.7
	Total	**300**	**100.0**
How far is the nearest online betting center to you?	>300 meters	36	12.0
	100–200 meters	25	8.3
	100–200 meters	15	5.0
	200–300 meters	14	4.7
	200–300 meters	18	6.0
	50–100 meters	83	27.7
	less than 50 meters	109	36.3
	Total	**300**	**100.0**
Frequency of betting	Daily	9	3.0
	More than once in a week	68	22.7
	Never	140	46.7
	Once every week	39	13.0
	Once in a month	14	4.7
	Once in a quarter	9	3.0
	Once in two months	9	3.0
	Twice in a year	12	4.0
	Total	**300**	**100.0**

Betting and spending habits

Actions have consequences, as highlighted by El-Meouch et al. (2024), and the dangers of betting and gambling cannot be overstated. Consistent with the findings of Stetzka and Winter (2023), this study revealed that a significant portion of respondents have experienced negative consequences due to their online betting habits. For instance, 59.0% of respondents admitted to spending far more than planned on online betting, while 92.7% reported that their betting activities had led to conflicts of some kind. Additionally, 68.3% indicated that online betting had caused arguments, and 68.7% confessed to lying to family, friends, or others about their betting. These findings suggest that online betting not only imposes financial burdens but also strains personal relationships and fosters deceitful behaviors. Furthermore, 85.0% of respondents reported missing school or vital activities due to their betting habits, while 64.0% experienced a lack of savings, and 67.0% reported not having enough money for essential activities. These results underscore the wide-ranging impacts of online betting on education, financial stability, and the ability to participate in significant events or responsibilities.

The findings emphasize the potential harm of excessive online betting and highlight the need for promoting responsible gambling practices. Awareness of the associated risks is essential, and individuals experiencing negative consequences from gambling should seek help. Counseling and support services are available for those struggling with compulsive gambling behaviors, offering an important step towards regaining control and making healthier choices for the future (Table 3).

Table 3. Betting and spending habits

Betting and Spending	Never		Often		Once or twice		Sometimes	
	Freq	%	Freq	%	Freq	%	Freq	%
Have you ever spent much more than you planned to on online betting?	177	59.0	22	7.3	27	9.0	74	24.7
Has your online betting ever led to fighting?	278	92.7	2	0.7	12	4.0	8	2.7
Has your online betting ever led to argument?	205	68.3	10	3.3	57	19.0	28	9.3
Has your online betting ever led to telling lies to family/ friends or others?	206	68.7	9	3.0	40	13.3	45	15.0
Has your online betting ever led to missing school or vital activities?	255	85.0	10	3.3	21	7.0	14	4.7
Has your online betting ever led to lack of savings?	192	64.0	18	6.0	39	13.0	51	17.0
Has your online betting ever led to lack of money for important activities?	201	67.0	16	5.3	31	10.3	52	17.3

Determinants of online sports betting sites and financial risks

The results indicate that a majority of respondents (58.3%) have engaged in betting to secure money for paying debts or resolving financial difficulties, while 41.7% have not. This suggests that a significant number of individuals resort to betting as a way to address financial challenges, which may reflect financial instability or desperation within this group. Furthermore, a substantial portion of respondents (40.7%) reported feeling a strong urge to return and win more after a win, compared to only 17.3% who did not. This finding suggests that for some individuals, winning can trigger addictive behaviors or a cycle of „chasing" further wins, which could lead to problematic or compulsive gambling habits.

The data also reveals that a notable percentage of respondents (20%) have borrowed money to finance their betting activities, while a larger proportion (80%) have not. This indicates that a subset of individuals engage in risky financial behaviors by borrowing money to support their gambling, potentially exacerbating their financial difficulties and increasing the risk of accumulating debt. Additionally, a smaller percentage of respondents (11%) reported selling personal items to fund their betting activities, while 89% did not. This suggests that while some individuals turn to selling possessions to support their gambling habits, the majority do not engage in this behavior.

These findings underscore the potential financial risks and consequences associated with betting, including using gambling to cope with financial issues, experiencing a compulsion to continue gambling after a win, borrowing money to fund betting, and selling possessions to finance gambling activities. Such behaviors indicate that some individuals may be at risk of developing harmful gambling habits that can negatively affect their financial stability. It is crucial for individuals to recognize these risks and seek help if they are facing gambling-related financial difficulties (Table 4).

Table 4. Betting and financial risks

Betting and financial risks	Yes		No	
	Freq	%	Freq	%
Did you ever bet to get money with which to pay debts or otherwise solve financial difficulties?	175	58.3	125	41.7
After a win did you have a strong urge to return and win more?	122	40.7	52	17.3
Did you ever borrow to finance your betting?	60	20.0	240	80.0
Have you ever sold anything to finance betting?	33	11.0	267	89.0

Relationship between betting and socio-demographic characteristics

The multiple regression was used to determine the relationship between betting and socio-demographic characteristics. The Cox & Snell R-square, which measures the proportion of the variance in the dependent variable explained by the model, had a value of 0.216, meaning that the model accounts for 21.6% of the variance in the dependent variable (betting) (Table 5).

Table 5. Model summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	342.380[a]	.216	.289

Estimation terminated at iteration number 4 because parameter estimates changed by less than .001.

Furthermore, the Nagelkerke R Square, another measure of the proportion of variance explained, although an adjusted version of Cox & Snell R Square, gave a value of 0.289, indicating that the model explains about 28.9% of the variance, adjusted for the number of predictors (gender, age, level of education, employment status, level of income, and marital status) in the model. The statement "Estimation terminated at iteration number 4 because parameter estimates changed by less than .001" indicates that the estimation process for the model stopped at the fourth iteration because the parameter estimates changed very little between iterations. This suggests that the model has reached a stable solution (Table 6).

Table 6. Variables in the equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	Gender	-2.442	.357	46.757	1	.000	.087
	Age	.293	.367	.638	1	.425	1.341
	Level of education	1.404	.648	4.703	1	.030	4.073
	Employment status	-.167	.231	.523	1	.470	.846
	Level of income	-.041	.125	.107	1	.743	.960
	Marital status	-.452	.537	.707	1	.400	.636
	Constant	-.360	1.978	.033	1	.856	.698

a. Variable(s) entered on step 1: gender, age, level of education, employment status, level of income and the marital status.

Furthermore, all variables except for "level of income" have significant relationships with the outcome variable. Specifically, "gender" has a coefficient of -2.442, indicating that being female is associated with a decreased likelihood of betting. On the other hand, "level of education" has a coefficient of 1.404, suggesting that higher levels of education are associated with an increased likelihood of betting. The remaining variables, including age, employment status, and marital status, have smaller coefficients and are not statistically significant. The constant term represents the baseline or reference category for the outcome variable when all other independent variables are equal to zero. In this case, the constant has a coefficient of -0.360, indicating the baseline likelihood of the outcome. Finally, the findings showed that gender and level of education are important predictors of betting, while other variables such as age group, employment status, income level, and marital status are not as significant.

CONCLUSIONS

In terms of access and patronage of online betting, a significant portion of respondents (51.7%) reported engaging in some form of online betting to earn monetary or other types of gain. Furthermore, a notable percentage (69.7%) indicated that they have a betting center nearby, suggesting that physical betting locations are easily accessible for most respondents. When considering the proximity of online betting centers, 36.3% of respondents reported that the nearest betting center was less than 50 meters away, highlighting the widespread availability of betting facilities in their environment. Regarding the frequency of betting, a large proportion of respondents (46.7%) indicated that they had not participated in betting, while others reported engaging in betting activities more than once a week (22.7%) or once every week (13%). Several key conclusions can be drawn from this study, which can inform policy makers, guide intervention efforts, and support the rehabilitation of young people:

1. Young males are more likely to engage in betting than females.
2. Proximity to a betting center is a risk factor for actual betting behavior.
3. Easy access to the internet significantly contributes to online betting participation.
4. Some young people resort to selling personal items to fund their betting activities and meet financial obligations.
5. Youths involved in betting are often linked to behaviors such as fighting and aggression.

The high accessibility of both physical and online betting facilities suggests that online betting is readily available to the majority of the sample population. This easy access, combined with the reported frequency of betting, raises concerns about the potential for excessive or problematic gambling behavior.

The implications of online betting extend beyond individual finances and behaviors. For example, it can negatively affect the achievement of the Sustainable Development Goals (SDGs). The economic losses associated with excessive gambling can contribute to poverty (SDG 1), while the health and social consequences of gambling can deteriorate health and well-being (SDG 3) and foster unsustainable consumption (SDG 12).

Moreover, gambling has no positive impact on household welfare for individuals with families and may lead to the loss of productive school or work hours, truancy, domestic violence, and the erosion of family assets. The findings suggest that online betting is more prevalent among young, male undergraduate students, indicating a targeted need for sensitization and awareness campaigns among this group. Regular interventions and awareness programs should be implemented, and the sports betting industry should be better regulated to mitigate potential harm.

Future research could benefit from mapping the geolocation of betting centers at smaller spatial scales to better understand the extent and ubiquity of betting facilities. Additionally, conducting spatial epidemiological studies on gambling and betting in Nigeria could offer valuable insights into the geographical and social factors influencing gambling behaviors.

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Lendvai, Tamás[1] – Balogh, Virgínia[2] – Tésits, Róbert[3] – Alpek, B. Levente[4]

Financial and Spatial Analysis of the Economic Performance of International Automotive Companies in Hungary (2008–2020)

ABSTRACT

The objective of this study is to examine the economic activity of foreign direct investment in Hungary, with a particular focus on Western and Central Transdanubia, and to analyse the financial outcomes resulting from it. The primary focus is on the operations of large multinational companies involved in the manufacturing industry. In this context, changes in property, plant, and equipment stock, the cash ratio, the quick liquidity ratio, and the loan-to-value ratio are subjected to analysis. The methodology employed to address the research questions involved an analysis of the Crefoport database. To test the hypotheses, we employed cluster analysis, forming groups from the examined firms based on the different variables considered and comparing them with their geographical positions. In addition to long-term solvency, the efficiency of asset utilisation also exhibits considerable variation. Moreover, no correlation was identified between geographical location and the solvency levels of the companies, despite their similar profiles.

Keywords: multinational, investments, FDI, industrial geography, automotive companies, Hungary

[1] Assistant Professor, Faculty of Sciences, University of Pécs, Pécs, Ifjúság u. 6. lendvai.tamas@pte.hu, https://orcid.org/0000-0002-7210-4058

[2] Assistant Lecturer, Faculty of Business and Economics, University of Pécs, Rákóczi út 80., balogh.virginia@ktk.pte.hu, https://orcid.org/0000-0002-0727-398X

[3] Associate Professor, Faculty of Sciences, University of Pécs, 7621 Pécs, Ifjúság u. 6., tesitsr@gamma.ttk.pte.hu, https://orcid.org/0000-0002-9575-3309

[4] Assstant professor, Faculty of Sciences, University of Pécs, 7621 Pécs, Ifjúság u. 6., alpeklevente@gmail.com, https://orcid.org/0000-0001-9637-3693

INTRODUCTION

Foreign investments are key determinants of a country's economic development trends. Since the late 1980s, these investments have shaped Hungary's spatial and economic structure. Many professionals and scholars have anticipated and continue to expect indirect development and modernization of economic actors, particularly through foreign capital. This capital can create a distinct allocation characterized by the properties of the foreign capital and the connection opportunities for economic actors. Its spill-over effects are particularly evident in terms of technology and knowledge transfer. The sectoral involvement, innovation potential, and adaptability to market conditions are significant factors for foreign capital. Its economic and social presence and willingness to cooperate create specific territorial projections, sometimes transforming them, and simultaneously set benchmarks for Hungarian economic actors (Lendvai et al., 2021).

Based on the above, the overall objective of our study is to present the sectoral and spatial concentration and performance dimensions of medium and large automotive companies, with a special focus on the sample area of Central and Western Hungary. The related companies can contribute to the development of the Hungarian SME sector as a backbone industry through their orders.

Performance assessment is necessary to understand strengths and weaknesses and to understand risks and benefits. It is also essential to identify the changes needed to achieve higher returns with the lowest possible risk, thereby improving performance. In the course of the study and the development of the hypotheses, various financial indicators were used in several cases and will be described in detail in the methods chapter (although for technical reasons they will be referred to in the formalisation of the objectives). In this context, the following research hypotheses were formulated in relation to the presentation of companies located in the industrial hubs of Central and Western Transdanubia:

- H1: There is no difference between the groups based on liquidity, tangible assets, debt ratio, ROA ratios and the geographical location of the firms for the selected automotive firms. Rationale: Some approaches suggest that the narrow as well as the broader geographical environment, i.e. the micro-factors around the firm, such as the proximity, number, quality and regional differentiation of macroeconomic indicators, may be related to the economic performance and the broader operating mechanisms of firms (Porter, 1998). An important aspect of these may be the financial stability and strategy of the firm, which is the relationship that we will test in the context of the target firms in the automotive segment in the context of this hypothesis. Also, we considered it very important to take into account when formulating our hypothesis that the liquidity of firms, i.e. their ability to meet their short-term obligations, can have a significant impact on their financial stability (Brigham & Ehrhardt, 2013). Furthermore, the stock of fixed assets is a key determinant of production capacity and long-term competitiveness (Barney, 1991). Debt ratios, which reflect the capital structure of firms, are also crucial in determining their financial strategy (Modigliani & Miller, 1958). ROA ratios measure the profitability of firms' assets, which is directly related to firms' overall performance and efficiency (Penman, 2007). Although the relationship between geographic location and economic performance has been investigated in several studies (Porter, 1998; Fujita et al., 1999), the aim of our present research is to investigate the extent to which these factors affect the financial performance of automotive suppliers in Hungary. This type of analysis can help to better understand the relationship between regional differences and firm performance (Szenoradszki, 2009).

- H2: Among the suppliers representing the industrial axes presented, the flagship companies cover at least half of the relevant market, taking into account the stock of fixed assets. Rationale: one way of approximating the level of investment in terms of business activity is to look at the volume of fixed assets, which can be used to index the concentration of the chosen economic segment in this area (Barney, 1991). Firms with a larger stock of fixed assets–the so-called flagship firms–may be able to achieve a dominant position in the market, ensuring coverage of at least half of the market (Porter, 1980). In the framework of the present hypothesis, we investigate the extent to which the intensity of investment in the automotive supplier segment, as reflected by the stock of fixed assets, is concentrated among the flagship firms. This approach allows us to index the concentration of the chosen economic segment and to understand to what extent some firms dominate this market.
- H3: After removing outliers, there is no significant difference between the loan-to-value ratios and the values are spread within a narrow interval. Rationale: Understanding the borrowing/repayment strategies of companies and identifying possible divergences between them can be an important factor in understanding the functioning of companies. The debt management policies of firms are a key determinant of their financial stability and long-term competitiveness (Modigliani & Miller, 1958). In the previous hypothesis, the debt ratio was used as an element of grouping and part of the pattern discovery, but it was considered necessary to include a more focused and detailed analysis of the debt management dimension, which is not negligible for the present study. The present hypothesis focuses on the extent to which firms' loan-to-value ratios are dispersed within a narrow interval after outliers have been filtered out. This analysis allows us to understand how uniform firms' borrowing and repayment policies are across the industry and whether there are significant differences. The homogeneity or heterogeneity of debt ratios can be an important indicator of the financial strategy and stability of firms (Jensen & Meckling, 1976). The dispersion of differences in the debt ratio ratios of firms within a narrow interval may suggest that similar financial strategies and credit management policies are in place across the industry (Myers, 1984; Titman & Wessels, 1988).
- H4: There is no significant relationship between the money ratio indicator and net sales of the selected automotive companies. Rationale: With this hypothesis, our aim is to gain a deeper insight into the solvency strategy of the automotive segment under study. The focus of this part of the analysis is to confirm or refute the hypothesis that turnover influences solvency strategies or, on the contrary, that it is an industry characteristic of the automotive flagship firms under

study on which the size of net turnover does not have a significant impact. Solvency strategies can be a determinant of a company's financial stability and liquidity, which relate to meeting short-term financial obligations. The cash ratio is one of the most commonly used metrics in this area, measuring the ratio of a firm's current assets to its current liabilities (Brigham & Ehrhardt, 2013). However, it is not clear whether firms' net sales have a direct impact on this indicator or whether it is rather determined by industry-specific factors and firms' individual financial strategies (Myers, 1984; Titman & Wessels, 1988).

- H5: There is no significant relationship between fixed asset stock values and the operational efficiency (TATO indicator) of the selected firms. Rationale: The central question of this hypothesis is to clarify the assumption that the performance of the firms under study may depend on the volume of their fixed assets as well as on other factors related to the organisation of production. However, the TATO indicator, which measures operational efficiency, is not necessarily directly related to the size of fixed assets, as it can be influenced by the organisation of production processes, the management of the firm, as well as other operational factors (Brigham & Ehrhardt, 2013; Ross et al., 2016). The aim of the analysis is to explore whether firm performance in the firms and time period under study can be described by the size of the stock of fixed assets, or whether it is rather influenced by other factors related to the organisation of production. There is a large body of research in the literature examining the relationship between fixed assets and operating efficiency, but the results are inconclusive. Some studies suggest that high levels of fixed assets can contribute to operational efficiency, while others argue that efficiency depends more on management capabilities and the optimisation of production processes (Titman & Wessels, 1988; Harris & Raviv, 1991).
- H6: We can explain the efficiency of firms' operations (TATO) better by profitability (liquidity grade I) and creditworthiness (debt ratio) than by firm size (based on net sales) and tangible assets combined. Rationale: Our sixth hypothesis aims to refine and extend the fifth hypothesis by testing the extent to which two more complex multidimensional models, incorporating the main determinants of the present analysis, can effectively explain firm performance and their relative effectiveness. The hypothesis juxtaposes the financial and financing aspects with a model based on turnover and fixed assets. According to the literature, the operational efficiency of firms is influenced by several factors, including profitability, liquidity, and creditworthiness, which are directly related to the financial health of the firm and its ability to meet its short- and long-term obligations (Brigham & Ehrhardt, 2013). Liquidity I and the debt ratio are key indicators of the financial health and creditworthiness of a firm (Ross et al., 2016). However, firm size (as measured by net sales) and tangible assets can also play a significant role in operational efficiency, as these factors influence a firm's productive capacity and long-term investment capability (Titman & Wessels, 1988). The aim of this analysis is to explore whether operational efficiency (TATO) can be better explained by indicators of profitability and creditworthiness than by considering firm size and tangible assets together.

METHODS

The main criterion for the selection of the automotive companies included in the present study is that they can make a significant contribution to the development and growth of the Hungarian-owned SME sector, and thus to the development of the region.

The companies were selected on the basis of the principle that the sample should include all large Hungarian automotive companies in the region, as well as their suppliers from the medium-sized enterprise sector. In the case of medium-sized enterprises, the sample was limited by the scope of the information available, on the basis of which this group of suppliers was identified. Furthermore, it was important to include the largest players in the automotive industry and their regional linkages (including the location decisions of the incoming firms). Therefore, the research also included some automotive players outside the focal point (e.g. Mercedes).

In the construction of the territorial categories, spatial proximity and the concentration of economic activities were considered as the main criteria. The spatial analysis does not focus specifically on Zala County, as no major automotive supplier was identified in this area during the sampling procedure, according to the criteria of the analysis (Figure 1).

Figure 1. Geographical location of the regions and companies included in the study

The first part of the study examines the economic activities (product structure), customer base, and industrial traditions of the subsidiaries of foreign groups, which are also the main determinants of the choice of location. Given that, with a few exceptions (Völgyi & Lukács, 2021), the microeconomic literature has not reported on the territorial location and operation of foreign affiliates in Hungary, the eligible companies in this study were selected from the HVG TOP500 supplements, county TOP100 and TOP200 booklets, the HIPA National Investment Agency web portal and publications, the Ceginformacio.hu website's Crefoport database, and Google Maps. The turnover reported in the financial statements for the closed financial year, as well as for the last month accounted for, was collected from the Ceginformacio.hu portal. Additionally, the data required for benchmarking the companies under review were provided by the Crefoport database. This database contains the raw data, financial statements, and workforce data of all companies registered in Hungary. For the benchmarking, we mainly used accounting data, which were extracted from the aforementioned website database in the form of annual reports.

The reasons for the choice of location, particularly the business partners (customers) and the economic activity, product structure, and partly the development path, were analyzed mainly by the MFOR (Management Forum), the HIPA (Hungarian Investment Promotion Agency), and the website of the Hungarian automotive manufacturers and suppliers (autopro.hu), a relevant professional body for the automotive industry. For the illustrations, logarithmic scaling was used where appropriate to present the figures in a compact way, as they cover a very wide range of values.

In the second part of the study, statistical methods (financial ratios, correlation calculations, and cluster analysis) are used to provide a comprehensive picture of the companies concerned in the area under study. Since the companies were established at different times, the starting date was essentially the first year of the financial crisis (2008). Naturally, younger firms were also included in the baseline study, but were not included in the subsequent statistical analysis. To ensure the assessment covered the same time period, firms established after 2008 were filtered out, allowing the examination of automotive suppliers between 2008 and 2020. For the more general, full-period analysis, all years between 2008 and 2020 were included in the variables, but only data for the current year (the last known closed financial year) were used to perform the cluster analysis. It is important to note that only firms with an active market status were included in the analysis.

The three sets of indicators were liquidity, leverage and efficiency, for which the cash ratio, quick ratio, debt ratio, gearing ratio, asset turnover ratio and asset profitability ratio were calculated. For comparison purposes, we selected some key financial indicators to test the above hypotheses. In order to make the financial analysis more efficient, the indicators have been defined as set out in the table below and the calculation methodology described here has been applied in the calculations. In selecting the indicators, we have endeavoured to present the most relevant ratios from an operational point of view (Table 1).

The selected indicators have been calculated for each year and for each company within the specified time interval. The values of the indicators were plotted on an annual basis and then examined to detect any differences in trends.

Liquidity I shows the current solvency, as it takes into account securities and free cash, the value of which is proportional to the current liabilities. These assets are the quickest-selling, so they can be used to generate extra cash with almost no loss. The minimum required and safe value is 100% or above; however, if a credit assessment is carried out by a financial institution, an average of 150–180% is considered safe (Takács, 2021).

Table 1. Defining the financial ratios

Indicator group	Rate	Formula
Liquidity	Liquidity I (Cash Ratio)	$\frac{\text{Cash + Cash equivalents}}{\text{Current liabilities}}$
	Liquidity II (Quick Ratio)	$\frac{\text{Current assets + Accounts receivable}}{\text{Current liabilities}}$
Leverage	Debt ratio	$\frac{\text{Total liabilities}}{\text{Total assets}}$
	Debt-to-Capital Ratio	$\frac{\text{Total liabilities}}{\text{Shareholders' equity}}$
Efficiency	Turnover to Assets Ratio (TATO)	$\frac{\text{Net sales}}{\text{Total assets}}$
	Return on Assets (ROA)	$\frac{\text{Profit after tax}}{\text{Total assets}}$

Liquidity II shows the proportion of short-term liabilities that a company can cover if the value of inventories is not taken into account. An indicator of 40–60% is generally acceptable, but the closer the value is to 100%, the more reliable the company's solvency. In Hungary, the World Bank benchmark value is 70% (Takács, 2021).

The debt ratio, also known as the debt-to-equity ratio, compares all liabilities to all assets and looks at their ratios. Its purpose is to show the extent to which the company is able to cover its external liabilities. The lower the value of the ratio, the lower the risk taken by creditors. Values above 70% are considered indicative of a high-risk firm (Takács, 2021). As the automotive industry is capital-intensive, the debt ratio and gearing ratio are important measures for assessing automotive companies, as they measure the overall financial health of the company and its ability to meet its financing obligations. Rising ratios indicate that the company is increasingly financed by creditors rather than by its own equity or existing assets. Therefore, both investors and potential creditors prefer a lower ratio.

In this group of indicators, it is also worth examining the debt-to-equity ratio, which expresses the extent to which own resources can cover the external resources used. It is calculated as the ratio of equity to total liabilities. The lower the ratio, the lower the risk associated with the firm. There is no minimum or maximum value set in the literature for this indicator, but for manufacturing companies with large fixed assets, the lower the value, the better. In some cases, a negative equity value may be encountered, which indicates that the owners have contributed less than the minimum required subscribed capital to the operation of the company. In these cases, the calculated ratio is also negative (Takács, 2021).

From the set of efficiency indicators, we have highlighted the TATO and ROA indicators, as they play an important role in the automotive industry and related investment and lending decisions. First, we calculated the TATO, i.e., the asset turnover ratio, which shows the efficiency with which the stock of assets contributes to the increase in turnover, i.e., how many times the assets are returned in terms of turnover in a year. Values above one are considered acceptable (Takács, 2021).

Finally, the ROA indicator values were calculated based on the formula described above, i.e., the return on assets indicator, which is the return on total assets. In cases where the value of the ROA ratio was negative, the firms were loss-making, i.e., on average, the value of their after-tax profit was also negative (Takács, 2021). ROA is a key financial indicator in the valuation of almost all companies and is certainly an important metric in the analysis of automotive companies. ROA is particularly important for investors as it measures the net profit of a company relative to its assets, essentially indicating how profitable the company is, i.e., how much return on assets it can generate for investors. Tangible assets tend to have a high value, so a high level of tangible assets helps to increase the valuation of the company and expand access to capital. The cash ratio (Liquidity I) shows the extent to which a company will be able to pay its short-term debts using only its most liquid assets. The ratio is important because it indicates to both management and investors whether the company is running out of cash.

The performance of companies is primarily measured by whether the company's strategy and its implementation and execution contribute effectively to profitability, liquidity, efficiency, and solvency.

One of the analytical limitations of the indicators used is that they may be affected by internal accounting transactions within international firms and should be assessed with caution in light of these considerations. An important limitation of the territorial application of financial indicators is the way in which the results are linked to the territorial units. This has been taken into account in the present study, so no direct conclusions are drawn in relation to the territorial linkages and effects based on the financial indicators. The territorial classification is based on the spatial concentration defined above, while the clusters based on financial indicators are based on the performance of the firms, without undertaking a territorial breakdown. Financial indicators are assigned to the enterprise and not to its spatial units, which is the basis for their typification and clustering.

To verify the hypotheses described in the objectives, we used IBM SPSS 28 software and applied correlation, clustering, and multivariate linear regression analysis methods. For the correlation analysis, we used Pearson's correlation (Magnello, 2009), which measures the existence (p-value) and strength (r coefficient between -1 and +1) of a linear relationship between two variables. If the result is significant, we conclude that a correlation exists. The correlation analysis focused on the last year of the data collection period.

In relation to hypotheses H1-H3, we first clustered by geography, as detailed above. The clusters were formed primarily based on the geographical location of the firms under study.

Cluster analysis was also used in the research. The primary purpose of cluster analysis is to reduce the dimensions, thereby grouping the variables under investigation along different criteria. In the first step, hierarchical clustering separates each case into its own individual cluster, so that the initial number of clusters is equal to the total number of cases. In successive steps, similar cases—or clusters—are grouped together until all cases are grouped into a single cluster (Norusis, 2010). Within this methodology, different procedures can be applied, of which the results of the present study are based on the Ward method. The Ward method aims to minimize the variance within each cluster. It achieves this by defining the distance as the difference in variance between clusters by aggregating the clusters (Ward, 1963).

The first step in the analysis was to design the database appropriately and to sort the data. Outliers were filtered out and standardization was applied to the indicators. The analysis was carried out using only metric variables. We then examined the correlation between variables using Pearson's coefficient, which met the requirements for running a cluster analysis (low, non-significant correlations between variables). Clustering was performed using a quadratic Euclidean distance to delimit the groups. Analysis of variance was used to analyze the internal structure of the groups. The focus of the cluster analysis was on the last year of the data collection period.

To test our last hypothesis (H6), a linear multivariate regression analysis was performed, where the outcome variable is TATO and the explanatory variables are the money ratio indicator, the debt ratio, firm size, and fixed asset stock. Since several data points are not based on the same scale, we took the natural logarithm of all values, filtering out any outliers. A multivariate linear regression model was constructed from the variables under study, and two separate models were created. Our analysis compared the explanatory power of these models. For both models, we examined the correlation between the explanatory variables, i.e., multicollinearity. First, we checked the Variance Inflation Factor (VIF) indicator to see whether there are problems of multicollinearity among the independent variables used in the study. In the literature, VIF values between 2 and 5 generally indicate a strong multicollinearity problem. In neither case did we detect such a problem; the VIF coefficient ranged between 1 and 2 for both models, allowing us to work with the variables of choice (Kennedy, 2003).

RESULTS

Spatial and Investment Statistical Characteristics Underpinning Geographical Clusters

In Western Hungary, greenfield investments have contributed to the formation of industrial zones, driven partly by historical industrial traditions and partly by foreign enterprises building upon them. These industrial zones are characterised by a division of labour both within and between them, forming value chains predominantly composed of suppliers. In the northern part of Western Hungary, a prominent industrial axis emerges, anchored by Audi, SK Innovation, and Suzuki. This axis encompasses the municipalities of Mosonszolnok, Győr, Komárom, Nyergesújfalu, and Esztergom. South of this lies the Tatabánya–Környe–Oroszlány–Mór industrial zone, which maintains strong economic ties with Komárom, particularly in the field of electromobility. Further south in Fejér County, the Székesfehérvár-Dunaújváros-Rácalmás triangle constitutes another key industrial cluster. To the west of this zone, the Veszprém–Ajka–Pápa industrial triangle emerges, dominated by large electronics companies.

The northern industrial axis, the first focus of this analysis, extends approximately 140 km from Hungary's western border. More than half of the transportation infrastructure connecting the examined settlements consists of motorways. Industrial actors in this region span all hierarchical levels (based on population size), from small communes to major cities. For example, Mosonszolnok, despite its population of only 1,600, benefits from its strategic location near the Hegyeshalom border crossing, the M1 motorway, and the county's second-largest city. These factors, along with freight traffic that bypasses the municipality, make it a highly attractive location for industrial investment.

Another advantage of the Axis towns is their strategic geographical location, particularly their proximity to German, Czech, and Slovak factories and logistics routes. This is further enhanced by the availability of a skilled workforce, characterized by a higher proportion of 25–64-year-olds with at least upper secondary education, and the potential for public support through subsidies and improved conditions for economic development. Key industrial players in the region include Audi Hungária Company, which significantly impacts the economic, social, and spatial structure of the area. This list is complemented by Magyar Suzuki Corporation Ltd, whose operations balance the industrial output of Győr and Komárom by establishing and shaping supplier networks. Original equipment manufacturers (OEMs) play a crucial role in these networks through their customer orders.

The most prominent centre within the industrial axis is Győr, a city with a rich history in the automotive, mechanical engineering, and metalworking industries, supported by Széchenyi István University's contributions to higher education. The city's industrial activities are concentrated in six large and one medium-sized company, many of which directly supply Audi Hungária. Notable examples include Nemak Győr Ltd., REHAU-Automotive Ltd., and HBPO Automotive Hungária Ltd. These companies also fulfil orders for other European automotive OEMs, further cementing Győr's role as a key industrial hub.

Komárom, another critical hub of the axis, hosts medium and large companies primarily engaged in electromobility. The city's significance extends beyond its immediate area, as it influences the regional economic landscape. Several East Asian medium-sized companies in Nyergesújfalu, Tatabánya, and Környe have strategically chosen to establish operations in Komárom County to efficiently supply raw materials to factories in Komárom. SK Innovation's decision to locate in the region was driven by the need to remain competitive with other East Asian companies and the proximity to the Mercedes factory in Kecskemét.

Between 2008 and 2020, the most dynamic growth in the region was observed in companies producing front-end and centre consoles, plastic components, rear-view mirrors, running gear, and engines. However, the global financial crisis of 2008, followed by the economic impacts of the COVID-19 pandemic (e.g., postponed credit-based investments, supply chain disruptions, and liquidity challenges), caused a slowdown or decline in certain areas. Despite these challenges, battery (SK On) and carbon fibre (Zoltek) plants demonstrated relative resilience to the crises due to several contributing factors.

In the case of the latter, positive developments began before the outbreak of the COVID-19 pandemic. In 2018, the company launched a HUF 30 billion development project, resulting in a 50% increase in production volume and establishing Europe's largest carbon fibre production base in Nyergesújfalu. With the construction of a new production hall, the company added 350 employees, reaching an annual output of 15,000 tonnes. This expansion further strengthened its automotive portfolio, with products primarily focused on reducing the weight of electric vehicles.

To counteract negative economic trends, companies leveraged opportunities provided by the Competitiveness Enhancement Grant (CIP) programme (7/2020 CCM Decree 2020). This initiative stimulated critical investments needed in the wake of the COVID-19 crisis. Medium and large enterprises across diverse industries and sectors, with a workforce of 30 or more, could apply for the aid if they demonstrated financial or economic difficulties due to the pandemic—such as a drop of at least 25% in net sales or orders—or committed to making investments of at least €150,000.

In the central-southern zone of Komárom-Esztergom County, the main industrial hub is Bridgestone Ltd. Its continuous growth can be attributed to automated and digital production technologies, cumulative investments of approximately €130 billion since its establishment, and its active participation in the VNT programme. Most surveyed companies in the region selected their sites based on the Central Transdanubian region's longstanding traditions in the light metals industry, particularly in metal casting and machining, as well as its strategic location near customer bases and the M1 motorway.

In addition to this, the Fejér County zone is home to several significant plants producing steel products, tyres, system control components, air conditioning compressors, and aluminium wheels, which contribute prominently to the regional economy. Companies such as Videoton Autóelektronika Ltd. and Harman Becker Ltd., a leading manufacturer of communication equipment, demonstrated exceptional growth in fixed assets during the review period. Their resilience stems from continuous innovation, the practice of pre-contracting (planning 5–7 years before delivery, as automotive manufacturers typically operate on a five-year model cycle), and prudent capital management. Notably, these companies reinvest retained earnings rather than distributing dividends, ensuring sustained investment and growth.

The main industrial hubs in Veszprém County include Ajka, Pápa, and the county seat, Veszprém, where electronics and mechatronics companies dominate. In Veszprém, the high-tech electronics sector, closely linked to mechanical and automotive engineering, began its development during the regime change. The production legacy of Videoton's former electronics site in Veszprém and the University of Veszprém's expansion in the 1980s—focusing on instrumentation and measurement technology—played a crucial role in fostering this growth. These developments have paved the way for the emergence of market-leading electronics groups.

In terms of fixed assets, the most significant players are Valeo, which manufactures automotive electronics, and Continental Automotive Hungary Ltd. Valeo's R&D department collaborates closely with the University of Pannonia's research activities, while Continental's operational needs prompted the university to introduce a mechatronics degree programme in 2005 and a master's degree in automotive systems engineering in 2010. Both companies have exhibited substantial growth, with Valeo Siemens Ltd. standing out for its exceptional resilience during the COVID-19 crisis. This resilience can be attributed to pre-pandemic investments and the multi-year timelines of many of their projects. Industry manufacturers are consistently adopting new technologies, while suppliers prepare to meet demand through investments. Notably, the electric car industry has largely avoided significant negative impacts from the COVID-19 pandemic.

The industrial centre of Vas County is represented by Szombathely, the county capital. Key players include Schaeffler, a leading manufacturer of clutches and the most significant company in terms of capital goods value, and TDK Group's subsidiary, which produces electronic components. Another major actor is Opel Szentgotthárd Ltd., which has a considerable impact not only on Szentgotthárd and its surroundings but also on the entire county and the Western Transdanubian economy.

Evidence suggests that the relative "crisis resilience" of the studied companies often applies more to their Hungarian subsidiaries than to their parent groups. When reallocating excess capacity, cost considerations typically determine where production is redirected, favouring more cost-effective assembly locations. In the case of assembly plants, capacity reallocation can often be accomplished within months. However, the company's profile significantly influences fixed asset values, as firms engaged in light metal casting, for instance, face greater challenges in reallocating capacity compared to those focused on assembly.

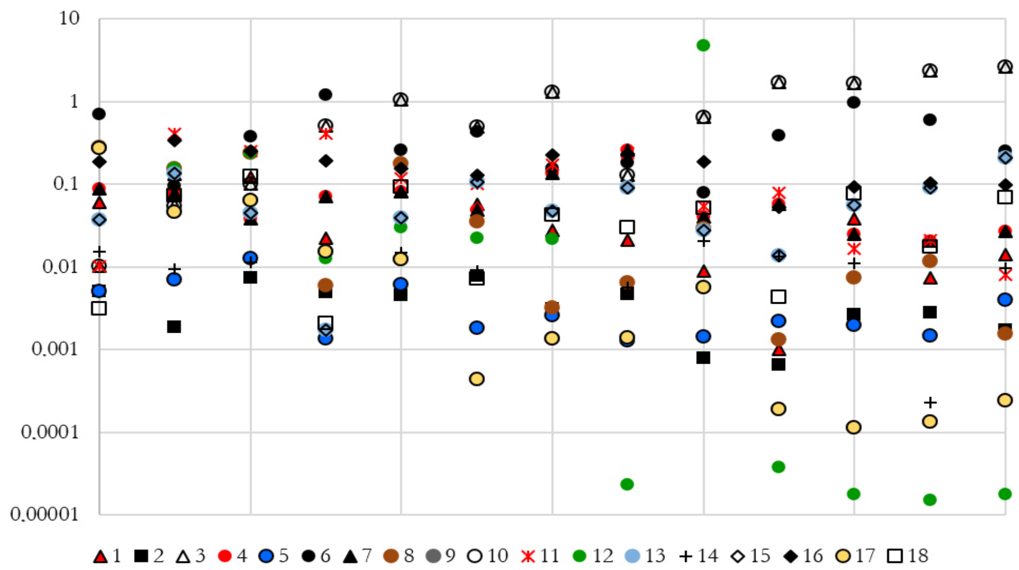
Benchmarking of companies in the study area

Analysis of the data showed that most of the companies surveyed have no securities and that their free cash is only a fraction of the value of their short-term liabilities. Consequently, the values of the Liquidity I indicator varied significantly among the companies surveyed. Figure 2 illustrates these values over the entire study period.

For most firms, the current value of the Liquidity I indicator is close to or above the expected value (1 or above). Although there are a few outliers, their number is small, resulting in noticeable differences between firms when examining annual values. Except for the firms with outliers, most values are evenly distributed around the group averages. As shown in Figure 1, the values for the study period are broken down by year in Figure 3 below.

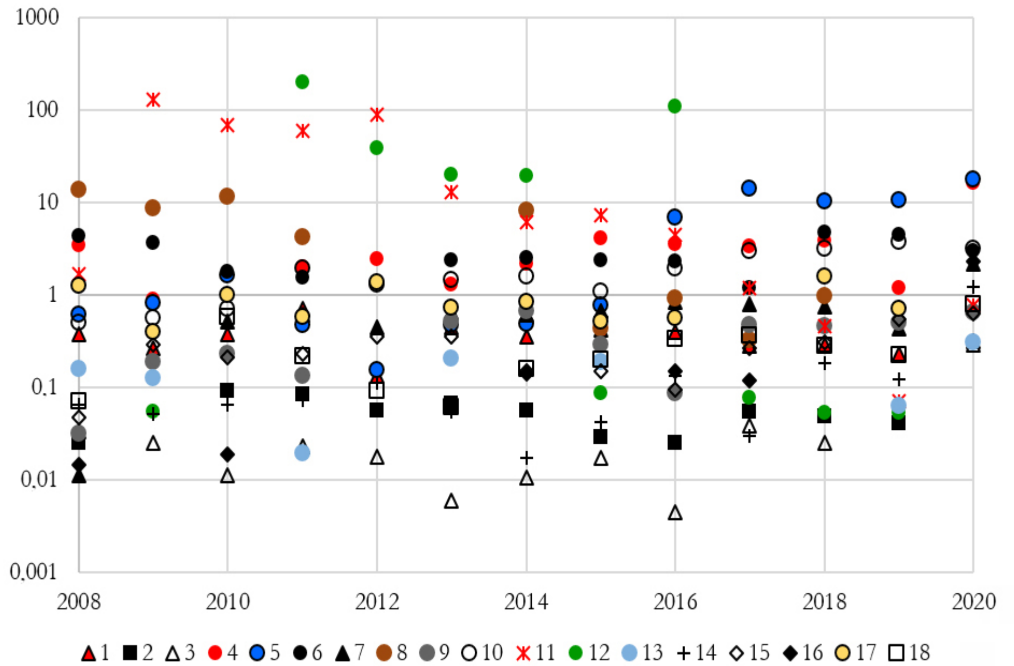
Aside from the company with the outlier value, there is relatively little difference between the calculated fast rate values. In 2016, the distribution of the sampled firms was disorderly according to the Liquidity II indicator, but in the following years, some stabilization is observed: the values are at a similar level for all the firms analyzed.

Figure 2. The current ratio values of selected companies (2008–2020)*



* Due to the nature of the figure, the horizontal axis indicates the firms surveyed with their respective serial numbers (see Annex 1), while the vertical axis indicates the classifications corresponding to the values of the indicator. Source: own editing, 2022.

Figure 3. The quick ratio values of selected companies (2008–2020)*,**

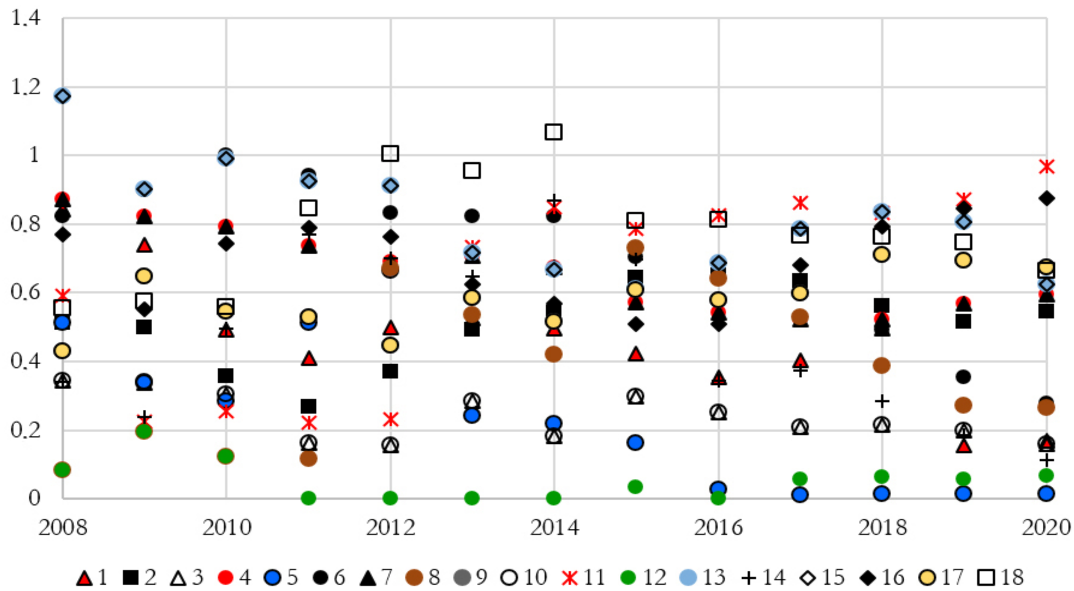


* Due to the nature of the figure, the horizontal axis indicates the firms surveyed with their respective serial numbers (see Annex 1), while the vertical axis indicates the classifications corresponding to the values of the indicator. ** Negative values have not been included in the figure due to logarithmic analysis. Source: own editing, 2022.

The year 2020 brought a change in the evolution of this indicator, with positive shifts compared to the previous period. This indicates that the firms' capital strength increased during this period, improving their overall liquidity and providing a more stable asset base. This process was linked to the Covid-19 pandemic, as many relief measures were introduced this year, leading to an increase in orders. Additionally, several companies started selling additional revenue-generating products or new services during this period (e.g., masks, car cosmetics). Furthermore, the possibility of receiving various public subsidies increased, allowing firms to correct revenue shortfalls and stabilize their financial situation.

Figure 4 shows the debt ratios of the firms in our sample. Values above 70% indicate a high level of risk for the firms under study, according to the literature. Outliers can be observed in relation to a single firm, but most firms are concentrated around the acceptable rate (70%), and are therefore considered less risky from the perspective of lenders (Takács, 2021). Excluding the firms with outliers, the debt ratio values are within the same range.

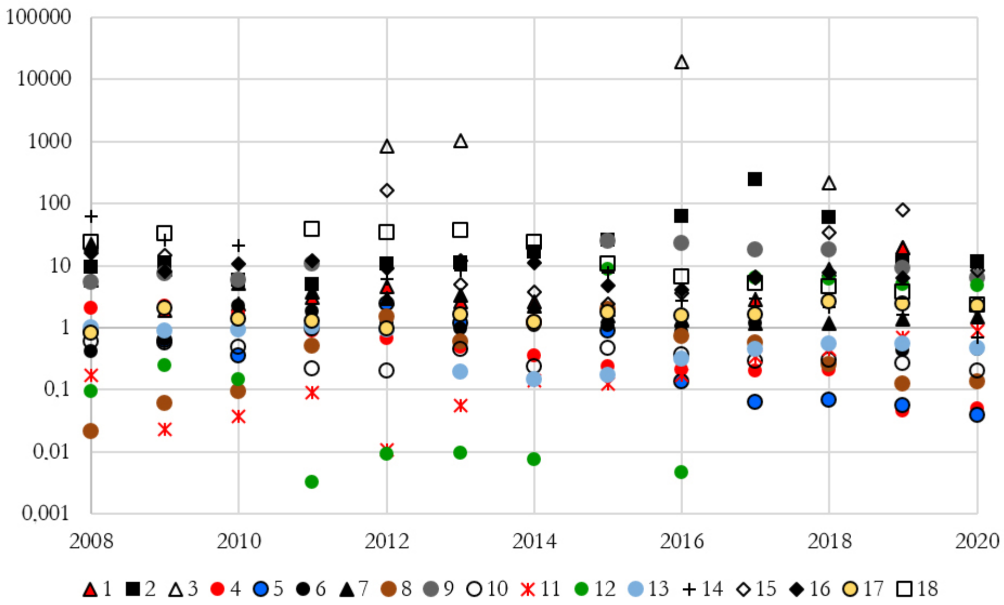
Figure 4. The values of the debt ratios of the selected companies (2008–2020)*



* Due to the nature of the figure, the horizontal axis indicates the firms surveyed with their respective serial numbers (see Annex 1), while the vertical axis indicates the classifications corresponding to the values of the indicator. ** Negative values have not been included in the figure due to logarithmic analysis. Source: own editing, 2022 (Crefoport database).

Figure 5 presents the capital stress ratios of the surveyed companies over the study period. Several companies had negative equity values, resulting in negative capital stress indicators. One company exhibited a high outlier value compared to the other test results, but the majority of the companies tested had adequate capital stress values. For companies with non-negative equity, similar values were observed, indicating a general trend of maintaining sufficient capital to cover external resources.

Figure 5. The values of the capital adequacy ratio of the selected companies (2008–2020)*



* Due to the nature of the figure, the horizontal axis indicates the firms surveyed with their respective serial numbers (see Annex 1), while the vertical axis indicates the classifications corresponding to the values of the indicator. ** Negative values have not been included in the figure due to logarithmic analysis. Source: own editing, 2022 (Crefoport database).

Results of hypothesis testing

The following groups were identified based on geographical location for testing hypotheses H1-H3 (Table 2).

Table 2. Grouping of the selected companies according to their geographical location*

Name of area**	Area serial number
West-Hungary Industrial Axis	1
Komárom	2
Northern Industrial Belt – Esztergom	3
Fejér county	4
Veszprém county	5
Vas county	6

*Criteria of spatial proximity and density points of economic activities. **No sampling points were identified in Zala county for reasons detailed in the methodological description. Source: own editing, 2022 (Crefoport database)

As a first step, the groups were formed based on the first degree of liquidity—namely, the cash ratio, the debt ratio, and the ROA—using a hierarchical clustering technique. Table 3 shows the classification of firms into clusters relative to their geographical location.

Table 3. Comparison of hierarchical cluster groups with geographic location

Company	Groups based on hierarchical clustering	Clusters by geographical location
BOS Automotive Products Hungary Maufacturing Limited Partnership	1	1
BUSCH-HUNGÁRIA Ltd.	2	1
Thyssenkrupp Components Technology Hungary Ltd.	1	1
Magyar Suzuki Corporation Ltd.	2	3
BYD Electric Bus & Truck Hungary Ltd.	1	2
ROSSI BIOFUEL Biofuel Manufacturing and Trading Company	2	2
Vandamme Hungária Ltd.	1	2
Dana Hungary Maufacturing Ltd.	3	1
DENSO Manufacturing Hungary Ltd.	1	4
Hirtenberger Automotive Safety Hungary Manufacturing and Trading Limited Partnership	2	5
Howmet-Köfém Székesfehérvári Light Metal Work Ltd.	1	4
Kirchhoff Hungária Auto Parts Manufacturing Ltd.	2	3
Nemak Győr Aluminium Foundry Ltd.	2	1
Opel Szentgotthárd Automotive Ltd.	2	6
SMR Automotive Mirror Technology Hungary Limited Partnership	1	1
Tyco Electronics Hungary Manufacturing Ltd.	1	3
Diamond Electric Hungary Ltd.	1	3
Mercedes-Benz Manufacturing Hungary Ltd.	3	1

Source: own editing, 2022

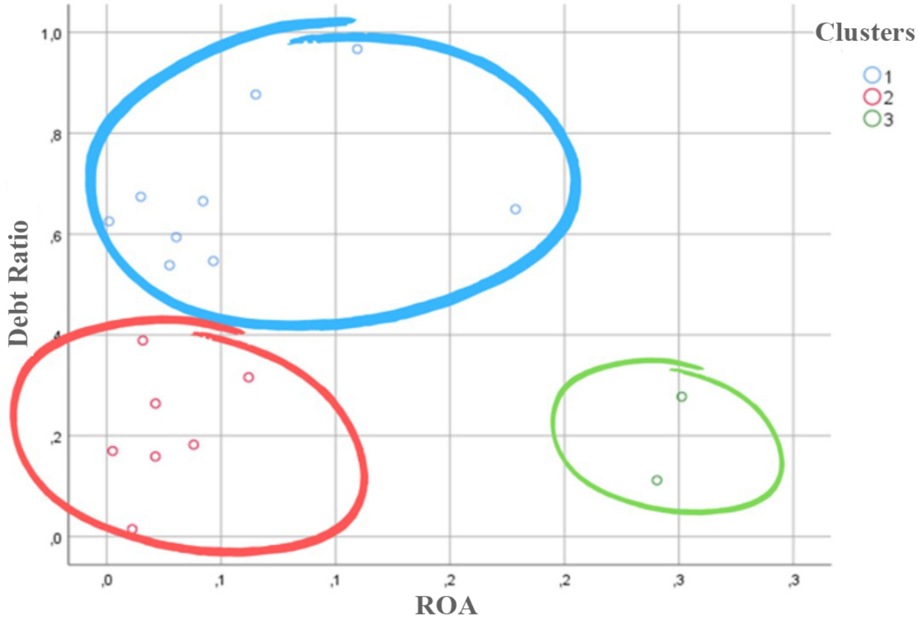
Our hypothesis H1 had to be rejected as the analysis shows that there is a significant difference between the groups based on tangible assets, debt ratio, ROA ratios, and the geographical location of the selected automotive firms. The results indicate that regional differences are likely to have a substantial impact on the financial performance and ratios of automotive suppliers. This implies that geographical location plays an important role in the economic stability and strategy of firms. This can be explained by variations in economic environments, infrastructure, labor market conditions, the presence of industry clusters, and government support across different regions. Furthermore, the proximity, number, and quality of local partners, as well as differences in regional macroeconomic indicators, can all affect firm performance. This finding suggests that micro-factors (e.g., local suppliers, partners) and macro-factors (e.g., regional economic development) are closely related to firms' financial performance.

The result may encourage companies to consider regional differences in their strategic planning. For example, when making investment decisions, it may be important to take into account the economic situation and potential of different regions and to adapt their strategies accordingly, optimizing their operations and competitiveness.

Broadly speaking, these results can also be useful for economic policymakers designing regional development programs and support measures. They can identify regions where more support is needed to improve the financial stability of automotive suppliers. Targeted policy measures can be introduced to address regional disparities and reduce economic inequalities.

During the clustering process, the stock of fixed assets was also included as a clustering variable. This is not shown in Figure 5 due to the two-dimensional representation. Therefore, for a full presentation of the data, a comprehensive table with the main parameters of the clusters is also provided (Table 4). The separation of the three clusters is not identical to the clusters formed based on geographical location.

Figure 6. Groups formed by cluster analysis with Ward Method



Source: own editing, 2022

Table 4. The number of elements, average and standard deviation per groups formed by the cluster analysis and the analyzed sample

Cluster code number	Descriptive statistical parameters	ROA (2020)	Liquidity I (2020)	Debt ratio (2020)
Mostly downwards from the sample average	Average	-0.40	-0.33	0.12
	Item number	9	9	9
	Standard deviation	0.49	0.17	1.04
Emerging	Average	0.61	2.72	-0.95
	Item number	7	7	7
	Standard deviation	1.22	0.03	0.03
Peak Performers	Average	2.17	-0.39	0.08
	Item number	2	2	2
	Standard deviation	0.08	0.06	0.97
Teljes elemzésbe vont minta	Average	0.00	0.00	0.00
	Item number	18	18	18
	Standard deviation	1.00	1.00	1.00

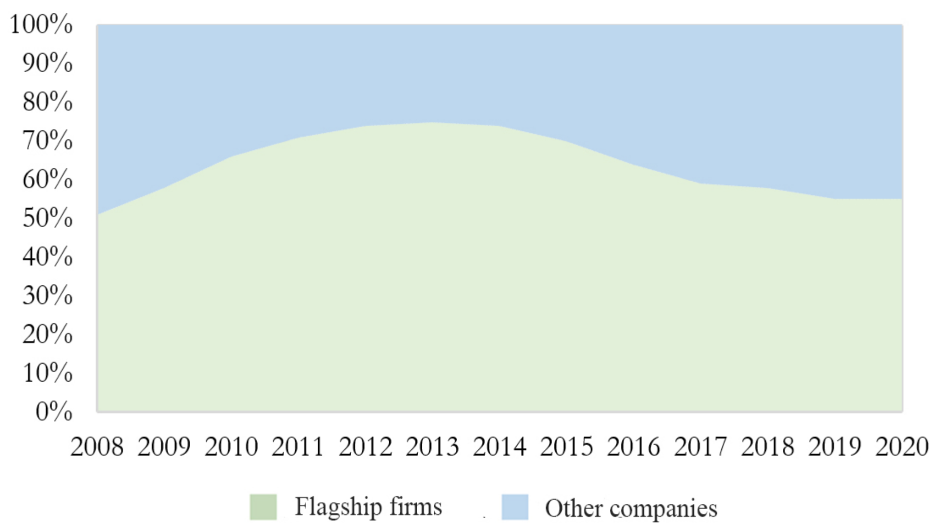
Source: own editing, 2022

Figure 6 clearly illustrates that the firms studied can be grouped into three clusters. Cluster one is characterized by a high debt ratio and a low ROA, indicating low asset holdings and a limited ability to cover most liabilities based on these ratios. The low profit-to-asset ratio, a consequence of lower asset holdings, suggests a lower level of profit on total corporate assets. This information also hints at the efficiency of these firms, which is why this group is labeled ‚Mostly downwards from the sample average.'

The firms in cluster two are in a better position, where assets cover liabilities well, yet the profit value remains low, resulting in a low ROA. This group is therefore labeled ‚Emerging.' Cluster three consists of a few firms that exhibit efficient asset allocation, low debt ratios, and strong profit generation capacity based on ROA values. This cluster is labeled ‚Peak Performers' based on these known characteristics.

Figure 7 displays the distribution of tangible asset holdings among the firms under study. In the automotive sector, understanding the processes involved in changes to fixed assets, which impact operations and efficiency, is a crucial source of information and thus the focus of this variable.

Figure 7. Annual distribution of tangible assets for selected companies



Source: own editing, 2022 (Crefoport database)

In testing our hypothesis H2, we observe that the asset holdings of flagship firms exceeded 50% of the analyzed market in each year of the study period (Figure 6). A flagship firm is defined as a multinational company that takes strategic leadership of a business network comprising four other partners: key suppliers, key customers, selected competitors, and non-business infrastructure. Successful flagship firms need to foster trust and develop collaborative relationships with their partners (Rugman & D'Cruz, 1997; Tömöri, 2015).

In our case, we included three large companies among the flagship firms, whose brand value and name are dominant in the market: Magyar Suzuki Corporation Ltd, Mercedes-Benz Manufacturing Hungary Ltd., and Opel Szentgotthárd Automotive Ltd. Audi Hungaria was excluded from the analysis due to insufficient data for the review period, which could have biased the results. However, based on the information obtained, it can be stated that our hypothesis H2 has been fulfilled. The result confirms that the automotive supplier market in Hungary is dominated by larger firms, especially in terms of the stock of fixed assets. This implies that a significant share of investment activity and the volume of fixed assets is attributable to these larger, flagship firms.

This can be explained by the fact that larger companies have more resources and capital, allowing them to invest more and accumulate more assets. This provides important information for strategic planning for both companies and economic policymakers. For smaller firms, recognizing market concentration and tailoring their strategy accordingly can be crucial, for example by seeking niche market areas or providing specialized services.

The consolidation of larger firms may encourage them to invest further, as their dominance and investment capacity are key to maintaining their market position. In a broader sense, for economic policymakers, the result suggests that supporting and developing larger, flagship firms should be a high priority, as these firms contribute significantly to the competitiveness of the industry as a whole. For investors, it suggests that larger companies are the most important players in the market and their investment decisions can be decisive for the industry's future. This can make larger firms more attractive to investors, as they are perceived as more stable and predictable investment targets.

Hypothesis H3 is discussed above in the assessment of Figure 3. After filtering out the outliers, it can be concluded that there is minimal variation between the loan-to-value ratios, as they are spread around a similar value. Thus, our third hypothesis is fulfilled, confirming that there is no significant variation in debt ratio (loan-to-value ratio) values among the selected automotive firms. The result suggests that relatively uniform debt management practices and strategies have developed among automotive suppliers in Hungary. This implies that companies manage their borrowing and repayment processes similarly, likely due to industry standards, market conditions, and requirements imposed by financial institutions standardizing credit management practices.

The result can assist companies in their financial planning and credit strategies. As loan-to-value ratios are spread over a narrow range, companies can plan their borrowing and repayment strategies more accurately, considering industry averages. Similar credit management practices allow companies to use benchmark data to assess their own performance.

Looking more broadly at the significance of the outcome, it can provide economic policymakers with crucial information for ensuring financial stability. Consistent credit management practices and financial stability can help shape policy measures that support stable growth in the industry. For investors and credit institutions, the result indicates that automotive suppliers have a relatively consistent financial risk profile. This consistency makes investment decisions and credit ratings easier, as companies' credit ratios are more predictable and less volatile. The spread within a narrow interval reduces the risk for credit institutions, potentially resulting in more favorable credit conditions for companies. The test of hypothesis H4 concerns the nature of the relationship between the variables, particularly its intensity (Table 5).

Table 5. Results of the examination of Hypothesis 4

Correlation matrix

		Liquidity I	Net sales
Liquidity I	Pearson correlation	1	-0.001
	Significance value (p)	0.995	
	N	18	18
Net sales	Pearson correlation	-0.001	1
	Significance value (p)	0.995	
	N	18	18

Since the results in Table 4 show that our significance value is greater than 0.05 ($p>0.05$), our hypothesis must be rejected, indicating that there is no significant linear relationship between the two variables under study. In other words, our hypothesis H4 is fulfilled. The result suggests that the solvency strategies of automotive suppliers are not directly related to the size of sales. This implies that firms consider other factors when maintaining their solvency, such as liquidity reserves, credit policies, or operational efficiency. This may be justified by the fact that the financial strategies of companies in the industry are multifaceted and not based solely on the size of turnover.

Furthermore, it shows that the relationship between the cash ratio and turnover in the automotive sector is not significant, which may indicate sector-specific characteristics. Industry features, such as high capital requirements, long-term investments, and strict regulations, may all influence firms' financial strategies. This suggests that maintaining financial stability in the automotive industry depends more on long-term planning and strategic decisions than on the immediate size of sales. Since there is no significant relationship between the cash ratio and sales, companies should pay attention to other indicators to maintain solvency, such as managing liquidity reserves, covering short-term liabilities, and optimizing lending policies.

For economic policymakers, the result suggests that the financial stability and solvency of automotive suppliers do not depend solely on the size of sales. This may encourage policymakers to design support measures that consider a wider range of financial indicators. Economic policy measures may need to focus particularly on improving the liquidity position of companies and ensuring long-term financial stability.

For investors and financial analysts, the result indicates that sales alone are not a sufficient indicator of a company's solvency. Companies' financial strategies, liquidity positions, and other financial indicators should also be considered when making investment decisions. This can increase investors' awareness of the financial situation of companies and help them assess risks more accurately. To test the H5 hypothesis, we also ran the previous correlation test, the results of which are shown in Table 6. Here again, the p-value is above 0.05, so there is no significant linear relationship between the two variables. This also proves our hypothesis H5. This result highlights that the size of fixed assets is not a unique or decisive factor in the operational efficiency of firms. Firms' performance and efficiency may depend on numerous other factors, such as human resource management, supply chain efficiency, technological innovation, and business process optimization.

Table 6. Results of the examination of Hypothesis 5

Correlation matrix

		TATO	Tangible assets
TATO	Pearson correlation	1	-0.065
	Significance value (p)	0.798	
	N	18	18
Tangible assets	Pearson correlation	-0.065	1
	Significance value (p)	0.798	
	N	18	18

This can be justified by the fact that the stock of fixed assets is only one aspect of a company's operations and does not necessarily guarantee high operational efficiency on its own. The expansion of fixed assets alone is not sufficient; integrated strategies that consider all relevant factors are necessary. To increase efficiency, companies need to optimize all operational processes and ensure that fixed assets are used efficiently and productively.

This result can contribute to the design of more comprehensive and effective economic policy support programs. For operational decision-makers, it underlines the importance of process optimization and integrated management.

For the model constructed to test hypothesis H6, the adjusted R^2 (coefficient of determination) is 56% for model 1 and almost 48.5% for model 2. Thus, our hypothesis H6 was also fulfilled for the groups of firms we selected during the study period, as our basic assumption was that the variables used in the first model explain the efficiency of firms better than those used in the second model (Tables 7–10).

Table 7. Results of the examination of Hypothesis 6 (I)

Regression model summary

Modell	R	R^2	Adjusted R^2	Standard error of the estimate
1	0.782[a]	0.612	0.560	0.441973131355970

a. Forecasts (constant), Debt ratio, Liquidity I

Table 8. Additional table of coefficients (I)

		Non-standardised coefficients		Standardised coefficients			
Model		B	Standard error	Beta	t	Significance	VIF
1	(Constans)	-1.074E-16	.194		.000	1.000	
	Debt ratio	.656	.213	.656	3.086	.008	1.132
	Liquidity I.	.077	.213	.077	.361	.023	1.132

a. Dependent variable: TATO

Table 9. Results of the examination of Hypothesis 6 (II)

Regression model summary				
Model	R	R^2	Adjusted R^2	Standard error of the estimate
2	0.739[a]	0.546	0.485	0.478006327280986

a. Forecasts (constant), Fixed assets, Size of enterprise

Table 10. Additional table of coefficients (II)

		Non-standardised coefficients		Standardised coefficients			
Model		B	Standard error	Beta	t	Significance	VIF
2	(Constans)	-2.986-17	.183		.000	1.000	
	Fixed assets	.442	.406	.442	1.088	.024	1.467
	Size of enterprise	.263	.406	.263	.647	.048	1.467

a. Dependent variable: TATO

Overall, the results suggest that financial stability and creditworthiness play a greater role in operational efficiency than firm size and tangible assets. A good liquidity position and adequate creditworthiness allow companies to operate more efficiently, respond more quickly to market changes, and maintain a more stable financial base. Liquidity and creditworthiness directly impact companies' short-term financial decisions, which are critical for operational efficiency.

On the other hand, the results also indicate that, although firm size and fixed assets are important factors, they are not sufficient on their own to fully explain operational efficiency. Larger size and significant fixed assets do not automatically guarantee efficient operations. This may be due to the fact that larger companies often face more complex organizational structures and administrative challenges that can undermine operational efficiency.

When considering financial strategic planning, a comprehensive financial strategy that focuses on liquidity and creditworthiness can help companies become more resilient and adaptable to market changes. The results underline that to improve operational efficiency, companies should not only aim to increase their physical assets and scale but also optimize their financial processes. An integrated approach to financial management is necessary to achieve operational efficiency.

CONCLUSIONS

The automotive industry is a large and growing sector in Europe and globally, with different roots in various countries. However, in the Central and Eastern European region, its importance has been growing steadily since the transition to market economy. Since the end of the 20th century, the automotive industry has been undergoing a process of reallocation, with machinery manufacturers of Western European origin relocating segments of the production value chain to Eastern Europe. This process has become necessary in the former socialist countries both as an opportunity offered by political change and as a result of market pressure to reduce costs. For this reason, the focus of the present study is on TIER1 automotive suppliers in Hungary.

The results show that some of the Hungarian firms studied are characterized by a relative „crisis resilience," which is due to regional, temporal, and sectoral characteristics. A regional characteristic is that, in the event of a crisis, favorable developments in fixed asset values often affect the Hungarian subsidiary rather than the group as a whole. When redeploying excess capacity, costs are understandably taken into account, directing this capacity to where assembly is more cost-effective. The stabilizing effect of competitiveness-enhancing support (CIP) programs should also be mentioned here. The temporal characteristics are partly due to the effects of multiannual investments started before the crisis. As the capital structure varies across groups of firms, keeping it in balance may also contribute to the volume of investment. At the same time, it is a sector-specific feature that the above-mentioned „relocation" is easier to manage for an assembly plant than for a light metal castings company, for example. It should also be noted that the Covid-19 pandemic has not had such a significant negative impact on the ever-expanding electric car industry, for example.

After the financial analysis of the selected companies, we concluded that there were no major differences between the companies in terms of short-term solvency, liquidity, and profitability, with only one outlier. However, their long-term solvency differs, as the ratios of external liabilities to equity show year-on-year variations for both indicators. This implies that the firms under investigation vary in their ability to meet long-term liabilities and in their long-term solvency. A comparison of the turnover ratios of the firms shows that the efficiency of asset use also differs. Moreover, it can be concluded that there is no correlation between the geographical location and the solvency levels of the firms, even though firms with a similar profile are located in a given industrial district. This may be partly due to the limitations of the data set used, as the financial indicators chosen are limited in their current form for spatial analysis for reasons highlighted in the methodology. This limitation gives the study a significant sectoral horizon, the spatial breakdown of which could form the basis for future research directions.

Although the present study focuses on the West-Hungary region, it will be necessary to extend the territorial coverage of the study in the future. The investigation of other geographical regions, their comparative analysis, and a deeper financial assessment of the overall supplier network are among our long-term goals, as well as the mapping of the overall automotive supplier network linked to the V4 countries. The analysis shows that regional differences in liquidity, tangible assets, debt ratios, and ROA ratios for automotive suppliers in Hungary play a significant role in the financial performance and strategy of companies. The dominance of the flagship firms in terms of tangible assets confirms the market concentration and the importance of investment capabilities. This is particularly relevant for corporate strategic planning and economic policy-making, helping to deepen market understanding and the development of the automotive supplier sector.

The small dispersion in the loan-to-value ratios suggests consistent credit management practices, which are important for maintaining financial stability and making informed investment decisions.

This contributes to the long-term financial stability and competitiveness of the automotive supply sector.

The results show that there is no significant relationship between the cash ratio and net sales, indicating that firms' solvency strategies are complex and not solely based on the size of sales. This is relevant for both financial management and investment decisions. Furthermore, there is no significant relationship between tangible assets and operating efficiency, suggesting that efficiency is influenced by a variety of factors. This is important for strategic planning and improving operational efficiency.

Finally, operational efficiency is better explained by profitability and creditworthiness than by firm size and tangible assets. This highlights the critical role of financial stability and creditworthiness in ensuring efficient operations, which is relevant for strategic financial planning and economic policymaking.

An important territorial outcome of the study is its contribution to understanding the activity and product structure of individual firms, as well as mapping supplier networks and identifying certain aspects of location choice.

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Annex 1. The code numbers assigned to the companies are listed in Figures 2–5.

Company	Code
BOS Automotive Products Hungary Manufacturing Limited Partnership	1
BUSCH-HUNGÁRIA Ltd.	2
BYD Electric Bus & Truck Hungary Ltd.	3
Dana Hungary Manufacturing Ltd.	4
DENSO Manufacturing Hungary Ltd.	5
Diamond Electric Hungary Ltd.	6
Hirtenberger Automotive Safety Hungary Manufacturing and Trading Limited Partnership	7
Howmet-Köfém Székesfehérvári Light Metal Work Ltd.	8
Kirchhoff Hungária Auto Parts Manufacturer Ltd.	9
Magyar Suzuki Corporation Ltd.	10
Mercedes-Benz Manufacturing Hungary Ltd.	11
Nemak Győr Aluminum Foundry Ltd.	12
Opel Szentgotthárd Automotive Ltd.	13
ROSSI BIOFUEL Biofuel Manufacturing and Trading Company	14
SMR Automotive Mirror Technology Hungary Limited Partnership	15
Thyssenkrupp Components Technology Hungary Ltd.	16
Tyco Electronics Hungary Manufacturing Ltd.	17
Vandamme Hungária Ltd.	18

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Rogerson, Christian M.[1] – Rogerson, Jayne M.[2]

Racial Discrimination in Tourism: The Record of Apartheid Cape Town[3]

ABSTRACT

This article contributes to international scholarship on racial discrimination in tourism, a literature dominated by studies on the United States which concentrate on the segregation era of Jim Crow. It is argued the segregation of tourism and hospitality spaces for 'non-Whites' in apartheid South Africa parallels the USA during the Jim Crow years. The study focuses on the 1960s decade when the implementation of apartheid measures was at its most intense. The research uses archival sources to document racial discrimination occurring in tourism in the setting of apartheid Cape Town. Evidence is given of the minimal infrastructure of accommodation services for 'non-White' travellers, constraints imposed by influx control and visitor permits on the mobilities of Africans, racially segregated hospitality spaces for eating, the near total absence of options for organized leisure tours of the city, and petty apartheid restrictions on access by 'non-Whites' to certain places of interest. Racial discrimination was imprinted also on the racialized landscape of beaches and the unwelcoming quality of beach spaces allocated to 'non-Whites'.

Keywords: racial discrimination, Jim Crow, USA, apartheid, South Africa, Cape Town

1 Research Professor, School of Tourism & Hospitality, College of Business and Economics, Bunting Road Campus, University of Johannesburg, Johannesburg, South Africa. Email: chrismr@uj.ac.za ORCID: 0000-0003-1306-8867

2 Associate Professor, School of Tourism & Hospitality, College of Business and Economics, Bunting Road Campus, University of Johannesburg, Johannesburg, South Africa. Email: jayner@uj.ac.za ORCID: 0000-0003-3394-1311

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INTRODUCTION

Racism as manifested in racial discrimination is one of the leading sources of disadvantage and marginalization within the tourism and hospitality sector (Benjamin & Dillette, 2021; Zhou et al., 2022; Bernard et al., 2023; Woo & Kim, 2024). Nevertheless, the practice of racial discrimination remains an under-researched theme most especially for understanding the barriers to participation in tourism (Kennedy, 2013; Jackson, 2020; Dillette, 2021; Lee, 2024). One of the earliest research forays relates to the racialised boundaries in travel and tourism which affected ethnic minorities in the United Kingdom as shown for the Black Caribbean community by Stephenson and Hughes (2005). Racialised encounters of ethnic minority citizens in the European Union also have been documented and restrict travel experiences (Stephenson, 2006). In addition, the theme of racism and discrimination in tourism has been explored in the context of Australia by Ruhanen and Whitford (2018). The United States experience is the most well-documented case concerning racial discrimination in tourism (Kennedy, 2013; Alderman & Inwood, 2014; Alderman & Modlin Jr., 2014; Hall, 2014; Lee & Scott, 2017; Bottone, 2020a; Cook et al., 2020; Hudson et al., 2020; Jackson, 2020; Kalous, 2021; Alderman et al., 2022; Slocum & Ingram, 2023; Alderman & Inwood, 2024; Jones et al., 2024; Lee, 2024; Thomas & Love, 2024). As Kenna (2024, p. 33) observes "Jim Crow was the name used to describe a 'racial caste system' which many historians identify as beginning in 1877 and ending in the mid-1960s after the adoption of the Civil Rights Act of 1964". Centred on the Jim Crow era Alderman (2013, p. 376) flags "the highly discriminatory history of mobility and hospitality in the United States". The stringent application of Jim Crow segregation marginalized the growing African American middle class in the US travel and tourism industry (Kennedy, 2013; Jackson, 2020).

This paper responds to the recent challenge issued by Ndeke (2022) of the need to pursue a wider geographical range of scholarship on the practices of racial discrimination beyond the experience of the USA. Pellicer and Ramchod (2023, p. 1) maintain that apartheid South Africa "presents a unique case study within which to study the effects of discrimination". Segregation and racial discrimination have a long history in South Africa and existed long before 1948 which marks the onset of the apartheid era (Beinart & Dubow, 1995). Under apartheid, however, the South African government implemented a comprehensive system of racial discrimination against 'non-Whites' (Christopher, 1994; Maylam, 2001; Lemon, 2016). At the root of this discriminatory apparatus was the racial stratification that was enacted through the Population Registration Act of 1950 which required that the entire population be classified in terms of race. As is observed by Pellicer and Ramchod (2023, p. 1) to be "classified as 'White' as opposed to 'non-White' led to radically different experiences in virtually all facets of life", including for travel and tourism.

The aim in this article is to recover and document the practice of racial discrimination which occurred in tourism during apartheid South Africa using the case of the city of Cape Town. The time period under scrutiny is from 1948—the beginnings of the apartheid period in South Africa—to 1970 with special focus on the decade of the 1960s which the historian Dubow (2015) describes as the era of 'high apartheid'. This period of high apartheid is considered when the implementation of measures for apartheid segregation was at its most severe. The paper is a contribution to the limited international scholarship on the impacts of racial discrimination in tourism. Within the context of South Africa the research offers a further window on the historical geography of tourism in the apartheid past (Rogerson, 2017; Rogerson, 2019, 2020; Rogerson & Rogerson, 2021, 2022; Drummond et al., 2022; Rogerson, 2022; Rogerson & Rogerson, 2023; Sixaba & Rogerson, 2023, 2024). More specifically, the analysis is an original contribution to uncover the challenges that confronted 'non-White' South Africans undertaking travel and tourism prior to democratic change in 1994 (Rogerson, 2024; Rogerson & Rogerson, 2024a, 2024b). The remainder of the paper is organized into a literature review section followed by brief overview of methods before presenting the results and discussion on the Cape Town record on racial discrimination in tourism during the period 1948 to 1970.

LITERATURE REVIEW

During the 1870s the Jim Crow period of American history commenced as a "racial caste-like system" and it continued until the 1960s victories of Martin Luther King and the civil rights movement (Alderman & Inwood, 2014, p. 68). The core principle underpinning Jim Crow segregation was to prevent contact between white and black people as equals and thereby to establish the supremacy of whites above black people (Jackson, 2020). The period between 1877 and 1964 "was a time when the racial status quo of white supremacy was particularly enforced in terms of mobility" and "white supremacist institutions and customs were implemented in attempts to keep African-Americans immobile and limited in opportunities for economic and social gain" (Bottone, 2020, p. 2). Slocum and Ingram (2023) view Jim Crow as a method of promoting segregation and the oppression of minorities in American society. The racial caste system encompassed the adoption of both official laws as well as customs that put restrictions on African Americans in terms of their mobilities (Kenna, 2024).

According to Kennedy (2013, p. 3) Jim Crow legislation in the USA derived from the southern antebellum plantation and received support from the Supreme Court in rulings which effectively sanctioned an environment defined by racial segregation and discrimination. Ndeke (2022) argues that racism in tourism is traceable to the period of the late nineteenth century Jim Crow era following the decision that racial segregation did not violate the US Constitution. As stressed by Benjamin and Dillette (2021) the decision of the US Supreme Court in 1896 which institutionalized segregation in public accommodations until 1954 particularly affected the way that African Americans could travel. Under that decision it was permissible to set apart separate public spaces and places for whites and African Americans variously on railroad cars, lunch counters, schools, public drinking fountains and accommodation establishments. Jim Crow was "the nomenclature of the social environment created by the discrimination and segregation of place and space that ensued" (Kennedy, 2013, p. 12).

In the Southern states "the Jim Crow laws permeated all facets of civil society; segregated churches, libraries, schools, housing complexes, employment, restaurants, hotels, public transit, hospitals, orphanages, and jails were ubiquitous" (Jones et al., 2024, p. 3). Although in the Northern and Western states legal structures were not as formalized, many communities practiced *de facto* segregation. For Alderman et al. (2022, p. 202) whilst there has never been a historical period when the movements of African Americans in the USA were not subject to white control the Jim Crow era was one when "the apartheid politics of mobility were particularly intense". Accordingly, from the late 19th century to the 1960s "institutionalized racial segregation systematically delimited Black Americans opportunities for travel as they encountered discrimination on the road, were relegated to the back of busses and the third-class compartments of trains, and were kept from moving freely in public spaces" (Kalous, 2021, p. 14).

As Alderman and Modlin Jr. (2014, p. 278) state during the Jim Crow era "African Americans endured separate (and unequal) schools, transportation and public accommodation, deprivation of political and economic rights, and a hypersegregated society that criminalized racial mixing". Kennedy (2013, p. 2) observes for "African Americans traveling by automobile during the Jim Crow era meant preparing food baskets and packing blankets with pillows to accommodate not being able to eat in a whites-only restaurant or to sleep in a whites-only motor lodge". Further, Black travellers were not allowed to use the clean restrooms at filling stations, but sent to primitive privies around the back and forced to stop by the side of the road (Chio et al., 2020). At restaurants they had to order their food through the side window as they were denied sitting with white patrons in the same dining room. The racial exclusion from resorts, hotels and certain beaches led to the creation of alternative recreation and tourist spaces for the African American traveller (Bottone, 2023). As summed up by Benjamin and Dillette (2021, p. 2) the old Jim Crow segregation laws were "separate but (un) equal". The writings of geographers affirm that Jim Crow was a spatial as well as a social system and stress that White supremacy and corresponding black subjugation "required the making of places and other geographic expressions of control that legitimized the power and authority of whites, reinforced the supposed inferiority of African Americans, and maintained the idea of a chasm between the races" (Alderman & Inwood, 2014, p. 69).

It was set within this hostile environment that we witness the appearance from 1936 of the *Negro Motorist Green Books* (henceforth Green Books). The Green Books were named after their creator, Harlem (New York) postal worker Victor Green (Jones et al., 2024). The Green Book was a traveler's guide published to assist African Americans avoid discriminatory accommodation and hospitality services in the Jim Crow era. It "provided African American motorists and tourists with information about safe places to eat, sleep, tour, have fun, go to the rest room, get gas during the era of segregation" (Jackson, 2020, p. 1). According to Thomas and Love (2024, p. 87) the guidebook represented an effort "to, quite literally, extend the reach of hospitality nationwide so that Black travelers were included". From the initial publication in 1936 Victor H Green assembled and collated a guide of careful listings to give travel information that would allow African American to avoid difficulties and embarrassments and thereby make travel more pleasurable. The desire to assist the rising African American middle class to enjoy the freedom of the open road, to eat a hot lunch at the counter, or to spend the night resting in a motel bed convinced the New York postal worker Victor Green to publish such a travel guide specifically for African Americans. This said, it is evident from the tone of Green's writings in the introduction of various issues that "he disliked the fact that a publication like *The Green Book* was necessary" (Kennedy, 2013, p. 6). Green made clear that he looked forward to the day when a publication like The Green Book would no longer be relevant or needed for the United States travel, tourism and hospitality industry (Jackson, 2020). The era ended in 1964. The Civil Rights Act of 1964 outlawed discrimination in public places such as service restaurants, hotels and at various public recreation and amusement sites, therefore removing most of the hindrances to African American leisure movements (Carter, 2008, p. 265).

On the road during the years of Jim Crow the Green Books could be purchased at Esso petrol stations as these were the only ones that actually welcomed African American motorists (Algeo, 2013). The publication provided listings organized by state and city, of accommodation facilities, restaurants and other services that welcomed the patronage of African Americans. In the Jim Crow era traveling as an African American "was a risk due to legal and geographic constraints and the threat of racial violence" in order to counter that danger African Americans ensured their accommodation choices were safe by utilizing the Green Book (Davison, 2019, p. 1). Likewise, according to Weigel et al. (2024, p. 42), the Green Book *"*which was published almost every year from 1936 to 1967, was used by Black travelers to guide them to tourist accommodation and other safe spaces during the Jim Crow era of racial segregation and discrimination". Importantly, as pointed out by Jones et al. (2024, p. 3), rather "than listing establishments that would simply serve African Americans, albeit as second-class citizens, Green's objective was to provide a directory of establishments that would treat African Americans with dignity and respect". African Americans created an entirely separate tourist infrastructure and travel agencies that directed travelers to places and spaces where they would be welcome without fear of humiliation (Kalous, 2021). None the less, whilst the Green Book identified places where black travellers would not face discrimination often these establishments were markedly inferior to those available for white travellers, a point which was dramatized in the Oscar-winning movie of the same name (Chio et al., 2020).

Pesses (2017, p. 677) states that the Green Books "were references for black motorists on road trips to help them avoid dangerous towns, racist establishments, and the effects of a segregated America". Further, Hall (2014, p. 307) asserts that the Green Book "was a publication that mobilized race discourse and foregrounded alterity (difference) to designate cities and sights/sites as 'black-' or African-American friendly'". Overall, Kalous (2021, p. 25) contends that the guidebook "remains an important document that bore witness to the courageous struggles and triumphs of African American travelers in their defiance of segregation and racial discrimination". For tourism researchers the guidebook offers an important historical window on the extent and workings of racial discrimination in tourism and hospitality economy of the United States.

METHODS

This study was informed by different research methods. One, a bibliographical analysis of extant scholarship on racial discrimination in tourism was conducted. As is demonstrated in the above section of review the existing literature is concentrated on the United States experience of the era of Jim Crow. As Rogerson and Rogerson (2020) stress there are certain parallels in terms of tourism and travel between the period of Jim Crow segregation in the USA and of apartheid South Africa. Two, the research on Cape Town uses the methods of historical geographers, including primary sources materials from archives. The term archives refers to a place with an accumulation of historical records in the form of documents, reports, notes, photographs and so on which represent 'traces of the past' (Alderman & Inwood, 2021). Several scholars have flagged the value of archival research for human geographers (Craggs, 2016; Beckingham & Hodder, 2022; Hodder & Beckingham, 2022; Wideman, 2023). For historical geographers of tourism the merits of archival investigations are demonstrated in a number of works (Algeo, 2013; Rogerson, 2017; Bottone, 2020b; Rogerson, 2020, 2022, 2023; Rogerson & Rogerson, 2024b, 2024c). Alderman and Inwood (2021, p. 193) elaborate that archives conventionally have been used by geographers as a valuable resource base "to reconstruct the form, function, and meaning of past landscapes and to understand the experiences and ideologies of social actors and groups who created and inhabited those geographies". In other works by historical geographers the archives provide a valuable entry point into the hidden histories of marginalized populations, the everyday worlds of ordinary people and of traditionally silenced subaltern groups (Crush, 1992; Rogerson, 2025).

In seeking to provide insight and perspective on racial discrimination whether in the settings of Jim Crow USA or apartheid South Africa archives can provide signposts for researchers to better understand racialized landscapes and the racialized history of places. This research draws upon material extracted from several archival sources. It builds upon primary documentary sources secured from the National Library depot in Cape Town and most especially of collections there of documentary material of the South African Institute of Race Relations. In addition, further relevant sources were accessed at the Historical Papers of the African Studies Library at University of Cape Town and at the University of the Witwatersrand, Johannesburg.

RESULTS

The findings are presented in terms of two sub-sections of discussion. The first locates the case study destination within the changing context of the roll-out of apartheid legislation which impacted leisure and recreation. The second turns to explore the effects of racial discrimination upon the tourism landscape of Cape Town.

Cape Town and the rise of apartheid legislation

As Cape Town entered the apartheid era it was evident that the city was consolidating its status as an increasingly popular leisure tourist destination. It was reported by the city's official guide which was produced in 1950 that since the formation of the Cape Peninsula Publicity Association, the first such organization in South Africa, that the "Holiday-Tourist industry of the Cape has developed into a major industry of staple economic importance for the whole community" (City of Cape Town, 1950, p. 77). Although accurate tourism numbers are unavailable, it was estimated that the annual number of visitors to Cape Town was in the order of 160 000 in total. These tourists, mainly domestic travellers but with a steady flow of international arrivals by ocean steamship, were attracted by the city's unparalleled natural beauty, its glorious bathing beaches, Table Mountain and its cableway, and historical attractions such as Groot Constantia, The Castle, and the national Botanical Gardens at Kirstenbosch (Pirie, 2007; Bickford-Smith, 2009). As described in the 1950 city guide: "No matter how the visitor reaches Cape Town, he will recognize that scarcely another city in the world can rival the beauty of its setting". It continued as follows that "Whether he comes by ship, by car or by plane, the giant bulk of Table Mountain is there to welcome. At its foot lies Table Bay and behind it the incomparable beauty of the Cape" (City of Cape Town, 1950, p. 77).

No detailed composition of visitors to Cape Town is available for the early apartheid period. However, it is known that international visitor flows were rising but dwarfed by the expansion of domestic tourism occurring in the 1950s (Ferrario, 1978). Further, based upon several studies conducted of the post-World War II development of the tourism industry, it is evidenced that the increasing holiday movement in the South African domestic market was overwhelmingly white in its racial complexion (Silva & Butler-Adam, 1988; Rogerson & Lisa, 2005; Rogerson, 2015). Butler-Adam (1988, p. 210) observed that "Disposable income, occupation, taste, patterns of association and other factors of class culture are the factors which shape the tourism and recreation landscape in most countries of the world". In South Africa, however, these variables have been shaped also "by the spatial and social patterns created by the legislation and apparatus of apartheid" (Grant & Butler-Adam, 1992, p. 210). A battery of legislation was implemented post-1948 that impacted and reshaped the tourism and recreation landscape of urban South Africa over the following two decades.

The Population Registration Act of 1950 is viewed as the "first apartheid law" (van Rooyen & Lemanski (2020, p. 22). This Act would represent the cornerstone for the country's rigid system of racial stratification, requiring that all South Africans to be registered and assigned to an official race category. The category of 'non-White' encompassed Africans, Coloureds (mixed-race) and Indians. In October 1953 the Reservation of Separate Amenities Act (Act 59 of 1953) was promulgated. The Act provided that a person in charge of any public premises or public vehicle might reserve these for the exclusive use of persons belonging to a particular race as defined by the Population Registration Act. Importantly, it was pointed out that the "legislation stated that such action, whether past of future, might not be ruled invalid on the grounds that provision was not made for all races, or that facilities provided for the different races were not substantially equal" (Silva & Butler-Adam, 1988, p. 16). The white minority parliament passed this Act "after existing laws that had been used to facilitate the racial segregation of public facilities hitherto were declared invalid by the highest level of the judicature" (Kirkby, 2022, p. 58). In Parliament the Minister of Justice stated that he found the court's decision as 'curious' in light of what he regarded as the South African 'tradition' of enforcing segregation where 'necessary' (Kirkby, 2022, p. 72). Accordingly, by passing Act 59 of 1953 government circumvented the court's ruling.

Essentially therefore the apartheid government sought to enforce the racial segregation of public facilities—Jim Crow style segregation—without the pretence that this could be done without foregoing an equal treatment of different racial groups. As Kirkby (2022, p. 73) makes clear the "new legislation asserted that facilities would be duly segregated with no harmonisation in neither the quantity nor the quality of the amenities that were allocated to each race". This measure expressly sanctioned discrimination in public places of South Africa and made legally acceptable the doctrine of 'separate and inherently unequal' (Govender, 1990). Following its adoption and policy rollout, micro-level segregation became common across South Africa. The Act was most heavily implemented in South Africa's urban areas to and in which the movement of Africans was regulated by influx control legislation and most especially the Natives (Urban Areas) Act of 1923 and amendments (Rogerson & Rogerson, 2024a). Among others Kirkby (2022, p. 81) notes that the infamous pass laws were reinforced in the early apartheid years most significantly by the Natives (Abolition of Passes and Coordination of Documents) Act 1952, which spawned the reviled 'reference book' that Africans carried and were required to produce on any occasion for law enforcement to ensure they had the right to be in an area at any given moment (Hindson, 1987). The Reservation of Separate Amenities Act aligned closely with the Group Areas Act of 1950 the intention of which was to institutionalize the separation of different race groups into different residential spaces (Maharaj, 2020). The goal of apartheid planners was that different racial groups should preferably be allocated facilities within their racially designated spaces (Kirkby, 2022).

Arguably, the separate amenities legislation "became the regulatory device with which racial separation was guaranteed despite the necessary 'evil' of allowing 'non-whites' to be in urban areas" albeit only in so far as they ministered unto the needs of whites. The sphere of recreation was important for the provisions of this legislation as the Act "applied only to spaces that were not institutionally segregated or segregated by other laws" (Kirkby, 2022, p. 81). Sites for leisure and relaxation purposes therefore were prime spatial targets for the Act in order to forge racially exclusive spaces. These racially-designated spaces were imprinted on all South African urban areas and not least in evidence in the city of Cape Town during the 1960s 'golden years' of high apartheid oppression (Dubow, 2015).

Unfolding racial discrimination in Cape Town's tourism landscape

An important source of information into racial discrimination in the Cape Town tourism landscape is the suite of publications which were produced in the 1960s by the South African Institute of Race Relations, a politically 'liberal' research organisation that focused on a range of issues seeking to improve the state of race relations in South Africa. Although it is often stated that 'non-White' tourism began only with the demise of apartheid there is increasing evidence for a history of 'non-White' tourism that pre-dates the 1994 democratic transition. The work of Dlamini (2020) is of critical importance in shattering the myth of the absence of any substantial 'non-White' travel mobilities in South Africa prior to the 1980s. Dlamini (2020) concentrates his attention on the growing number of the black elite for whom particularly after 1950 mobility and tourism became a way of 'enacting modern ways' and engaging with the land of South Africa and its landscape. Beyond the pioneering work of Dlamini (2020) which centred on travel to Kruger National Park other studies have documented the emergence of 'non-White' domestic travel mobilities to city destinations, including Cape Town (Rogerson, 2024).

It was a response to this growth in the flows of travellers of colour and the need for information on navigating the hostile apartheid landscape of tourism that the South African Institute of Race Relations (SAIRR) researched and produced a series of guidebooks specifically targeted to provide tourism and travel information to the 'non-White' traveller in South Africa (Keyter, 1962; Suttner, 1966, 1967; South African Institute of Race Relations, 1968; Parks, 1969a, 1969b, 1969c). Between 1962 and 1969 this organisation produced several guidebooks which can be likened to The Green Books in the USA. Of relevance to highlighting the racialized landscape of tourism in Cape Town are material contained in two national guidebooks produced in 1962 (Keyer, 1962) and 1968 (South African Institute of Race Relations, 1968) and three city guidebooks on Cape Town which appeared in 1969 respectively for Coloureds (Parks, 1969a), Africans (1969b) and then collectively for Coloureds, Africans and Indians (Parks, 1969c). The introduction to the Cape Town guide for Africans states that its intent is to assist tourists in recognition of the fact that: "a steadily increasing number of Africans visit Cape Town these days, some to visit friends, some to attend a conference or synod, a few to do business and the remainder to have a holiday" (Parks, 1969b).

The SAIRR guidebooks portray the impact of apartheid legislation and of racial discrimination in tourism accommodation services in Cape Town. In 1965 a national guide to hotels listed 206 establishments operating in Cape Town and the surrounding Peninsula area; of this total, 202 establishments were for the exclusive accommodation of white visitors; (Hotel Guide Association, 1965). One minor concession was that 55 of these establishments provided 'special rooms' for non-White domestic servants or drivers travelling with white hotel patrons. The constrained situation of commercial accommodation options available to independent 'non-White' leisure travellers is starkly apparent. In 1962 there was a total of only four 'non-White' hotels in the city of Cape Town and its immediate surrounds (Rogerson, 2020). Confirmation is given of the steady increase in demand for accommodation despite legislative constraints on African mobilities. For example, in the 1962 guide we note that the 24 bedroom Hotel Tafelberg in Cape Town, a licensed establishment which catered for all non-White visitors records “an average of 112 visitors a month, mainly Coloured (70) and African (36), but some Asiatic (6)” (Keyter, 1962, p. 1). In 1962 the largest establishment was Cape Town’s 29 room Athlone Hotel, which catered only for Coloureds and Indians. This was described as “very popular, and holiday-makers are advised to book accommodation in advance” (Keyter, 1962, p. 3). The Athlone hotel was described as located “in a typical middle class area” and as “clean and well kept, built on modern lines, and has one big lounge, a dance hall and private lounge on the ground floor” (Keyter, 1962, p. 3). Facilities included opportunities “for playing darts and table tennis” and the hosting of “variety shows, talent contests and pick-a box shows” and with dancing arranged for Friday and Saturday evenings (Keyter, 1962, p. 3). The Retreat Hotel, 12 miles from the city centre and established in 1957, catered mainly for Coloured patrons who constituted 80 percent of visitors; the other 20 percent were Indians. Hotel Reo in Elsies River – established in 1954 and described as in a middle class area – was styled as “one of the modern ones in Cape Town” with its main patronage from Coloureds and “Indians from Durban” (Keyter, 1962, p. 5). This hotel boasted a beer garden and “its own orchestra which plays at concerts and dances by groups and companies in the surrounding area” (Keyter, 1962: 5).

The opening page of the city guidebook for Africans was headed with a warning about influx control legislation and the need for visitor permits: “Africans are reminded that, unless they are in possession of the necessary documents, they are not allowed to remain in the area of the City of Cape Town or the Cape Divisional Council for longer than 72 hours” (Parks, 1969b, p. 1). The infrastructure situation of accommodation and hospitality services was especially unpromising for African travellers and made very difficult by the implementation of the Group Areas Act across the City of Cape Town. As a result of the declaration of the central area of Cape Town as a white Group Area the only non-white hotel that existed there—the one-star Hotel Tafelberg—was forced to close and thus “disqualified” for patronage by Africans. The guidebook could offer only three commercial service establishments: one licensed and 10 miles out of the city and two unlicensed establishments in the City Council area one of which was the YMCA hostel for (only) men aged between 17 and 34 years. The short listing of restaurants attested to the bite of petty apartheid legislation with only nine recommended establishments four of which were in the distant townships of Langa or Gugulethu. In addition to the restaurant at Cape Town’s only non-White hotel (the Hotel Reo) the guide profiled the two restaurants in the city’s railway station, one in the main line section, the second a cafeteria in the suburban section.

Evidence of racial disadvantage was presented in terms of constraints on tours and travel options for ‘non-White’ travellers to Cape Town in the 1960s. In the 1962 national guide the presentation of places of interest was given under the heading of ‘general information’ and opened with the listing of two local travel agents “willing to arrange local trips and give advice” (Keyter, 1962, p. 20). For outings and touring the city it was made clear, however, that “if you are travelling by car then these outings are easy, provided you take a lunch basket and refreshments with you” but that “If you are not travelling by car, then it becomes more difficult”. The two travel agencies and the Visitor’s Bureau could offer "information of any trips which might be available for Africans" and the Golden Arrow Bus Services would be available "to arrange special bus trips for groups of people who club together to take such a trip" (Keyter, 1962, p. 20). The places listed as recommended outings close to the city centre were the South African Museum, Table Mountain and the cableway, the botanical gardens, the historic Castle, National Gallery and Cultural History Museum. Further distant were recommended trips to the Cape Point Nature Reserve, the extreme southerly point of the Cape Peninsula, with the caveat that there "are no restaurant facilities for Africans, so visitors should take their own refreshments with them" and that there "are picnic sites clearly marked for white and non-white people" (Keyter, 1962, p. 24). The guidebook continued that if "readers have cars this trip is well worth while" but if Africans did not have a private vehicle "it is suggested that one of the travel agents be contacted for information as to when bus trips for Africans take place" or alternatively to get a group together to hire a bus from Golden Arrow. Similar recommendations and practices were given for Chapman's Peak Drive, a world famous drive around the Peninsula with "fantastic views between mountain and sea" (Keyter, 1962, p. 24).

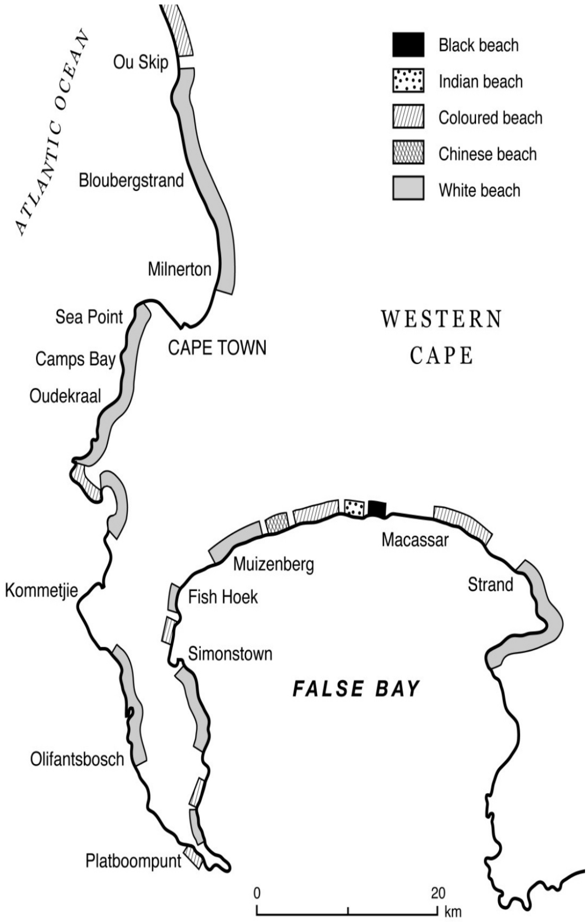
The advice was again to "Take your own refreshments" and if not travelling with a private vehicle again to contact a travel agent or Golden Arrow (Keyter, 1962, p. 24). In the 1968 national guide the message similarly was re-iterated that tours of Cape Town were not offered on an organised basis for non-white travellers. It was advised that "groups of people who do not possess cars may arrange bus tours by getting in touch with the Golden Arrow Bus Company" and that "Groups must be of one race only" (South African Institute of Race Relations, 1968, p. 11). At certain key places of interest petty apartheid restrictions were enforced such that whilst cable car access was allowed at the top of Table Mountain "non-whites are not admitted to the restaurant for meals, but may buy cool drinks, ice-creams, hot dogs and hamburgers" (South African Institute of Race Relations, 1968, p.12). The guidebook therefore advised visitors to take a picnic basket if they wished to spend a few hours at the top of Table Mountain.

The guide to Cape Town for Coloureds (Parks, 1969a) and the guide published for Indians are almost identical in content (Parks, 1969c). Issues covered included transport (bus and train), cinemas, public conveniences, sport facilities and organisations, cultural activities, advice centres, medical and welfare services. The sections of greatest relevance for visitors were those surrounding where to stay, places to eat, picnic spots and most importantly access to beaches and their amenities. Unlike the guides produced for Africans in Cape Town, there is no discussion and listing of places to visit and major tourism attractions. For commercial accommodation services six licensed and one unlicensed hotel now were available, albeit with the implementation of Group Areas Act, one of the hotels situated in the city centre was under threat of closure. All the establishments catered for both Coloured and Indian visitors and offered bed and breakfast accommodation with most indicating that food was halal. At the larger establishments such as The Athlone Hotel in Athlone other facilities included entertainment halls, public and private lounges and organised dances on Friday and Saturday evenings. The Hotel Reo in Elsies River listed that rooms with private bathrooms were provided, à la carte meals were available, as well as provision made for special luncheons, dinners and wedding receptions. Beyond the hotels three hostels also offered accommodation facilities but at one of these hostels the YWCA in central Cape Town as a result of the area's zoning as a white Group Area the hostel would "have to move out of Cape Town in the near future" (Parks, 1969a, p. 3). Hospitality services in terms of places to eat included a listing of 18 restaurants as well as nine cafes or eating-houses. Among the hospitality businesses were The Stadium in Athlone which was described as catering for all sportsmen and specialized in sea foods and Mother's cooking, and Khayyam Muslim Restaurant in Woodstock which advertised its specialities of "home-made Eastern and Western dishes" (Parks, 1969a, p. 4). Recreational sites for picnics included recommendations for several dams and nature reserves as well as access to Table Mountain via the aerial cableway.

The three city guidebooks devote considerable space and detail to the opportunities and restrictions relating to beaches in Cape Town. During the 1960s as Jayne Rogerson (2017) documents the implementation of measures for beach apartheid was aggressively pursued. This development was aligned to the enactment of the Reservation of Separate Amenities Act of 1953 and other apartheid legislation which mandated racial-spatial segregation in beaches (Kirkby, 2022). By the late 1960s, the time of the publication of the SAIRR city guides on Cape Town, the racialization of beach space was advancing in the city with the demarcation of separate beach spaces for Whites, Coloureds, Africans, Indians and even a small beach space allocated for use by Chinese persons. The prime beach spaces and largest share of Cape Town's beach leisure spaces were reserved for use by Whites (Figure 1). In several other publications from the SAIRR the discrimination in allocation of beach space is given considerable attention. It was reported several Coloured beach spaces were not only difficult to access but were "dangerous in terms of swimming and bathing" (Horrell, 1967, p. 300). The unequal allocation of beach facilities for different race groups is well illustrated by the area of Simonstown part of the Cape Peninsula. In Simonstown the following description was given: "The non-white sea shore is an unattractive stretch with limited access, because it is bounded by a fenced railway line. At high tide only two small beaches in this area remain uncovered: at one of these a factory discharges effluent, while at the other untreated sewage and garbage is washed ashore from ships. The beaches are unsuitable for bathing, fishing, diving or recreation of any kind… (the beaches) lack all amenities and have no shade or grass" (Horrell, 1965, p. 347).

The dismal quality and often dangerous character of the beaches allocated to 'non-Whites' is highlighted further in the city guides produced by SAIRR. In terms of beaches for Coloureds and Indians this was evidenced in the seven pages of often critical descriptions given to their allotted beach areas and facilities. At the Paarden Eiland Beach temporary use of the beach had been offered until 1971 albeit its unwelcoming character was described as follows: "It is a noisy area, with rubble on the beach and at times a dangerous undertow in the water. Camping is not possible. The public conveniences are some distance from the beach" (Parks 1969a, p. 18). The facilities at Sunset Beach and Maiden's Cove were viewed more favourably with the existence of clean, well-kept changing rooms, available life-saving equipment and a wide stretch of beach suitable for picnickers. At Soetwater close to the ‘white space’ of Kommetjie the Coloured beach was rocky in places and “open sea bathing can be dangerous at times”. Although the fishing opportunities were seen as good it was considered that at this beach “conditions are particularly unpleasant when a south-easter is blowing” (Parks, 1969a, p. 20).

Figure 1. Racially demarcated beach spaces in Cape Town, 1969



Note: Black beach refers to exclusive use by Africans. Source: Rogerson, 2017.

In the Cape of Good Hope Nature Reserve, the southernmost tip of the Cape Peninsula, two camping and picnic sites were available for Coloureds and where “visitors can climb the mountain to watch game” (Parks, 1969a, p. 21). For Africans the implementation of spatial zoning of the city’s beaches produced only one beach – at Mnandi – for their patronage (Parks, 1969b). Overall Mnandi was described in positive terms as “a pleasant beach (when the south-easter is not blowing too hard) which provides safe bathing within the demarcated area” (Keyter, 1962, p. 12). For individuals without their own private car, however, access could be secured only in season with buses operating to the beach from the townships of Langa, Gugulethu and Nyanga.

Beyond the considerable attention devoted to beaches as recreation spaces the SAIRR guide for Coloureds (and likewise for Coloureds and Indians) provided information on transport services as well as available sport, recreational, social facilities and cultural activities (Parks, 1969a, 1969c). In the latter category visitors were advised of the Children’s Art Centre at Woodstock, the activities of the Cape Choral Unions, the Gilbert and Sullivan Society with its headquarters at St Raphael Church in Athlone, the Spa Bona Orchestra and directed to many other social, cultural and recreational facilities provided by churches or held on church premises. Listings were provided also of several social organisations, youth movements (girl guides, boy scouts, youth centres) and the location of available educational and medical services across the city of Cape Town. Finally, appearing almost as a footnote of the 51-page guide, the guidebook for Coloureds provided details of three travel agencies, one situated in Woodstock (Parkers Travel Agency), a second in central Cape Town (Goolam's Travel Agency) and the third based at Athlone, the Automobile Owner's Club which provided "a country-wide serviced to all members" (Parks, 1969a, p. 47). Notably, the major services offered by the two travel agencies related only to air, sea, rail and Haj bookings as apartheid restrictions in the late 1960s made difficult the booking of any local tours and accommodation for Coloureds or Indians.

CONCLUSIONS

As pinpointed by Mitchell and Collins (2014) geographers have much to offer towards an understanding of how space is divided or governed by racial characteristics both historically and in the present-day. This article contributes to the historical geographical scholarship on racial discrimination in tourism, a literature which is dominated by studies on the United States where the focus is on the segregation era of Jim Crow. Arguably, the segregated tourism spaces created for 'non-Whites' in apartheid South Africa exhibit close parallels with those that emerged in the USA during the Jim Crow era. The study concentrates on the period of the 1960s when the implementation of apartheid measures was at its most intense. Racial discrimination in tourism in apartheid Cape Town was evidenced variously in the minimal infrastructure of accommodation services available for 'non-White' travellers, constraints imposed by influx control and visitor permits on the mobilities of Africans, racially segregated hospitality spaces for eating, the near total absence of options for organized leisure tours of the city, and petty apartheid restrictions on access by 'non-Whites' to certain places of interest. Above all, racial discrimination was imprinted on the racialized landscape of beaches and the unwelcoming quality of beach spaces allocated to 'non-Whites'. Of significance are the activities of the South African Institute of Race Relations in producing a series of guidebooks during the 1960s to provide information and assistance to the flow of 'non-White' visitors allowing them to navigate a pathway through the inhospitable racialized landscape of tourism.

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Uhljár, Péter[1]

Az anyai életkorok polarizációs hatása térben és társadalomban – A gyermekvállalási magatartás szélsőségei Európában 2010 és 2020 között

The Polarizing Effect of Maternal Age in Space and Society: Extremes of Fertility Behavior in Europe, 2010–2020

ABSZTRAKT

A tanulmány a termékenységi magatartás térbeliségére fókuszál az Európai Unió vonatkozásában a NUTS 2-es területi szinten 2010 és 2020 között. A megközelítés négy kutatási irányon alapul: először a tanulmány felfedi a területi egyenlőtlenségek 11 éves változását a korspecifikus termékenység tekintetében (1), kiegészítve a 15–24 és a 40–49 éves nők teljes termékenységi rátára kifejtett hatásának 2020-as keresztmetszeti képének bemutatásával (2). Emellett a legkevésbé adaptív régiók körére is kitér a kutatás, nyomon követve a legfiatalabbak és a legidősebbek teljes termékenységi rátára kifejtett hatásának átlagos éves változását (3). Végül az úgynevezett modális görbék módszerével lehetővé válik a termékenységalapú társadalmi egyenlőtlenségek régiókat érintő elemzése (4). Az eredmények alapján egy viszonylag erős regionalizálódás körvonalazódik, amely térszerkezeten feltűnnek Európa, illetve az Európai Unió legfőbb makrórégiói mind a négy vizsgálati dimenzióban.

Kulcsszavak: termékenység, korspecifikus termékenység, társadalmi polarizáció, NUTS 2-es régiók, Európai Unió

ABSTRACT

This paper examines the spatiality of fertility behaviors in the European Union at the NUTS 2 regional level between 2010 and 2020. The approach is based on four research directions. Firstly, the study identifies the 11-year change in regional inequalities in age-specific fertility (1), followed by an analysis of the effect of women aged 15–24 and 40–49 on the total fertility rate in 2020 (2). Additionally, the least adaptive regions are highlighted based on the average annual change in the impact of the youngest and oldest cohorts on the total fertility rate (3). Finally, the paper evaluates the extent of fertility-based social inequalities within the regions using the method of so-called modal fertility curves (4). The results reveal a relatively strong regionalization, with Europe's major geographical macroregions consistently emerging at the NUTS 2 level across all analyses.

Keywords: fertility, age-specific fertility rate, social polarization, NUTS 2 regions, European Union

[1] PhD Student, Corvinus University of Budapest, Department of Geography and Planning, Budapest,
Email: peter.uhljar@stud.uni-corvinus.hu

BEVEZETÉS

Európa lakosságát hosszú évtizedek óta jelentős demográfiai átalakulás jellemzi, aminek tartósságára már az előző évszázad közepén projekciók hívták fel a figyelmet (Isaac, 1949). Napjainkban a legjelentősebb direkt problémát az elöregedés és az ezzel összefüggő folyamat, azaz a termékenységben tapasztalható drasztikus visszaesés jelenti (Káčerová, Ondačková & Mládek, 2014).

A termékenységi szintet a reprodukciós küszöb magasságáig emelni jelentős kihívás, és bizonytalan, hogy a fő népesedési folyamatok vajon szignifikánsan tervezhetők, befolyásolhatók-e. A fejlettebb társadalmakban különösen nehéz a gyermekvállalással kapcsolatos döntéseket befolyásolni, még azon országok esetében is, ahol van valamilyen közmegegyezés a vágyott gyermekek magasabb számáról. Ezt csak tovább tetőzi, hogy hiányzik az egységes európai népesedési politika (Grant, 2001). A populációtervezés nehézségeinek ellenére a problémaspirál alapja, legalábbis véleményem szerint, az alacsony termékenység, ezzel együtt a munkaképes korú korosztályok utánpótlásának elégtelen szintje. Nyilvánvalóan a várható élettartam növekedését a 0–14 éves korosztályok emelkedő létszáma nem feltétlenül ellensúlyozza, ugyanakkor hosszú távon a termékenységi megközelítés lehet a megoldás.

Mindamellett nem csupán a termékenységi elemzéseknek, hanem – a földrajztudomány fejlődése révén – egyre nagyobb szerepe van a térbeliségnek is a demográfiai kutatásokon belül. Ez a szinergia pedig nemcsak a GIS-eszközök, hanem a regionális elemzési, valamint más – a demográfiai kutatásokban kevésbé elterjedt – statisztikai eljárások alkalmazása révén szintén érvényesülhet (Voss, 2007). Erre az interdiszciplináris megközelítésre ráerősít, hogy a regionális tudományi kutatásokban gyakori az együttműködés a szociológusok és a geográfusok között (Gera, 2023).

A tanulmány legfőbb motivációját egyrészt a nők életpályája szempontjából túlságosan késői és – ezzel részben összefüggően – a társadalmi szinten túlságosan rövid életszakaszra időzített gyermekvállalási magatartás vizsgálata nyújtja. Másrészt pedig megjelenik a halasztással ellentétes folyamat, ami ebben a kontextusban a túlságosan korai gyermekvállalás kérdését jelenti. Véleményem szerint a felsorolt szempontok viszonylag alulkutatott témának számítanak, márpedig nem csupán a világ és Európa más részein hangsúlyosak ezek a jelenségek, hanem Magyarország esetében is. Megerősíti az utóbbi feltételezést, hogy a Központi Statisztikai Hivatal 2020-as adatai szerint (amely a tanulmányban vizsgált időszak utolsó éve) például 180 húsz éven aluli leányanya hozta világra harmadik, 21 a negyedik, 3 az ötödik gyermekét, nem beszélve arról, hogy 59 olyan élveszületés történt, ahol az anya életkora nem érte el a 15 évet. A halasztás relevanciája szempontjából pedig sokatmondó, hogy 2010 és 2020 között a 40–44 éves nők által vállalt élveszülöttek száma 2-szeresére, a 45–49 évesek esetében 3,5-szeresére emelkedett (Központi Statisztikai Hivatal [KSH], 2020a, 2020b).

A hangsúly ugyanakkor megmarad a kontinentális összehasonlításon: egyrészt célom az Európai Unióra 2010 és 2020 között jellemző regionális átalakulások feltárása a termékenység dimenzióján belül. Másrészt a kutatásnak sajátos megközelítést kölcsönöz, hogy a fókuszpontban a szélsőségek térbeli analízise áll. Ebben az esetben többek között megjelenik a 15–24 és a 40–49 éves, viszonylag alacsony korspecifikus termékenységi rátával jellemezhető két kohorsz magatartása. Továbbá a szélsőséges mintát mutató régiók körét is szeretném lehatárolni mind a korspecifikus termékenységi ráták stabilitása, mind pedig a társadalmi polarizálódás (bimodalitás és szélsőségesen rövid reproduktív időszak) jelensége terén. Végül felhívnám a figyelmet arra, hogy a kulturális, szociális és gazdasági faktorok direkt vizsgálata, illetve feltárása nem képezi a dolgozat tárgyát, mivel a hangsúly a földrajzi fekvés és az idő, azaz a 2010 és 2020 között eltelt körülbelül egy évtized befolyásoló hatásán van. Ennek megfelelően a kutatásom során az alábbi kérdésekre keresem a választ:

- Hogyan változtak a hét ötéves reproduktív kohorszra jellemző regionális egyenlőtlenségek 2010 és 2020 között az Európai Unió NUTS 2-es területi szintjén?
- Mekkora arányban járult hozzá 2020-ban a 15–24 és a 40–49 éves nők fertilitása a teljes termékenységi rátához?
- Melyek voltak a legkevésbé adaptívabb, avagy a leginkább stabil régiók a korspecifikus ráták változása terén 2010 és 2020 között?
- Vannak-e európai magterületei a gyermekvállalásra jellemző társadalmon belüli megosztottságnak? (Máshogy fogalmazva: alkotnak-e egységes térbeli klasztert a túlságosan korai gyermekvállalással, valamint a relatíve rövid tényleges reproduktív életszakasszal jellemezhető régiók?)

A kérdések megválaszolásával a tanulmány remélhetőleg felhívja a figyelmet arra, hogy a gyermekvállalás életpályán belüli időzítésének kockázati és polarizációs hatása markánsan megjelenik az európai térszerkezeten. Ez nemcsak a tudományos diskurzus élénkítése érdekében lenne előnyös, hanem akár támpontot adhatna a politikai-szakmai döntéshozók számára a területi szempontból célzott intervenciók, programok (például szexuális felvilágosítás) kidolgozása során.

SZAKIRODALMI ELŐZMÉNYEK

A termékenységi attitűd vizsgálata sokoldalú megközelítést kíván, és alapvetően kiterjed a társadalmi, a kulturális, a gazdasági, valamint a biológiai összefüggésekre. Ezek a dimenziók és a hozzájuk tartozó folyamatok az időtől, a tértől és a területi léptéktől függően eltérő erősségű és irányú magyarázóerővel bírnak.

A térbeli-termékenységi vizsgálatokra több példát is találunk a szakirodalomban mind globális, mind európai szinten. Előbbi léptéken jellegzetes kutatási fókusz a nagy népességszámú, gazdaságilag jelentős dinamikával fejlődő BRIC-országok csoportja, ezen belül is India és Kína. Nemes (2016) elemzéséből kiderül, hogy Indiában a nemi arányok a fiúpreferencia miatt jelentősen eltolódtak. Az erősen patriarchális, a nőkkel szemben negatívan diszkriminatív társadalmi közeg révén olyan direkt determinánsok érvényesüléséről beszélhetünk, mint az 1960-as évektől egyre inkább elterjedő prenatális diagnosztikai eljárások. Nem részletezve a kevésbé közismert beavatkozásokat (például amniocentézis), olyan változásokra és jelenségekre gondol a szerző, mint az ultrahangos vizsgálat megjelenése, illetve ennek következményeként – leányembrió vagy -magzat esetén – az indukált terhességmegszakítások relatíve nagy gyakorisága. Kína kapcsán Barnóczki et al. (2018) górcső alá vette az 1979-ben bevezetett egykepolitika hatásait, miszerint a 2010-es évekre világossá vált, hogy a túlnépesedés elleni fellépés negatív következményei meghaladják az előnyök mértékét. Ennek oka, hogy az emberek gyermekvállalási magatartását drasztikusan meghatározó pronatalista intervenció nagymértékben dinamizálta az elöregedést. Ami Európát illeti, Buelens (2021, 2022) vizsgálatai szerint a szupranacionális nagyrégiók viszonylag markánsan megjelennek a kontinens térszerkezeti mintázatán. Mindez két dimenzió mentén is érvényesül, amely egyrészt a teljes termékenységi arányszámot [a továbbiakban TTA vagy angolul TFR], másrészt pedig az anyává válás átlagos korévét jelenti. Mindamellett az Európára jellemző termékenységi különbségekre már Hajnal (1965) is felhívta a figyelmet, aki felfigyelt arra is, hogy a kontinens nyugati és keleti része között évszázadokra visszamenően szignifikáns különbségek mutatkoznak a gyermekvállalás időzítésének tekintetében. A többek között a fogamzásgátló technikák és az individualizmus terjedése révén érvényesülő, az átlagos gyerekszámra és az időzítésre negatívan kiható második demográfiai átmenet még inkább kiélezte ezt a megosztottságot (Lesthaeghe, 2010; Zaidi & Morgan, 2017). Ennek két fő oka lehetett: egyrészt Kelet-Európába az irányzat jelentős késéssel érkezett meg az államszocializmus képezte társadalmi-kulturális akadály miatt (Tárkányi, 2008). Másrészt befolyásoló tényező az innovációs hullámok terjedési sémája is, miszerint az átalakulási folyamatok (nevezzük innovációknak) először a centrumterületeken éreztetik hatásukat, ezt követően az elmaradottabb úgynevezett periférián (Walford & Kurek, 2015).

Ugyanakkor a termékenységi folyamatok alakulását olyan mögöttes hatótényezők is mozgatják, mint például a korspecifikus termékenységi arányszámok, ezen belül is a fiatalabb és az idősebb reproduktív kohorszokra jellemző, adott esetben kiugró gyermekvállalási hajlandóság. Burkimsher (2017) szerint a társadalmi-gazdasági fejlettségtől függően a fejlődési átmenet kezdeti szakaszára jellemző a túlságosan korai gyermekvállalás jelensége, aminek lenyomata látható Európában is. Seifu et al. (2023) kutatásából kiderül, hogy a kamaszkori terhesség az úgynevezett magas kockázatú termékenységi magatartás egyik megnyilvánulási formája, ami nem csupán az anya, hanem a magzat egészségére is kockázatot jelent. Bekaert és SmithBattle (2016) arra is felhívja a figyelmet, hogy egyéb kockázati faktorok is felmerülnek: a várandós kamaszok, illetve a leányanyák esetében a párkapcsolati erőszak előfordulása szignifikánsan nagyobb arányú az idősebb nők, illetve anyák köréhez viszonyítva.

Az utóbbival ellentétes irányú jelenség a túlságosan késői gyermekvállalás. Az egyre nagyobb relevanciát egyrészt alátámasztja a markáns halasztási folyamat az időzítés terén. Másrészt kiemelhetők olyan egyéb, a halasztással összefüggő tényezők, mint például a Smeenk et al. (2023) által is vizsgált folyamat, nevezetesen a mesterséges úton fogant, idősebb életkorban járó anyához születő élveszülöttek növekvő aránya. Ez az irányzat a Walford és Kurek (2015) által is leírt innovációs folyamatként azonosítható. Egyébiránt az átalakulás jelentős kockázatokat hordoz magában: például Kamarás (2012) kimutatta, hogy a 35 évnél idősebb várandós nőknél, illetve anyáknál a koraszülés valószínűsége (prevalencia) drasztikusan megugrik a 20–34 éves kohorszhoz viszonyítva. Az idősebb kohorszokra jellemző termékenységi ráták emelkedésével összefüggő generális halasztási folyamatnál Te Velde et al. (1998) felhívja a figyelmet arra, hogy különösen 37 éves kortól kezdődően – elsősorban a női ivarsejtek nem megfelelő mennyisége és minőségi állapota miatt – a teherbeesés esélye meredeken visszaesik.

MÓDSZEREK

Az elemzésekhez két, az Eurostaton elérhető adatkészletet használtam fel: a *demo_r_d2jan* és a *demo_r_fagec* nevű adattáblákat. A longitudinális összevetés kiinduló éve 2010 volt, aminek az oka a rendelkezésre álló adatkészlet. A vizsgálatba bevont utolsó év pedig 2020. Ennek oka, hogy a COVID–19 2021-ben már szignifikáns hatást fejtett, illetve fejthetett ki a születésszámok visszaesésére, nem beszélve a gyermekvállalás egyéni életpályán mérhető átlagos időzítéséről, azaz a halasztás dinamizálódásáról [lásd például Berrington et al. (2022) írását].

A térszerkezeti vizsgálatokba nem vontam be mind a 242 NUTS 2-es régiót, mivel 10 régió tengerentúli és egy szignifikánsan eltérő társadalmi közegben helyezkedik el (ES63, ES64. ES70, FRY1, FRY2, FRY3, FRY4, FRY5, PT20, PT30). Kikerült még további 10 régió a szélsőségesen nagy adathiány miatt (HR02, HR05, HR06, PL71, PL72, PL81, PL82, PL84, PL91, PL92), kivéve a modális görbék elemzését (itt az elemszám tehát 232).

Emellett szükség volt adathelyettesítésre is bizonyos régiók esetében, mégpedig a következő módon: egyrészt a 38 német régiónál a 2017-es érték került be 2018-ra, 2019-re és 2020-ra, a 15–19 és a 45–49 évesek által vállalt élveszülöttek esetében. Másrészt a DED4 és a DED5 német régiók összes élveszülési adatát 2010-re a 2011-es, harmadrészt az IE04, IE05, IE06 területi egységek ugyanezen adatkészletét 2010-re, 2011-re és 2012-re a 2013-as értékekkel helyettesítettem. Ami az év eleji létszámot illeti a 15–49 éves életkorban (ebből számoltam az évközepi lakosságszámokat), a DED4 és a DED5 régiókban a 2011-es érték 2010-re is bekerült; a három írországi területi egységben a 2012-es népességszámok helyettesítik a 2010-es és a 2011-es népességszámokat. Összességében az élveszülési adatokat 1,6%-ban, az év eleji lakosságszámokat pedig 0,3%-ban helyettesítettem. Véleményem szerint mindez nem okoz szignifikáns adattorzítást, amit azzal is indokolnék, hogy az adathelyettesítés úgynevezett forráséve maximum három éven belül volt a hiányzó évekhez viszonyítva.

A térszerkezetben fennálló egyenlőtlenségek mérésére alkalmas eszköz a regionális tudomány eszköztárából kölcsönzött Hoover-index, amely két mennyiségi ismérv területi megoszlásának eltérését számszerűsíti a 0 <= h <= 100 értékkészleten (mértékegység: %). Az indikátor képlete az alábbi:

$$h = \frac{\sum_{i=1}^{n}|Xi - Fi|}{2}$$

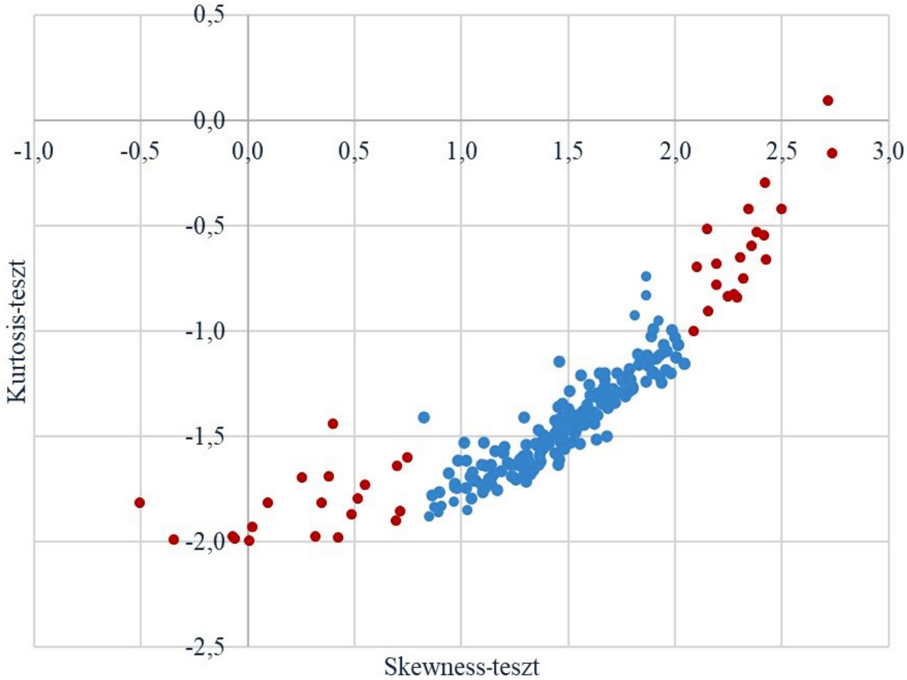
ahol a h a megoszlás eltérését, az Xi az egyik, az Yi pedig a másik mennyiségi ismérvet jelenti, az alábbi összefüggések érvényessége mellett: ΣXi = 100 és ΣFi = 100.

A tanulmány 77 Hoover-hányadost mutat be, végigkísérve a hét darab ötéves anyai kohorszhoz tartozó élveszületések területi megoszlásának változását a 11 év alatt, arra a kérdésre keresve a választ, hogy miként változott például a 15–19 éves nők által vállalt élveszületések relatív arányának eltérése a NUTS 2-es régiók által kirajzolt termékenységi térszerkezetben. Más szavakkal kifejezve, a formula lényegében azt mutatja meg, hogy az egyik mennyiségi ismérv (élveszületések) hány százalékát kellene átcsoportosítani a területi egységek között ahhoz, hogy a területi megoszlás a másik jellemző megoszlásával (anyai kohorsz létszáma) azonos legyen.

A kutatás nemcsak a területi egyenlőtlenségeket tárja fel, hanem a régiókon belüli társadalmi polarizálódás fokát is. Ennek eszköze a modális görbék módszere, amely avégett speciális, hogy a polarizáció feltárása grafikusan, illetve vizuálisan történik. A módszer alapvetően nem egzakt, ennek ellenére a normál eloszlás tesztelésére kidolgozott Skewness-féle aszimmetria és a Kurtosis-féle csúcsossági-lapultsági tesztek segítségével mégis sikerült az eljárást valamilyen szinten kvantifikálni. Ez olyan szempontból előnyös, hogy nem volt szükség a 232 vizsgálatba vont NUTS 2-es régió modális görbéjének egyesével történő ellenőrzésére, mivel a Skewness- és Kurtosis-teszteken szélsőséges értéket mutató területi egységek körét viszonylag jól ki lehet szűrni. Jellemzően a magas Skewness-értékek a szélsőségesen rövid reproduktív életszakaszra, az alacsony Kurtosis-értékek pedig a bimodalitásra utalnak (1. ábra).

1. ábra: A szélsőséges modalitást mutató NUTS 2-es régiók két jellemző klaszterének feltárása a Skewness- és a Kurtosis-tesztek segítségével, a leginkább szélsőséges 20-20 megfigyelési egységet kiemelve (N = 232)

Figure 1. Exploration of the two specific clusters among NUTS 2 units showing extreme modality, using the Skewness and Kurtosis tests, with the most extreme 20-20 regions highlighted (N = 232)



Forrás: Eurostat (2024a)

Source: Eurostat (2024a)

Ami a modális görbe elemzését illeti, ez a grafikai eszköz egy kéttengelyű koordinátarendszerben jeleníti meg a 35 reproduktív anyai korévhez (X-tengely) tartozó élveszülések számát (Y-tengely). Amennyiben ez a görbe kivállasodik vagy kétcsúcsúvá válik, annak két oka lehet. Egyrészt a társadalmon belül jelen lehetnek tudatosan, avagy nem kényszerből eltérő demográfiai magatartás-mintát követő társadalmi alcsoportok. Ebben az esetben a bimodalitás egészen addig fennmarad, amíg nem történik meg az integráció. Másrészt visszavezethető ez a polarizáció az eltérő tempóban lezajló termékenységi átmenetre, mivel előfordulhat, hogy egyes csoportok diktálják a trendet, míg más csoportok utóbbit csak késéssel követik. Ebben az esetben a bimodalitás csak átmeneti jelenség (Kapitány, 2019), és különösen az anyákhoz tartozó első gyermekek vállalásakor, illetve annak eltérő anyai életkora esetén merül fel (Burkimsher, 2017). A jelenséget magyarázó hatótényezők között meg lehet említeni például a vallásosságot, az etnikai hátteret vagy az anyagi státuszt (Peristera & Kostaki, 2007).

Végül pedig a Pearson-féle korreláció is megjelent az elemzésekben, illetve bizonyos változók kapcsán, a 2010-es keresztmetszeti adatok és a 2010–2020 közti változás közötti összefüggések feltárása érdekében. Az adatok elemzése az SPSS, az eredmények grafikus ábrázolása a QGIS és az MS Excel programok segítségével történt.

EREDMÉNYEK

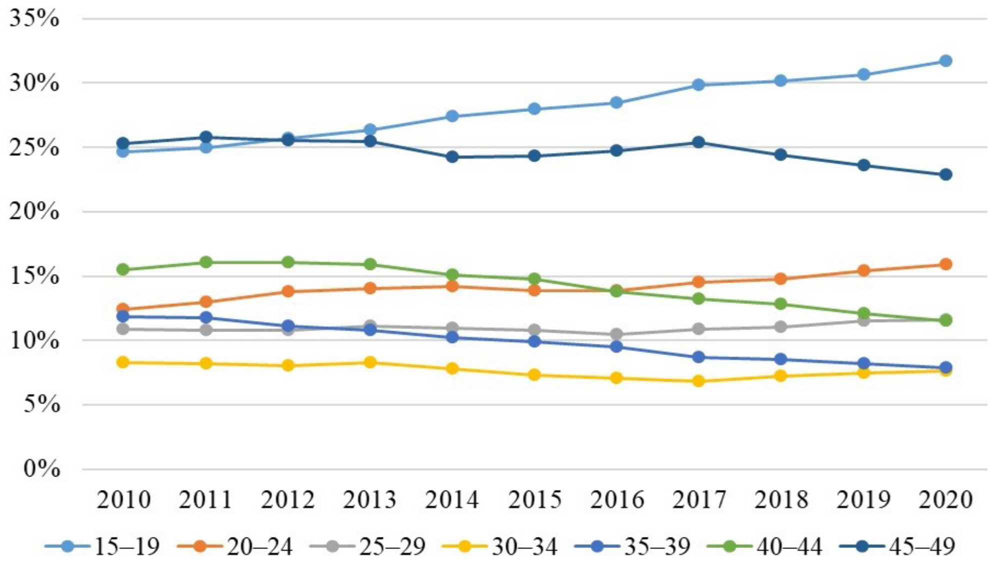
A területi egyenlőtlenségek egyik mérési eszköze a Hoover-index, amely ebben az esetben bemutatja, hogy a statisztikailag reproduktív életkorban járó nők létszáma hogyan függ össze az élveszülöttek számával. A mutató segítségével meghatározhatóvá vált az ötéves reproduktív kohorszok termékenységére jellemző területi különbség, illetve ennek nagysága és változása (2. ábra).

Az öt korcsoportot magába foglaló 20–44 éves korú kohorszok termékenységi mintázata jóval kisebb területi különbségeket hordoz, mint a 15–19 és a 45–49 éves nőké. Ennek hátterében állhat, hogy a gyermekvállalási magatartás változása is egyfajta innovációs hullámokban terjed, amit a társadalmi-gazdasági környezet mellett meghatároz a kulturális norma és az egészségügyi ellátás fejlettsége is. A termékenységi folyamatok átalakulása során nyilvánvalóan a szélsőséget képviselő társadalmi csoportok, ebben az eseteben a viszonylag korai és a viszonylag késői életszakaszban anyává váló nők adaptációja halad a leglassabban. Mindamellett megfigyelhető, hogy idősebb korban az élveszülés valószínűsége egyre inkább kiegyenlítődik a NUTS 2-es régiók területi léptékén. A vizsgált 11 évben a 35–39 (-3,9 százalékpont), a 40–44 (-3,9 szp.) és a 45–49 éves (-2,4 szp.) korú nők termékenységében a területi különbségek jelentősen visszaestek, különösen 2012-től, illetve 2013-tól kezdődően, aminek olyan hatótényezői lehetnek, mint például az asszisztált reprodukciós technikák elérhetőségének javulása.

Ezzel szemben a területi különbségek a 15–19 (+7,0 szp.) és a 20–24 éves (+3,5 szp.) kohorszok-ban jelentősen megnőttek. Ennek a folyamatnak lehetnek akár kulturális okai is, ugyanakkor ez a változás akár deprivációra, ezzel együtt társadalmi kirekesztettségre is utalhat, például a szexuális felvilágosítás, a fogamzásgátlási módszerek vagy akár az egyfajta védőhálót nyújtó közoktatás elérhetőségének tekintetében.

2. ábra: A reproduktív kohorszok termékenységének területi különbségei 2010 és 2020 között (értékkészlet: 0 <= h <= 100) (N = 222)

Figure 2. Territorial differences in the fertility of reproductive cohorts, 2010–2020 (codomain: 0 <= h <= 100) (N = 222)



Forrás: Eurostat (2024a, 2024b)

Source: Eurostat (2024a, 2024b)

Ebben az összevetésben köztes képet mutat a 25–29 és a 30–34 éves nők termékenysége. A regionális egyenlőtlenségek egyrészt viszonylag alacsonyak, különösen az utóbbi korosztályban, másrészt szignifikánsan nem változtak a 11 év alatt (25–29 év: +0,8 szp.; 30–34 év: -0,7 szp.). Ennek hátterében állhat, hogy a 222 régióban a gyermekvállalás tipikus időszaka erre a két korcsoportra irányul, és a vizsgált mintegy egy évtized nem volt elegendő a jelentős strukturális átalakulásokhoz: 2010-ben 62,1%, 2020-ban 61,7% volt a 25–34 évesek részesedésének súlyozatlan átlaga. Továbbá az idősor kezdő évében csupán négy, 11 évvel később pedig 10 régió esetében került az említett arány 50% alá. Figyelemre méltó, hogy a 2020-ra érintett 10 területi egység közül nyolc Spanyolországban, ezen belül is jellemzően északon található (például Galícia vagy Baszkföld).

A 3. és a 4. ábrán két szélsőséges kohorsz TTA-t befolyásoló hatását vizsgáltam – 2020-as keresztmetszeten – abból a célból, hogy a Hoover-együtthatók által feltárt egyenlőtlenségek lenyomatát a földrajzi térben is érzékeltessem.[2] A kohorszok bővítését indokolta, hogy mind a 15–19 évesekhez, mind a 45–49 évesekhez tartozó élveszülöttek aránya kritikusan alacsony volt 2020-ban, ami a térszerkezeti térkép reprezentativitását erősen megkérdőjelezné.[3] Ugyanakkor szerencsés körülmény,

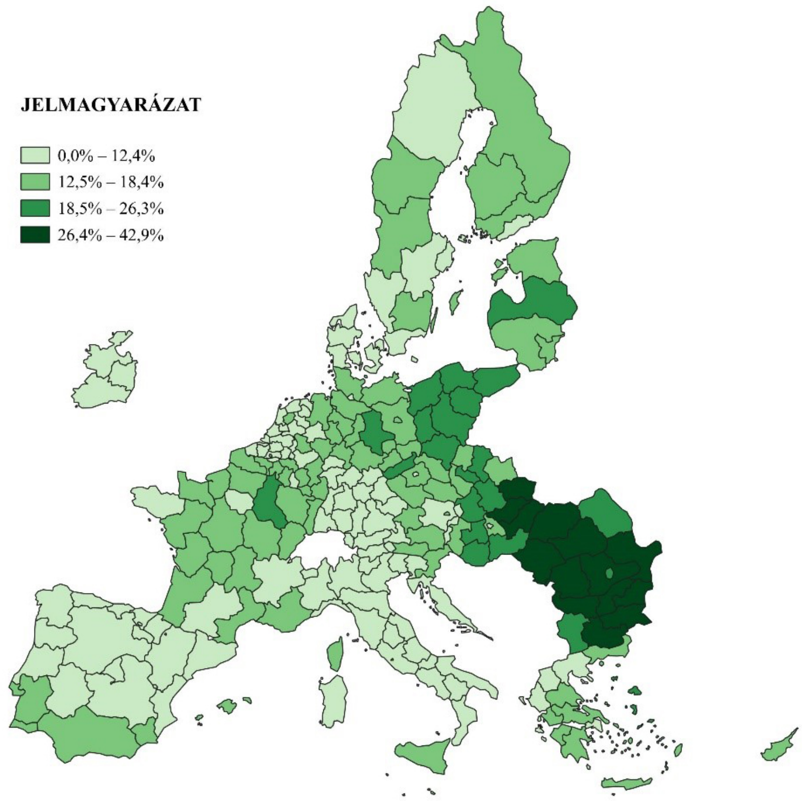
2 A TTA-t befolyásoló hatást a következőképpen határoztam meg: kiszámítottam a korcsoport-specifikus termékenységi arányszámokat (a vállalt élveszülöttek száma / a nők évközepi lakosságszáma), majd ezeket elosztottam a hét korcsoport arányszámának szummázott összegével.

3 Az Eurostat adatai alapján a 2020-as arányok korcsoportonként a következők: 15–19 évesek, 2,2%; 20–24 évesek, 10,4%; 25–29 évesek, 26,5%; 30–34 évesek, 34,8%; 35–39 évesek, 20,6%; 40–44 évesek, 5,1%; 45–49 évesek, 0,4%.

hogy az összevont kohorszok egymáshoz képest ugyanazt a pályát írták le, azaz a 15–19 és a 20–24 éveseknél jelentősen nőttek, a 40–44 és a 45–49 éveseknél pedig jelentősen csökkentek a területi egyenlőtlenségek a Hoover-indexek szerint.

Ami a térbeliséget illeti, a 3. ábráról leolvasható, hogy a déli tagállamokban, a Benelux-térségben, Dániában és Írországban viszonylag kevés nő vállal gyermeket 25 éves kora előtt. Ezzel szemben lehatárolhatunk egy, a Kelet-Szlovákia, Kelet-Magyarország, Románia és Bulgária NUTS 2-es régióit magába foglaló klasztert, ahol 2020-ban kiugróan magas volt a két legfiatalabb kohorsz korspecifikus termékenységi rátájának TTA-n belüli súlya.

3. ábra: A 15–24 éves nők korspecifikus termékenységének TTA-t befolyásoló hatása 2020-ban (N = 222)
Figure 3. Effect of age-specific fertility rate of women aged 15–24 on the TFR, 2020 (N = 222)

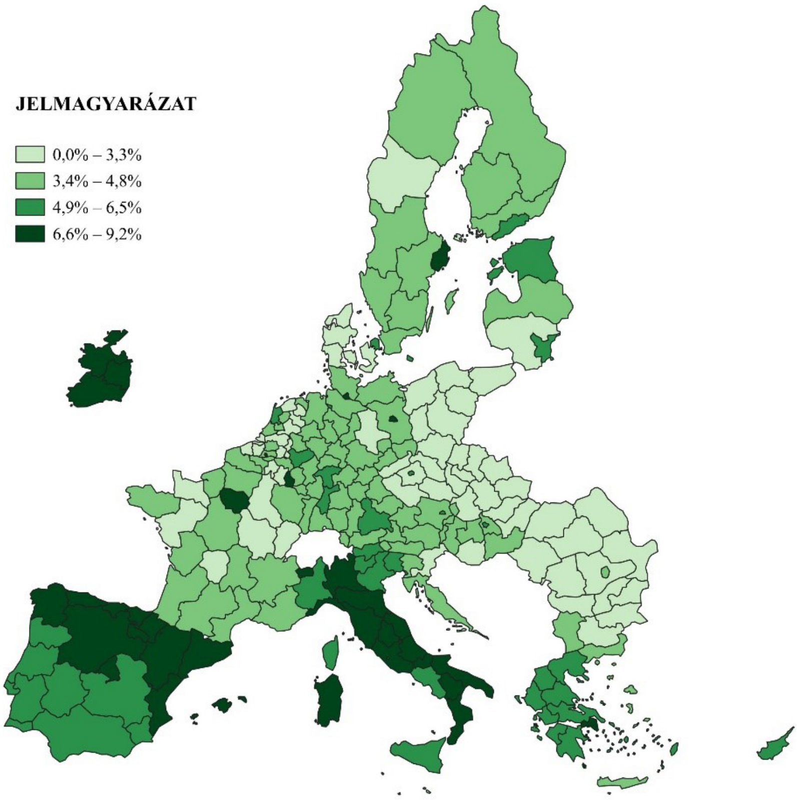


Forrás: Eurostat (2024a, 2024b)
Source: Eurostat (2024a, 2024b)

Amennyiben a másik szélsőséges magatartású csoportot vizsgáljuk, azaz a 40–49 évesek körét, akkor elmondhatjuk, hogy a 4. ábra erős kontrasztban áll az előbbi térszerkezettel. Ebben az esetben egy, a Bulgáriától Litvániáig terjedő – posztszocialista – klasztert láthatunk, ahol tulajdonképpen elenyésző arányban vállalnak gyermeket a 40+ éves nők. A másik markáns klaszter Olaszországra és Spanyolországra összepontosul, ahol – feltételezhetően a szélsőséges halasztási folyamatok miatt – kiugró a 40–49 éves kohorsz TTA-t befolyásoló hatása. Emellett megjelennek jellegzetes, földrajzilag szeparált, Dél-Európán kívül található régiók: ide tartozik Írország mindhárom területi egysége, valamint Luxemburg, Île-de-France (párizsi agglomeráció), Berlin, Hamburg és Stockholm. Az utóbbi nagyvárosok esete megerősíti a Kulu (2011), López–Gay és Salvati (2020), illetve Rodrigo–

Comino et al. (2021) által is vizsgált szuburbán termékenységi hipotézist. Ez kimondja, hogy Európán belül az agglomerációs gyűrűkben viszonylag elterjedt jelenség, hogy aa termékenységi magatartás szignifikánsan különbözik a központi nagyvároshoz képest. Ezt a különbözőséget olyan hatótényezők magyarázhatják, mint a szelektív vándorlás, a szuburbán településen élő nők társadalmi-gazdasági karaktere vagy a lakhatási körülmények stb.

4. ábra: A 40–49 éves nők korspecifikus termékenységének TTA-t befolyásoló hatása 2020-ban (N = 222)
Figure 4. Effect of age-specific fertility rate of women aged 40–49 on the TFR, 2020 (N = 222)



Forrás: Eurostat (2024a, 2024b)
Source: Eurostat (2024a, 2024b)

Az 1. táblázatban szerepel az a 10–10 régió, amelyek a legnagyobb stabilitást mutatták a viszonylag korai és a viszonylag késői gyermekvállalás jelenségében. Alapvetően gyengén közepes erősségű összefüggés van a 2010-es korspecifikus termékenységi ráta és a vizsgált időszak alatt mért átlagos éves változás abszolútértéke között: minél magasabb volt egy régión belül a 2010-es ráta, annál stabilabb a termékenységi struktúra, ami érvényes a 15–24 és a 40–49 éves kohorszokra is (Pearson-féle r_{15-24} = -0,307; $p_{15-24} < 0{,}001$; r_{40-49} = -0,333; $p_{40-49} < 0{,}001$; N = 222). A 15–24 évesek TTA-hatásában a legnagyobb stabilitást mutató régiók között több magyarországit is találunk; valójában a nyolc NUTS 2-es magyarországi régióból hét ilyen szempontból az első 17-ben található. Ez két dologra utalhat: a pronatalista politika stabilitására, illetve arra, hogy a túlságosan korai anyai életkorban (15–19 évesen) történő gyermekvállalást még nem sikerült kellőképpen visszaszorítani. Ami a korai gyermekvállalás magterületének három további tagállamát, azaz Szlovákiát, Romániát és Bulgáriát illeti, a két utóbbi ország összesen 14 területi egysége közül 10 az első 39 legstabilabb régió között található. Szlovákia esetében a négy országrészből három az első tízbe, a Pozsonyt magába foglaló kerület pedig a 33. helyre került.

1. táblázat: A 15–24 és a 40–49 éves kohorszok TTA-ra gyakorolt hatásának átalagos éves változása (abszolút érték), valamint a korspecifikus termékenység 2010-es és a 2020-as értéke a minimális változást mutató 10–10 régióban 2010 és 2020 között (N = 222)

Table 1. Average annual change (absolute value) in the impact of the cohorts aged 15–24 and 40–49 on the TFR, along with the initial and final age-specific fertility rates in the 10 least adaptive regions, 2010–2020 (N = 222)

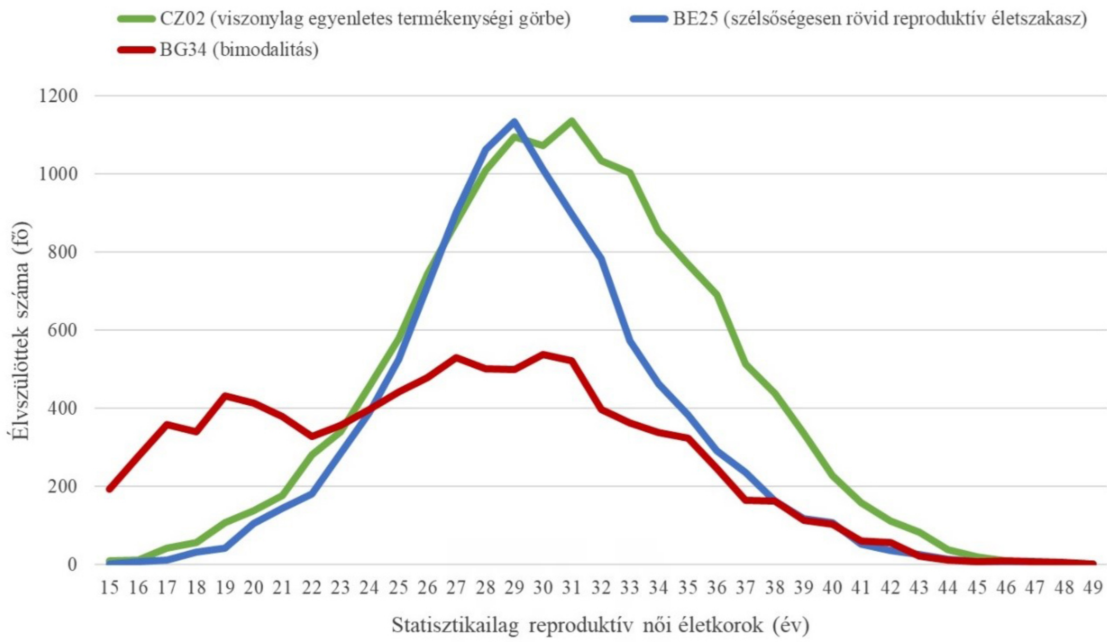
	Legstabilabbak (15–24 éves kohorsz)		
	TTA-hatás (vált. / év)	2010	2020
Kelet-Szlovénia (SI03)	0,1%	0,178	0,174
Közép-Morvaország (CZ07)	0,1%	0,166	0,164
Észak-Alföld (HU32)	0,2%	0,296	0,289
Közép-Dunántúl (HU21)	0,3%	0,205	0,198
Molise (ITF2)	0,3%	0,101	0,097
Észak-Magyarország (HU31)	0,3%	0,335	0,345
Délkelet-Csehország (CZ03)	0,3%	0,192	0,185
Közép-Szlovákia (SK03)	0,4%	0,265	0,255
Kelet-Szlovákia (SK04)	0,4%	0,336	0,350
Nyugat-Szlovákia (SK02)	0,5%	0,228	0,215
	Legstabilabbak (40–49 éves kohorsz)		
	TTA-hatás (vált. / év)	2010	2020
Bolzano (ITH1)	0,9%	0,049	0,053
Közép-Norrland (SE32)	1,1%	0,031	0,032
Trier (DEB2)	1,1%	0,036	0,038
Frízföld (NL12)	1,1%	0,022	0,023
Központi térség (RO21)	1,5%	0,022	0,025
Kelet-Szlovákia (SK04)	1,7%	0,021	0,025
Nagy-Lengyelország (PL41)	1,8%	0,022	0,026
Pest megye (HU12)	2,0%	0,033	0,039
Trento (ITH2)	2,0%	0,052	0,062
Veneto (ITH3)	2,1%	0,051	0,063

Forrás: Eurostat (2024a, 2024b)

Source: Eurostat (2024a, 2024b)

A Skewness- és a Kurtosis-tesztek (N = 232), valamint a termékenységi görbék kapcsán sikerült kimutatni a bimodalitással a leginkább szélsőségesen érintett NUTS 2-es területi egységek lehetséges körét. Emellett az elemzés felfedett egy másik szélsőséget, nevezetesen azon régiók csoportját, ahol a társadalom által determinált reproduktív életszakasz túlságosan rövid. Ez a demográfiai karakter kockázattal jár, mivel a nők számára a gyermekvállalás valószínűsége mind a felülreprezentált időszak előtt, mind pedig utána túlságosan alacsony, és ennek csak részben képezik okát a „felülről" ható biológiai korlátok; a további, „alulról" korlátozó faktorok a társadalmi-gazdasági-kulturális környezetben keresendők. A szélsőségek ellenére a régiók többsége normál eloszlást mutat (5. ábra).

5. ábra: Három jellegzetes példa a modális görbék alakjára, 2020 (N = 232)
Figure 5. Three specific cases illustrating the shapes of model curves (N = 232)



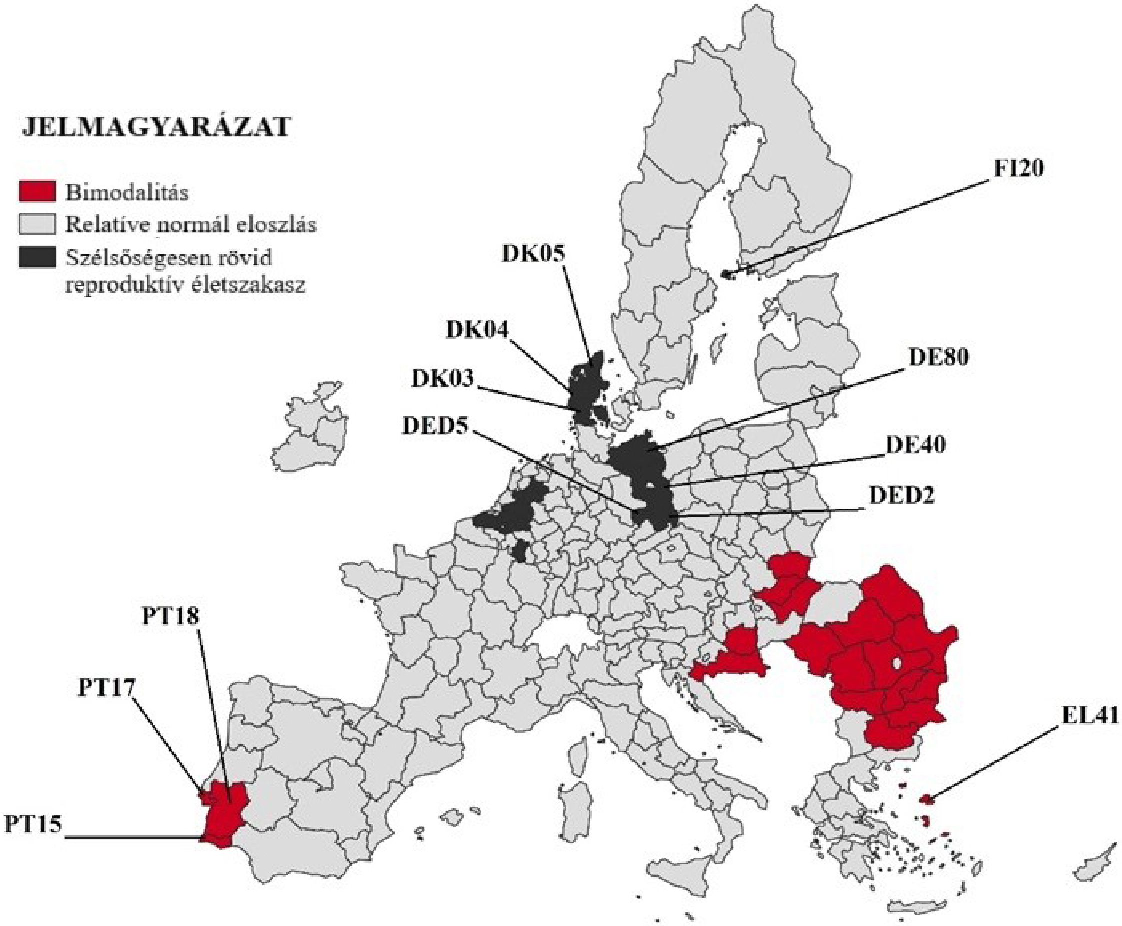
Forrás: Eurostat (2024a)
Source: Eurostat (2024a)

A bimodalitásnak alapvetően két mögöttes oka lehet. Egyrészt előfordul, hogy bizonyos társadalmi csoportok sajátos kulturális normákat követnek, méghozzá önkéntes módon. Másrészt felmerülhet a társadalmi kirekesztés problémája (Kapitány, 2019). A magyarázat sokszor nem egyértelmű, ugyanakkor vannak jellegzetes esetek. Például Bulgáriában vagy Romániában feltételezhető, hogy a konzervatív és nacionalista törekvések a roma kisebbséget marginalizálják, ami tükröződhet a romák által magas arányban lakott régiók termékenységi magatartásán is (Dumbrava, 2017; Kotzeva & Dimitrova, 2014). Ennek több gyakorlati megnyilvánulása lehet, többek között, amikor a már említett fogamzásgátlási módszerek vagy a szexuális felvilágosítás elérhetőségének hiánya túl korai gyermekvállaláshoz vezet. Ennek ellenére ezt az alternatív magatartást a kulturális hagyományok is determinálhatják. Valószínűleg mind a kirekesztés, mind pedig a normakövetés egyaránt hozzájárul a modális görbén kirajzolódó társadalmi különbségekhez.

A bimodalitás szempontjából a leginkább szélsőséges képet mutató régiók Kelet-Közép-Európában, ezen belül elsősorban Romániában, Bulgáriában és Magyarországon helyezkednek el. Sokatmondó, hogy az utóbbi tagállamok érintett országrészeiben a roma lakosság aránya több esetben is viszonylag magas, az országos átlag felett van (például a három magyar közigazgatási egység). Mindamellett fontos figyelembe venni, hogy más kisebbségek is hatótényezőként lehetnek jelen. Bulgária esetében nem csupán a roma, hanem az őshonos török lakosság is viszonylag nagy arányban lakja az északkeleti és a déli országrészeket. Továbbá, Kelet-Közép-Európán kívül meg kell még említeni a görög Észak-Égei-szigeteket (EL41) is, melynek demográfiai karaktere szintén szélsőséget képvisel, hasonlóan Portugália déli tartományaihoz. A görög országrész esetében a földrajzi és a társadalmi értelemben vett elszigeteltség, Algarve (PT15), a Lisszaboni agglomeráció (PT17) és Alentejo (PT18) kapcsán pedig – feltételezésem szerint – a bevándorlói háttérrel rendelkező, például az egykori gyarmatokról (Brazília, Angola stb.) származó lakosság jelenlétéhez kötődhet a kicsúcsosodás; feltéve, ha az okok keresését leegyszerűsítjük az etnikai vagy nemzetiségi státuszra (6. ábra).

6. ábra: A bimodalitás és a szélsőségesen rövid reproduktív életszakasz szempontjából leginkább érintett 20–20 régió, feltüntetve a kiemelt esetekkel (N = 232)

Figure 6. Two groups of 20 regions predominantly affected by bimodality and the phenomenon of an extremely narrow reproductive life stage, with highlighted cases (N = 232)



Forrás: Eurostat (2024a)
Source: Eurostat (2024a)

A szélsőségesen rövid reproduktív életszakasszal jellemezhető országrészek magterülete három földrajzilag is összefüggő klasztert alkot. Az egyik Németország négy régiója, azon belül is az egykori Német Demokratikus Köztársaság területéhez tartozó Brandenburg (DE40), Mecklenburg–Előpomeránia (DE80), Drezda (DED2) és Lipcse (DED5). A második klaszterhez Dél-Dánia (DK03), Közép-Dánia (DK04) és Észak-Dánia (DK05) országrészek tartoznak. Végül pedig a harmadik klasztert Hollandia és Belgium országrészei alkotják, ahol a 12 holland tartományból 5, 11 belga régióból pedig 7 érintett ebben a szélsőségben. Végül kiemelhető még a finn Åland (FI20) esete is, azonban mivel a sziget lakossága csupán mintegy 30 ezer főt tesz ki, ezért az alacsony elemszám miatt (élveszületések) a bimodalitásra utaló görbe csupán a véletlen műve is lehet. Ezt alátámaszthatja az az anomália, hogy 2020-ban a 33 éves nők 22, a 34 évesek csupán 4, a 35 évesek pedig 16 gyermeket vállaltak, mely váltakozásra nincs megalapozott magyarázat.

KÖVETKEZTETÉSEK

Az eredmények alapján megjelenik egy viszonylag markáns térszerkezeti kép a gyermekvállalási magatartás terén, nem csupán tagállami, hanem szupranacionális szinten is. A regionális egyenlőtlenségek egyrészt detektálhatók keresztmetszeti szinten, másrészt dinamikus szempontból is. 2010 és 2020 között az ötéves reproduktív kohorszok korspecifikus termékenységi rátájában ellentétes folyamatok zajlottak le. A térbeli különbségek a fiatalabb nők esetében nőttek, különösen a 15–19 és 20–24 éveseknél. Mindeközben az idősebb kohorszok fertilitásában kiegyenlítődés történt, amire a leginkább jellegzetes példa a 40–44 és a 45–49 éves korcsoport. A folyamatokat bizonyos innovációs hullámok terjedése magyarázhatja: előbbi esetben a kamaszterhességek előfordulásának visszaszorulása, utóbbiál pedig a halasztási irányzatok generalizálódása, olyan hatótényezőkkel kiegészítve, mint az asszisztált reprodukciós technikák társadalmi adaptációja.

A túlságosan fiatal, illetve a túlságosan késői gyermekvállalással érintett – és kiemelt – reproduktív csoportokról elmondható, hogy kontinentális átlagban mind a 15–24 éveseknek, mind a 40–49 éveseknek szignifikánsan kisebb a hozzájárulása a TTA-hoz, szemben a 25–39 évesek kiugró mértékű gyermekvállalási magatartásával. Ugyanakkor a területi különbségek jelentősek a vizsgált NUTS 2-es léptéken. A Kelet-Szlovákiát, Kelet-Magyarországot, Romániát és Bulgáriát magába foglaló klaszterben a 15–24 évesek TTA-hozzájárulása meghaladja a 25%-ot. A 40–49 éveseknél ekkora szóródás nem érzékelhető a térszerkezeten, azonban a Mediterrán térségben, Írországban, valamint egyes nagyvárosi agglomerációkban (például Párizs vagy Stockholm) meghaladja az 6–7%-os hozzájárulást az említett kohorsz fertilitása (ez relatíve szintén kimagasló arány).

Vannak olyan régiók, ahol a 15–24 és a 40–49 éves reproduktív korcsoport TTA-hozzájárulásának mértéke a vizsgált 11 évben szinte alig változott. Különösen Magyarországon és Szlovákiában a 15–24 évesek termékenységének hatása lényegében stabil. Ezzel szemben a 40–49 éveseknél már diverzifikáltabb az összkép: jóllehet az előbbi, kelet-közép-európai térségek régiói szintén megtalálhatók a szélsőségek között, valószínűsíthetően a halasztási folyamatok lassabb adaptációja miatt. Másfelől a fejlettebb, nyugat- és dél-európai uniós tagállamok régiói is végletesek. Valószínűleg esetükben a növekedés dinamikája abból az okból mutat viszonylagos lassúságot, hogy már a 2010-es bázisévben is magas volt az idősebb kohorszok termékenysége.

Ami a társadalmon belüli polarizációs hatást illeti, a gyermekvállalási magatartás kétféle szélsőséget is felvesz bizonyos európai térségekben. Egyrészt a már említett keleti klaszterben a bimodális termékenységi görbék jelenléte megosztottságra utal (itt még kiemelhető Dél-Portugália esete is). Ellentétes folyamat a görbék „túlcsúcsosodása”, ami azt jelzi, hogy a tényleges reproduktív életszakasz bizonyos kontinensrészeken szélsőségesen lerövidült. Ez szintén polarizációt, illetve feszültséget okoz, mert sokan nem tudják erre a felülreprezentált időszakra időzíteni a családalapítást, így esetükben fennáll a relatív vagy abszolút értelemben vett gyermektelenség kockázata. Utóbbi jelenség magterületét Dánia, az egykori Kelet-Németország, valamint két Benelux-állam (Belgium és Hollandia) alkotja.

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Szabó, Balázs Attila[1]

Tourist Spaces among Gay Individuals in Hungary: A Study of the Trialectics of Space

ABSTRACT

This study examines the travel patterns and preferences of gay individuals in Hungary, drawing on the results of a questionnaire. It focuses on three key aspects of LGBTQ travel behavior. First, which destinations are perceived as LGBTQ-friendly? Second, where did the participants travel during their last three trips? These spatial patterns were analyzed in comparison to established and perceived LGBTQ tourism spaces. The findings indicate that Hungarian lesbian and gay individuals are aware of prominent gay-friendly destinations in Europe. However, their recent travel choices show that they do not always visit these destinations. While some LGBTQ-friendly cities in Western Europe were visited, most respondents preferred domestic travel, with popular international destinations including neighboring countries such as Croatia and Austria. Compared to the general Hungarian population, a notable difference is that members of the gay and lesbian community are more inclined to visit neighboring countries, followed by classic LGBTQ-friendly destinations in Western Europe, such as Spain.

Keywords: gay geography, social space, gay tourism, LGBTQ, Hungary

[1] Geographer, Doctoral School of Earth Sciences, University of Pécs, PhD-student. 7624 Pécs, Ifjúság útja 6., Email: szba@gamma.ttk.pte.hu

INTRODUCTION

LGBTQ tourism represents one of the emerging segments of the contemporary tourism industry. This study focuses specifically on the LGBTQ social group—lesbian, gay, bisexual, transgender, and queer—with a particular emphasis on gay and bisexual men from a tourism perspective. The core objective is to explore the interrelationship of LGBTQ tourism spaces through a tri-sectonic geographical framework.

The social and political history of a country plays a crucial role in shaping the existence and viability of LGBTQ tourism. In societies where safety and social acceptance are low, LGBTQ individuals are unlikely to engage in behavior typically associated with gay tourism. Hungary serves as a pertinent example, ranking among the least accepting countries in Europe regarding social attitudes toward LGBTQ individuals (Dombos et al., 2023). Moreover, the institutionalization of same-sex relationships in Hungary lags significantly behind that of Western and Northern European nations (Takács & Szalma, 2012).

The question arises: What constitutes gay tourism, and who qualifies as a gay tourist? According to international literature, gay tourism is a complex, demand-driven form of tourism specialized for LGBTQ individuals, but it is also supply-dependent, requiring the availability of tailored services. More precisely, it encompasses a range of services and marketing strategies designed for lesbian, gay, bisexual, and transgender individuals in destinations characterized by LGBTQ-friendly populations (United Nations World Tourism Organization [UNWTO], 2017). While gay tourism is often associated with non-heterosexual men, this perception is not entirely accurate. Membership in a sexual minority does not inherently dictate travel motivations, which can vary widely and are not always related to sexuality. For instance, a gay man may travel to a destination out of curiosity about its cultural heritage, museums, or exhibitions. In such cases, he is not engaging in gay tourism. However, when he utilizes services, accommodations, events, or entertainment explicitly tied to his sexuality, his behavior aligns with the concept of gay tourism. Thus, the defining factor is the individual's behavior and choices during travel.

In this context, gay tourists are defined as individuals whose primary motivation for travel is to explore and express their identity and sexuality within an LGBTQ-friendly environment. Numerous studies have concluded that LGBTQ individuals often share similar travel motivations with heterosexual travelers (Clift & Forrest, 1999; Hughes, 2002; Monterrubio, 2009; Pritchard et al., 1998; Lubowiecki-Vikuk & Borzyszkowski, 2016; Szabó & Sümeghy, 2023). However, factors such as safety, an open and accepting culture, and the absence of rejection hold particular significance for LGBTQ tourists. For example, LGBTQ travelers may face challenges or situations that heterosexual travelers do not typically encounter (Hughes, 2002; Szabó & Sümeghy, 2023).

The LGBTQ community also occupies tangible physical spaces across Europe, including residential areas, urban neighborhoods, and tourist hubs. In Hungary, research on marginalized groups—such as LGBTQ travelers or individuals with accessibility needs—has only recently begun to overcome its taboo nature (Raffay & Gonda, 2020).

Given these considerations, it is valuable to examine gay tourism through the lens of the tri-sectonic framework of space. The primary research question addressed in this study is: To what extent do the conceived, lived, and perceived spaces of gay tourism in Europe overlap or diverge for gay individuals in Hungary? This question is approached from a Hungarian perspective, focusing on the conceived and lived spaces as perceived by Hungarian gay individuals. Participants were asked to reflect on their associations with these spaces, particularly in a European context. A secondary research question explores which spaces they identify with LGBTQ tourism and how they conceptualize these places.

LITERATURE REVIEW

Theories of social space

North American and British studies have examined the geographical aspects of sexuality since the 1970s (Brown & Knopp, 2003; Hubbard, 2001). One prominent area of focus has been descriptive studies of gay neighborhoods in large cities. By the late 1980s, feminist and queer theories emerged as significant critical social theories (Bell & Valentine, 1995), emphasizing that people use space in distinct ways influenced by factors such as gender, social status, origin, and sexuality (Valentine, 2007). Contemporary social geography primarily investigates the concept of space and the systems through which individuals interact with it, particularly how different social groups shape, form, or, as Lefebvre describes, ”produce” space (Lefebvre, 1991).

Theories of social space, particularly the notion of space production, were notably developed by Henri Lefebvre in the 1970s and later expanded by Edward Soja. Among the various theories of space, this paper focuses on the triadic division of space, known as the „trialectics of space,” as articulated by Lefebvre and Soja (Berki, 2015; Soja, 1996). The three categories—conceived, lived, and perceived spaces—describe how individuals relate to and engage with space in distinct ways (Berki, 2015). Space is understood as socially produced, shaped by daily practices, perceptions, and representations (Berger, 2018; Lefebvre, 1991).

Since this research focuses on an explicitly defined social group, it is essential to consider additional aspects of spatial theory. Martina Löw, in her work on the sociology of space, conceptualizes space as a system of relations between animate and inanimate bodies. She argues that space is created through human actions and that analyzing the positioning of social groups and individuals reveals their movements and interactions within space. These actions are unified through mental processes influenced by emotions, intentions, and subjective experiences. Thus, spaces are relational, where individual elements mutually define one another (Löw, 2001). This relational approach provides a valuable framework for exploring differences between social groups.

This perspective aligns with Bruno Latour's (2005) actor-network theory, which asserts that space is constructed by „actors" or „actants." Multiple spaces can simultaneously exist within a single place, as different actors construct them based on their unique perspectives. This highlights the subjectivity of space, shaped by the viewpoints and actions of various actors (Latour, 2005).

In Hungary, scientific discourse on spatial research began emerging in the 2000s, initially treated as a distinct discipline. However, a recent „spatial turn" has fostered a more interdisciplinary approach to spatial studies (Faragó, 2019; Dániel et al., 2019; Berger, 2018; Berki, 2017; Timár, 2003). Judit Timár, in particular, extensively applies Lefebvre's spatial theories and his triadic conceptualization of space in her work (Timár, 2019; Timár-Nagy, 2019). Space is neither static nor apolitical; the relationship between the state and space is inherently intertwined (Lefebvre, 1991). The state wields power to enact laws, norms, values, and ideologies, significantly influencing how different groups use space. As a result, the state often restricts the spatial freedoms of marginalized groups, such as the LGBTQ community (Timár, 2019).

In recent years, Hungary has enacted legislation that negatively impacts LGBTQ individuals (Gera, 2023; Rankin, 2021; Roots, 2022). The state has imposed restrictions on LGBTQ-related content, which suggests that socio-spatial exclusion also affects this group. This exclusion is directly relevant to the present research, which examines LGBTQ spaces in the context of tourism. Current tourism development plans in Hungary fail to address the needs or inclusion of LGBTQ individuals.

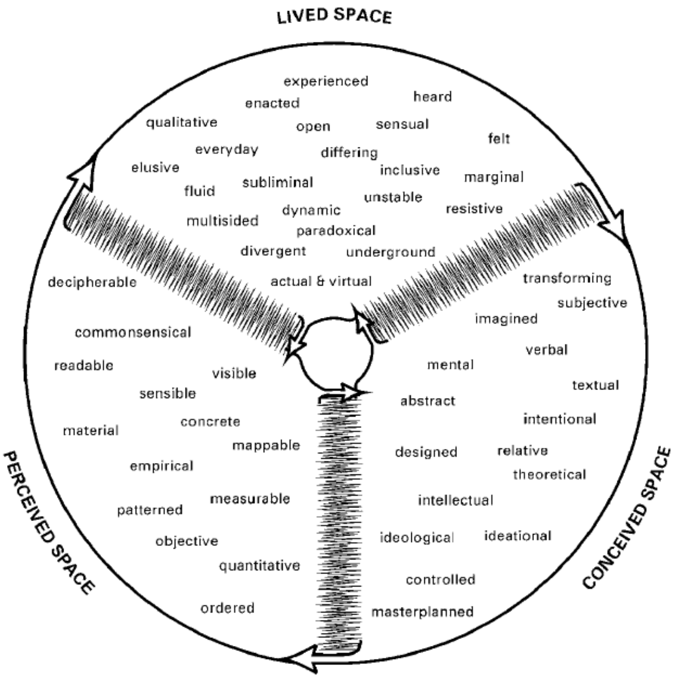
The absence of such considerations, compounded by a restrictive legal environment, unfavorable media portrayals, and state communication strategies, has contributed to Hungary's reputation as neither an attractive nor safe destination for LGBTQ tourists. In some cases, this has even led to destination avoidance by foreign LGBTQ tourists (Monaco, 2022). The exclusion of marginalized groups, such as LGBTQ individuals, can be understood as a spatial consequence of state practices (Timár, 2019). Furthermore, the exclusion of specific groups from public spaces often stems from discriminatory policies (Sági, 2019).

Timár (2019) argues that social class and ethnicity marginalize certain groups. Similarly, I contend that sexual identity significantly contributes to the marginalization of the LGBTQ community. In contemporary Hungary, this group struggles for visibility in everyday life and for the representation of their spaces. As a central actor, the state bears significant responsibility for obstructing cultural transmission and fostering disinformation about the LGBTQ community.

Given the diversity of spatial theories, it is useful to return to Lefebvre's tripartite division of space (Fig. 1), as applied by Berki (2015). While conceived, lived, and perceived spaces continuously interact, their meanings and content differ depending on the social group in question (Berki, 2015). This research examines these differentiated contents from the perspective of Hungary's gay social segment.

It is important to acknowledge that the LGBTQ community, or gay people as a group, is not homogeneous but rather a highly diverse collective. Like any social group, various sociodemographic factors, such as income, education, marital status, and more, play a crucial role in shaping experiences within this community (Valentine & Skelton, 2003; Corbisiero, 2013).

Figure 1. Approximate characteristics of a triplicate epistemology of space (terms adapted from Lefebvre, 1991; Merrifield, 1993, 1995, 2000; Kirsch, 1995; Soja, 1996, 2000).



Source: Thompson-Fawcett, M. (2003)

Given the significant differences in how biological sexes use space, it is unsurprising that such variations also occur within the LGBTQ community. Lesbian and bisexual women, for instance, tend to be less active in LGBTQ tourism (Guaracino, 2007) and in permanent space use compared to gay and bisexual men. This is evident in the supply profiles of gay tourism destinations. Moreover, as in the present study, many research projects focus exclusively on men (Pritchard et al., 1998; Waitt & Markwell, 2006). Due to the specificities of space usage and the sample distribution of the current research, the findings are predominantly representative of gay and bisexual men.

In general, men exhibit greater spatial mobility, while women, in contrast, tend to have more developed relational systems and interactions (Kálmán, 2019). The present research offers a snapshot and insight into the world of gay tourism from a Hungarian perspective. This is particularly significant because international studies on LGBTQ tourism and geography in Europe highlight a high degree of spatial differentiation. In the former socialist bloc countries, there is a noticeable lack of academic research on this topic, with some researchers exploring the potential reasons for this gap (Lubowiecki-Vikuk & Borzyszkowski, 2016; Gabiam & Pitonák, 2014).

All three categories of space—conceived, lived, and perceived—are dynamic, constantly evolving, and overlapping. To illustrate this, consider a gay bar in Barcelona, which exists objectively in the perceived space, yet its creation and continued existence rely on the people who inhabit that space, namely the consumers. Additionally, the presence of the gay bar in that particular location generates information and „echoes" that contribute to shaping conceived spaces. Over time, the conceived space can transform into a lived space during a visit, highlighting the interconnectedness of these spaces. Conceived space refers to the mental concept of the world around us, which can differ from individual to individual or between social groups (Berki, 2015). Furthermore, it is crucial to note that both capital and the state play significant roles in shaping this space (Lefebvre, 1991).

Lived space emphasizes experience and the actual use of space. It is not merely the sum of conceived and perceived spaces, but rather the extent to which they differ from one another. Lived space is a subjective reality, shaped by specific moments in time and influenced by a variety of factors and motivations (Berki, 2015). It can also be understood as a space of resistance for marginalized groups (Lefebvre, 1991). When applied to tourism, this category of space reflects patterns of behavior and consumption within a particular destination, focusing on how tourists experience space at a given place and time.

For the purposes of this study, however, lived space is understood in a more practical sense, referring to the destinations of trips that have already occurred. In essence, this allows us to gain insight into the tourist spaces frequented by gay people in Hungary. Through these impressions and experiences, individuals also influence the perceived space (Cséfalvay, 1990).

Perceived Space: Spatial Patterns of Gay Tourism in Europe

Perceived space, as real physical space, is an objective category that can be measured precisely. Quantitative geographic studies, particularly before the 1970s, focused primarily on this form of space. Perceived space is experienced uniformly by all individuals, regardless of their personal characteristics (Berki, 2015). As highlighted in the present research, the exploration of perceived space is particularly significant today, especially for groups marginalized in society, such as LGBTQ individuals. These spaces are not perceived in the same way by all people, and their distribution is unique, whether at the European, national, or urban level.

Research on mapping actual, perceived LGBTQ spaces in Europe remains limited. However, LGBTQ space occupation is now clearly present and, more importantly, visible across Europe. Such spaces are primarily found in large cities and seaside resorts in Western Europe. In major urban centers, LGBTQ spaces often form specific segregated neighborhoods, while on Mediterranean coasts, they tend to manifest as seasonal nightclubs or small coastal settlements. In cities such as Ibiza and Sitges in Spain, Mykonos in Greece, and Brighton in the United Kingdom, small coastal resorts and islands with relatively small populations have both permanent and temporary gay tourist spaces, many of which function as non-permanent residences (Gabiam & Pitonák, 2014).

LGBTQ spaces may not only be concentrated in one specific area, as seen in cities like Berlin or Barcelona, but also dispersed, as is the case in Budapest, among others. Concentrated LGBTQ spaces are best exemplified by gay neighborhoods in large cities in Western Europe and North America. These spatial concentrations can sometimes emerge spontaneously, as Schmeller (2012) captures the essence of urban spaces: „people shape their living environment into a place where they like to live, feel safe, and are active participants in community life." Perceived LGBTQ spaces are largely defined by the presence of services catering specifically to the group, as well as by a gay-friendly social and political environment (Takács & Szalma, 2012).

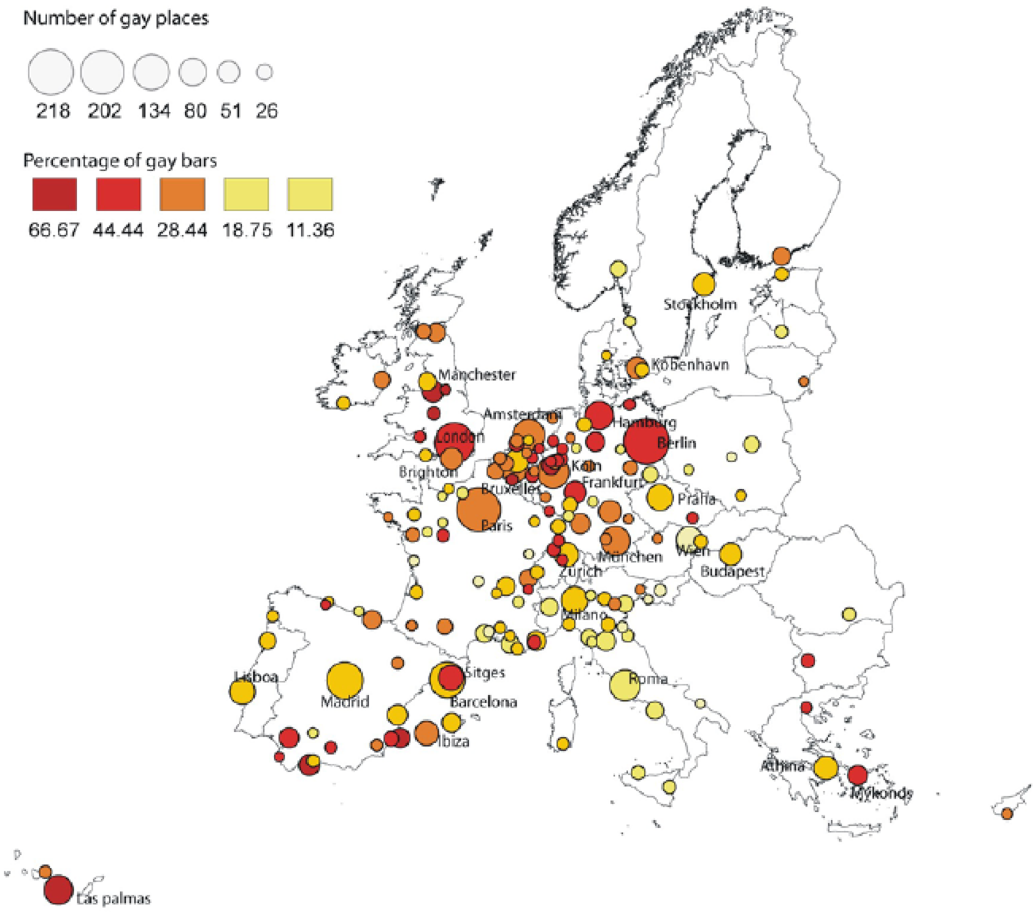
Researchers Koessan Gabiam and Michal Pitonák (2014) analyzed data from the *Spartacus International Gay Guide* to map LGBTQ spaces in Europe. They developed spatial patterns based on the number and location of gay bars and gay-friendly bars and nightclubs, which helped organize these spaces (Gabiam & Pitonák, 2014). This approach provided a relatively accurate picture of the density and distribution of perceived LGBTQ spaces across the continent (Figure 2). They concluded that this spatial pattern closely approximates the perceived real spaces of LGBTQ tourism in Europe. Principal Component Analysis (PCA) was the primary method employed in their study. They identified locations in Europe where LGBTQ individuals can openly express their sexuality. These spaces also play a crucial role in the construction of gay identity and culture (Gabiam & Pitonák, 2014). The map and database mainly highlight spaces for gay men within the broader LGBTQ community (Figure 2).

To sustain gay spaces, such as gay bars, studies suggest that municipalities need to have a population of at least 50,000 (Miller, 2009). However, due to the large sample size, the research focused on cities with populations exceeding 100,000 and at least 10 gay spaces. As a result, 168 cities were included in their study. The analysis considered 27 different categories of gay spaces, such as locations and businesses, based on data from the *Spartacus International Gay Guide* (2007) (Gabiam & Pitonák, 2014). Using targeted marketing and advertisements, they identified key areas in Europe that function as gay tourism destinations. These areas are located in countries where the institutionalization of same-sex partnerships and the level of social acceptance are considered high.

When focusing on cities, it is important to mention those with established gay neighborhoods, which serve not only as residential areas but also as tourist attractions for the LGBTQ community. Notable examples of such cities in Western Europe include, but are not limited to, Berlin, Barcelona, Paris, London, Manchester, Amsterdam, and Madrid. Within these cities, districts such as Schöneberg in Berlin, Eixample in Barcelona, and Le Marais in Paris are known for their concentration of gay and other LGBTQ individuals, often occupying just a few streets (Queige, 2013; Costa & Pires, 2016).

The high level of social acceptance of LGBTQ people and the widespread institutionalization of same-sex partnerships are particularly prominent in Northern European countries. However, despite these factors, concentrated gay neighborhoods or streets have not historically developed in these regions. As a result, while the aforementioned factors exist, the hotspots of gay tourism are primarily located in cities in Germany, Spain, the Benelux countries, and the United Kingdom. This phenomenon is mostly tied to metropolitan areas, though rural coastal regions also play an important role in terms of perceived LGBTQ spaces. These include locations such as the Canary Islands, Sitges, other coastal areas in southern Spain, Rimini, and Mykonos.

Figure 2. Perceived LGBTQ spaces in Europe. Percentage of gay bars in the total number of 'gay places' per urban area in the EU, Norway and Switzerland in 2007.



Sources: Spartacus Gay Guide (2007); made with Philcarto: http://philcarto.free.fr (Gabiam & Pitonák, 2014).

METHODS

The study employs a combination of a questionnaire survey targeting a Hungarian gay sample and secondary research. The primary method utilized in this study is an exploratory questionnaire survey. Questionnaire surveys are particularly effective for describing the characteristics of large populations or for providing in-depth insights into a specific social group (Babbie, 2010). In Hungary, official statistics disaggregated by sexual orientation are lacking, creating a significant gap in research on LGBTQ populations. This study addresses this gap by focusing on individual members of the LGBTQ community, making the online questionnaire method an ideal data collection tool (Lubowiecki-Vikuk & Borzyszkowski, 2016; Vicsek, 2017). Although the sample is not representative of the broader Hungarian population, its large size ensures that its characteristics are reflective of the Hungarian gay community.

The survey consisted of both closed and open-ended questions to capture both structured and individual responses. Two key questions were central to the survey: (1) „Where do you think LGBTQ people like to travel within Europe?" This question aimed to explore the perceived gay/LGBTQ tourism spaces as identified by the Hungarian gay group. (2) „Please describe your three most recent destinations." This allowed respondents to reflect on their personal travel experiences, thus providing insights into the lived tourist spaces.

To facilitate comparability, responses regarding destinations were standardized into country and region categories. This grouping allowed for easier mapping of the lived spaces and comparison with perceived gay tourism spaces.

After completing the anonymous questionnaire, a test survey was conducted with ten local gay men to ensure clarity and relevance. Minor adjustments were made based on their feedback. The full survey yielded 1,500 responses, with 1,473 valid completions after data cleaning. The sample consisted predominantly of men (88.5%), with 10% women and 1.5% identifying as other genders (Table 1). Due to the overwhelming proportion of male respondents, the analysis focused exclusively on gay and bisexual men. Foreign respondents were excluded from the final sample.

The survey was conducted using two major platforms: Facebook Groups (closed LGBTQ-themed groups provided a secure and accessible channel) and PlanetRomeo as the most popular gay dating app in Hungary offered anonymity and reach.

Respondents were contacted individually via private messages, where I explained the research process and encouraged participation. Additionally, the snowball sampling method was employed, with respondents asked to forward the questionnaire to others within their networks (Babbie, 2010). The survey was conducted between January and February 2020, with an emphasis on reflecting upon travel prior to the outbreak of the COVID-19 pandemic. The questionnaire was administered via Google Forms.

In addition to primary data collection, secondary sources were employed to provide a theoretical foundation for the research. Theories of space were used to contextualize the topic, particularly the literature on spatial research, mental mapping, and spatial theories. A literature review was conducted focusing on the tripectics of space, which provided the conceptual framework for understanding the spatial dynamics of LGBTQ tourism.

Secondary data also included the study of perceived LGBTQ spaces in Europe. This was based on the Spartacus International Gay Guide (2007), a comprehensive and widely recognized resource for gay tourists. The Spartacus guide offers detailed information on LGBTQ-friendly destinations and is an essential database for researchers examining gay tourism patterns (Briand et al., 2011). In particular, the 2007 survey conducted by Spartacus International Gay Guide was instrumental in mapping perceived gay spaces across Europe (Gmunder, 2007).

The data obtained from the Spartacus International Gay Guide was used to supplement the primary research and to compare the lived experiences of Hungarian gay tourists with those mapped in Europe. Maps and figures were generated using Microsoft Excel for database management and ARCGIS geospatial software for spatial analysis.

Table 1. Charasteristics of respondents (n=1473)

Biological sex	%	Age (years)	%	Residence (per capita)	%	Level of education	%	Level of coming out	%
Male	88.5	Below 18	0.0	Capital city	57.1	Elementary school	4.6	Nobody knows	10.9
Female	10.0	18–24	24.0	Above 100 000	8.8	Socondary school	55.1	Someone knows	55.3
Other	1.5	25–39	50.0	20 001–100 000	12.4	University	40.3	Everyone knows	33.7
		40–59	24.0	5001–20 000	7.6				
		Above 59	2.0	Below 5001	11.2				
				Abroad	2.9				

RESULTS

The conceived LGBTQ space

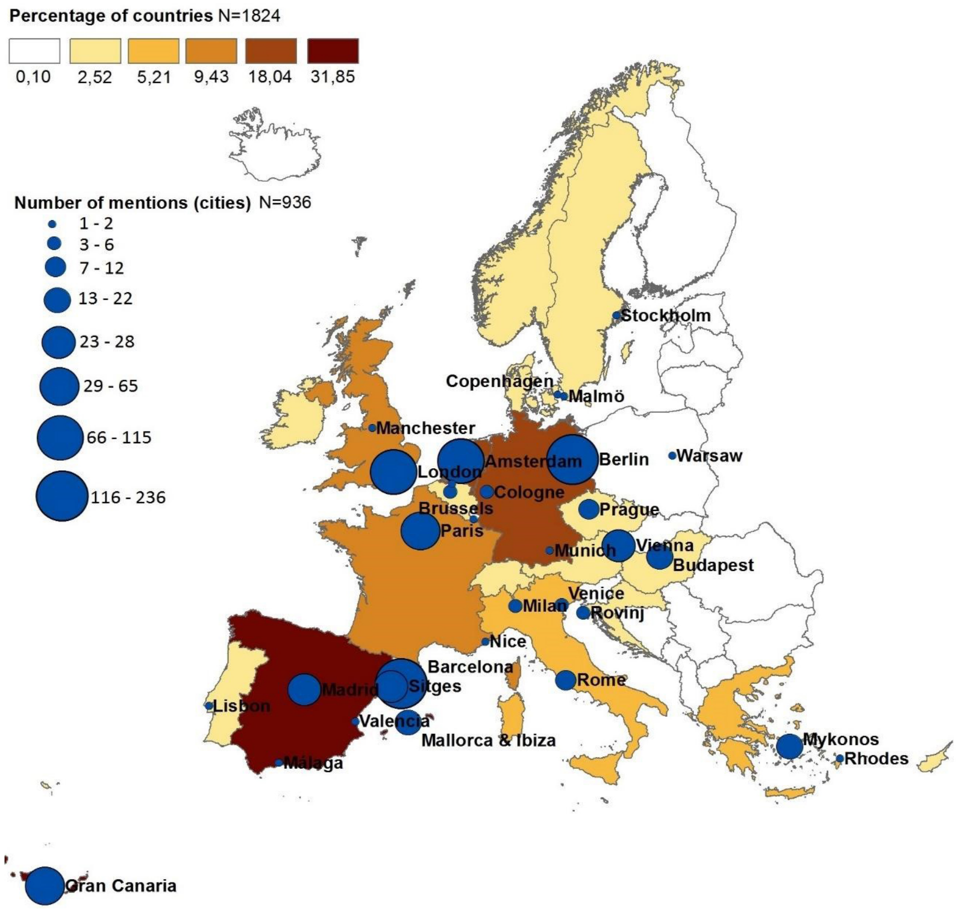
The findings regarding the conceived and lived spaces are presented separately in the following sections and are subsequently compared with each other, as well as with the perceived spaces, in the conclusion. This first section examines the subjective perceptions of the Hungarian gay community regarding LGBTQ tourist spaces. To explore conceived spaces, participants were asked, „Where do you think LGBTQ tourists like to travel within Europe?" This approach aimed to uncover the mental representations of gay-friendly and LGBTQ destination spaces as perceived by Hungarian gay individuals. By providing an open-ended response format, the question allowed for more nuanced and accurate data collection.

The results reveal clear patterns of inclusion and exclusion in the perceived mental spaces of LGBTQ tourism (Gorman-Murray, Waitt, & Johnston, 2008). Certain destinations were identified as desirable, while others were explicitly excluded. Interestingly, the findings align with a recent LGBTQ sample survey in Northern Italy, where Hungary was noted as a country to avoid for LGBTQ tourists (Monaco, 2022). Among respondents, 97.5% identified European destinations, while only 2.5% mentioned non-European locations.

The conceived LGBTQ tourist spaces most commonly associated with gay-friendly environments were concentrated in Western Europe and Mediterranean countries. Notably, lesbian women (10% of the sample) identified similar destinations. Spain emerged as the most frequently mentioned country, followed by Germany and the Netherlands. Other destinations, including the United Kingdom, France, Italy, and Greece, were mentioned less frequently but still significantly (Figures 3 and 4).

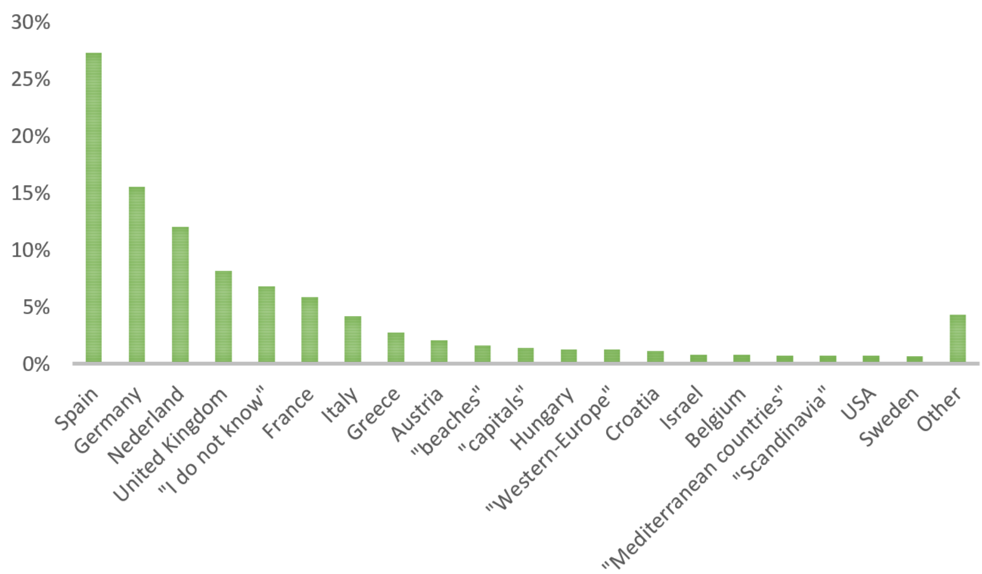
A 2013 LGBTQ survey in Italy identified many of the same destinations as gay-friendly that were highlighted in this study. However, a notable difference lies in the ranking: while Hungarian respondents primarily identified Spain as the top LGBTQ-friendly destination, Italian LGBTQ travelers ranked Mykonos first, followed by Spanish islands and beaches (Monaco, 2012; Sonders & Beach, 2013). In the current research, a significant number of participants were unable to articulate specific LGBTQ-friendly spaces. However, many responses reflected a perception that typical gay tourism destinations are large cities, capitals, and beaches in Western Europe.

Figure 3. Considered LGBTQ tourist destinations in Europe, ranked by the Hungarian gay community in 2020.



Source: Own edition.

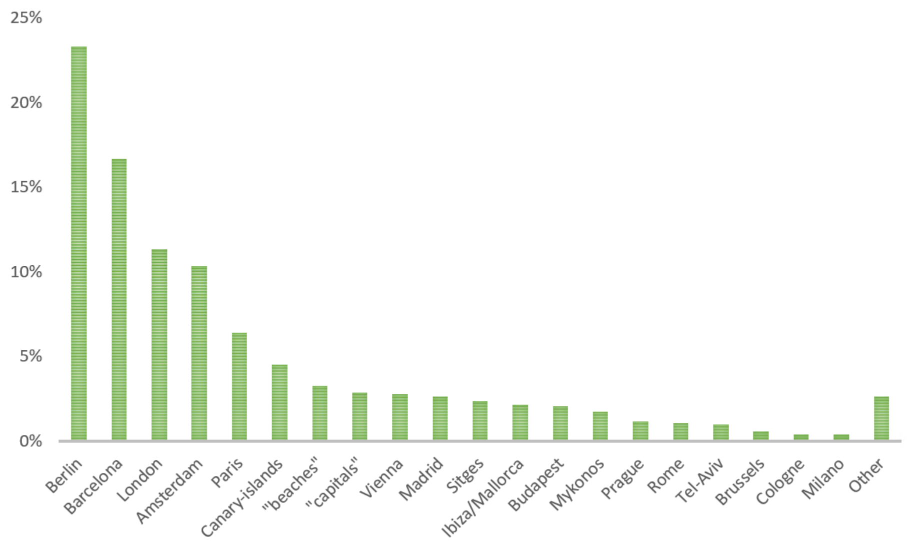
Figure 4. Considered LGBTQ destinations as countries in Europe, ranked by the Hungarian gay community in 2020.



An interesting pattern emerges when examining cities or regions rather than entire countries. In these smaller spatial units, Berlin stands out as the most frequently mentioned gay-friendly city-region destination, followed by Barcelona, London, Amsterdam, Paris, and the Canary Islands (Figure 4). While Spain ranks first among country-level destinations, this is due to its multiple perceived gay-friendly destinations scattered across Mediterranean coastal areas and islands, including the Canary Islands, Sitges, Ibiza, Mallorca, and Madrid. The island of Mykonos, though smaller in scale, was also frequently mentioned as a prominent LGBTQ-friendly destination.

Along the coasts, capitals, and larger cities—such as those mentioned above—were highlighted, as shown in Figure 3 and further detailed in Figure 4. Notably, Budapest and Prague were the only cities from the former socialist bloc to appear in the responses. In contrast, the Baltic region received minimal mentions, and—with the exception of Greece—the Balkans were entirely absent from the data. This pattern aligns with broader trends in social acceptance of LGBTQ individuals and the availability of safe spaces for LGBTQ tourism (Takács & Szalma, 2012; Fergusson & Fergusson, 2023). Interestingly, despite the questionnaire's focus on European destinations, Tel Aviv was also frequently mentioned, standing out as an anomaly within the dataset (Figure 5).

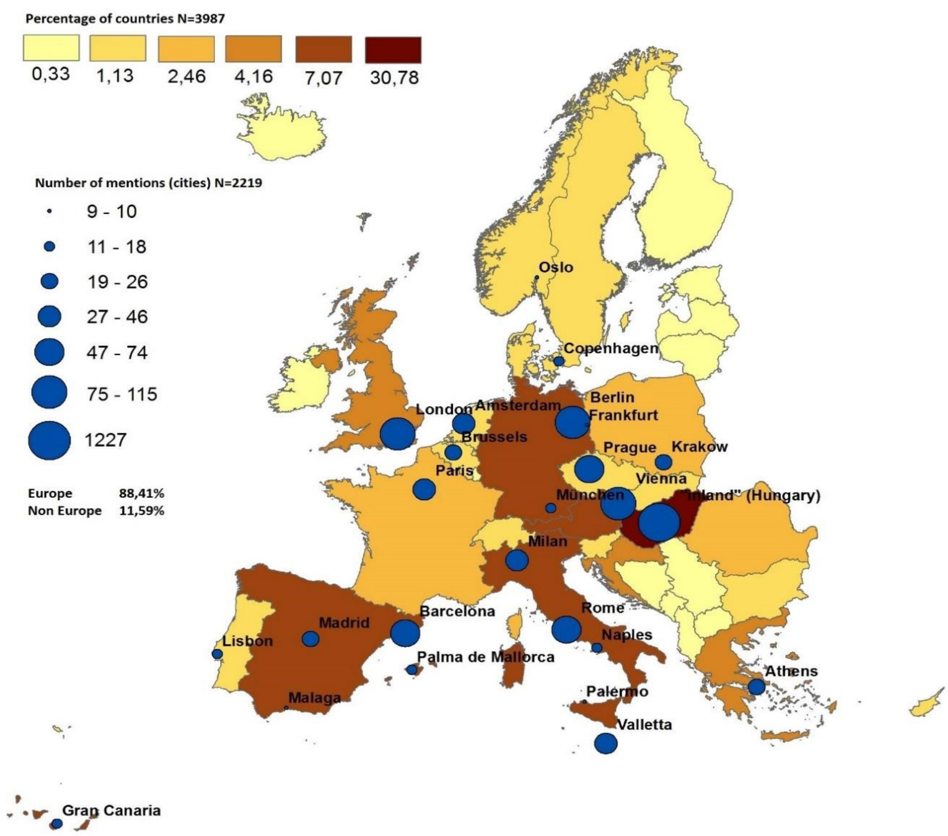
Figure 5. LGBTQ destinations considered as cities/regions in Europe, ranked by the Hungarian gay community in 2020.



Tourist living spaces of gay people in Hungary

The figure below illustrates the destinations most commonly chosen by the Hungarian gay community when traveling (Figure 6). Overall, European destinations make up the majority of travel choices, accounting for 88.4% of trips, while travel outside Europe constitutes 11.6%. Domestic travel, in particular, stands out significantly, comprising 30.78% of all trips taken by respondents. This suggests a strong preference for local or regional destinations within Hungary among the gay community, which may be influenced by both practical and social factors.

Figure 6. The last three vacation destinations ("lived tourist spaces") of Hungarian gay travelers in Europe in 2020.



Source: Own edition.

In one of the diagrams, only international destinations are depicted (Figure 7), as the high proportion of domestic trips would make the diagram difficult to interpret. Among domestic destinations, Balaton and Budapest, the capital city, were the most frequently mentioned locations. These destinations are particularly popular among younger individuals (Lőrincz et al., 2019). When considering specific destinations, Balaton and Budapest consistently rank the highest (Figure 8). A similar trend was observed in LGBTQ-focused research conducted in Italy, where 69% of summer holidays lasting several days were spent abroad, compared to 31% within Italy (Sonders & Beach, 2013).

A correlation between travel destinations and sexual orientation is also evident. Individuals who do not disclose their sexual orientation in everyday life are more likely to travel domestically rather than internationally. In contrast, those who openly express their sexual orientation tend to visit gay-friendly destinations more frequently (Table 2).

Table 2. The relationship between coming out and the destinations.

Level of coming out	Nobody knows	Someone knows	Everybody knows
Traveled domestically	38.5 %	30.2 %	22.3 %
Travelled abroad (gay tourism destinations)	16.5 %	16.7 %	24.1 %
Travelled abroad (other)	45.0 %	53.1 %	53.6 %

When examining trips abroad, Italy emerges as the most popular destination, followed by Germany, Spain, and Austria, which are visited in nearly equal numbers. Croatia, the United Kingdom, and Greece trail slightly behind (Figure 7). Among gay male respondents, however, the ranking shifts, with Spain, Italy, and Germany occupying the top spots.

A comparison with the travel habits of the Hungarian population as a whole reveals distinct differences. For multi-day trips abroad, Italy ranks first (12%), followed by Croatia (9.8%), Austria (8.8%), and Romania (Rácz, 2020). While Italy remains the leading destination, the general population tends to favor neighboring countries, whereas gay travelers are more inclined to visit liberal, distant destinations. For day trips, the general Hungarian population predominantly visits neighboring countries such as Austria, Slovakia, and Romania (Rácz, 2020). This trend aligns with practical considerations, such as limited travel time, as well as cultural factors, such as the presence of significant Hungarian minority populations in these regions.

According to the Hungarian Central Statistical Office (HCSO, 2024), the main international destinations for Hungarians in 2023 were Austria (34.1%), Slovakia (20.4%), Romania (6.1%), Croatia (4.4%), and Germany (4.3%). In contrast, the gay respondents in this study reported destinations that feature much less frequently among the general population: Greece (2.5%), Italy (2.4%), Spain (2%), and the UK (0.7%). This contrast highlights significant differences in travel preferences between the LGBTQ respondents and the general Hungarian population.

Examining specific cities or regions mentioned by respondents reveals two primary destination groups. The first group consists of Mediterranean cities, with Barcelona and Rome ranking highest, followed by Valletta, Milan, Athens, and Madrid (Figure 8). Other notable hotspots include islands like Palma de Mallorca and Gran Canaria, alongside Barcelona as a key destination.

The second group of destinations lies along a northwestern axis from Hungary, with Vienna, Berlin, London, and Prague as the most frequently visited cities. Other destinations include Brussels, Paris, Amsterdam, Copenhagen, Munich, and Krakow. Interestingly, among former socialist countries, only Prague and Krakow feature prominently, apart from Budapest. On the country level, destinations in Central and Eastern Europe, such as Romania and Croatia, also appear, reflecting broader travel patterns of the general Hungarian population.

To understand the motivations behind these travel choices, it is crucial to consider the socio-political context of the sample. Hungarian LGBTQ travelers often share similar motivations with the majority population but place significant importance on inclusivity and an open societal environment at their destinations. A gay-friendly atmosphere and general tolerance are more critical to these travelers than the presence of specific LGBTQ-oriented tourism infrastructure.

For many LGBTQ individuals, travel also serves as an opportunity for self-expression and identity exploration. The prospect of sexual relationships plays a prominent role, compounded by the fact that Hungarian LGBTQ tourists come from a relatively homophobic and less accepting societal environment (Takács, 2011, 2015; Szabó & Sümeghy, 2023). Hungary offers limited options for gay tourism, with Budapest lacking the prominence of major global LGBTQ tourism hubs (Köllen & Lazar, 2012; Szabó, 2021).

Figure 7. International tourism destinations experienced by the Hungarian gay community, ranked by the three most recent destinations, categorized by country (2020).

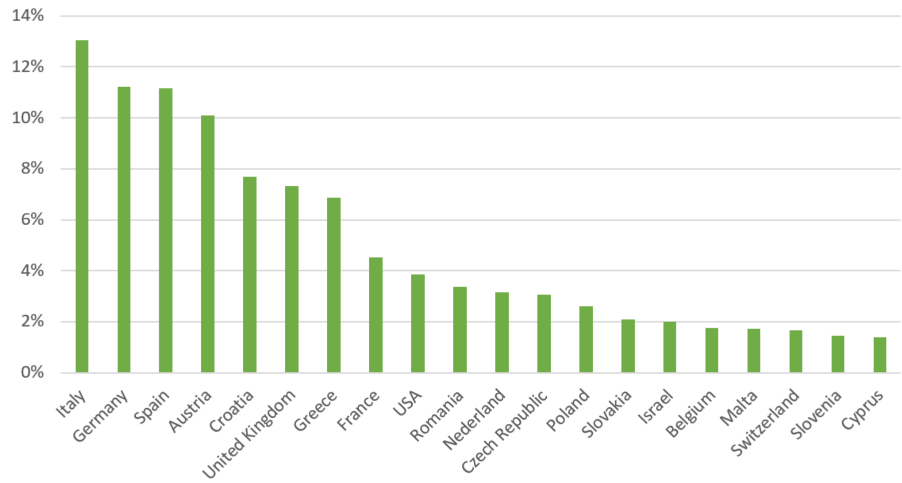
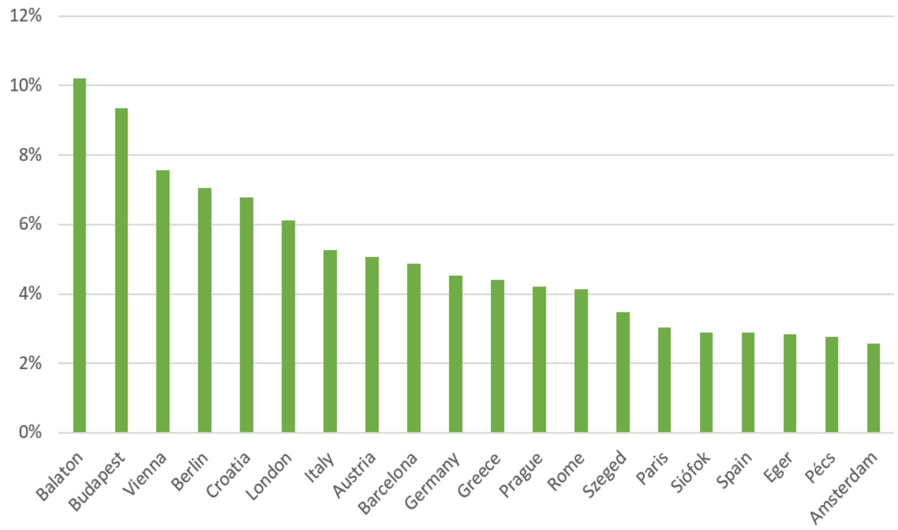


Figure 8. Tourism destinations experienced by the Hungarian gay community, ranked by the last three destinations, based on specific locations mentioned (2020).



Nevertheless, the participants in this study emphasized the importance of safety and general acceptance over dedicated LGBTQ facilities (Szabó & Sümeghy, 2023). Interestingly, LGBTQ travelers occasionally visit less accepting destinations. In such cases, they may suppress or conceal their identity, avoiding overtly gay tourist behaviors (Trihas, 2018). International comparisons provide additional insights. For example, surveys of British LGBTQ travelers show preferences for southern Italy (e.g., Capri, Taormina, Palermo, Naples) and Spain. North American LGBTQ travelers, on the other hand, frequently choose destinations such as Mexico, Haiti, and Cuba (Markwell & Watt, 2015).

CONCLUSIONS

This study demonstrates a significant correspondence between the conceived and perceived LGBTQ spaces, highlighting the Hungarian gay community's awareness of its own tourist spaces, despite some divergence in travel habits. Overall, the two spatial categories overlap, but within conceived LGBTQ spaces, Budapest—as the respondents' own capital—appears somewhat understated. This suggests that a proportion of the surveyed sample conceptualizes LGBTQ tourism within a national rather than European framework.

A clear distinction exists between the travel patterns of the general Hungarian population and those of the Hungarian gay community in terms of lived spaces. While multi-day international trips for the general population are dominated by neighboring countries, Hungarian gay tourists more frequently travel to distant destinations in Western and Southern Europe. This aligns with findings that a high degree of social acceptance correlates with the institutionalization of same-sex partnerships and democratic values (Takács & Szalma, 2012). LGBTQ-friendly destinations allow travelers to relax and express their identity in a safe, accepting environment.

Destinations popular with the general population, such as Croatia, are also common among gay tourists. However, these are complemented by trips to farther destinations like Spain and Germany. This pattern may reflect the influence of sociodemographic factors, including higher earnings among respondents, geographical proximity, and cross-border relations with relatives and friends. Similarly, Italy's relatively high share among visited destinations likely stems from proximity and motivations unrelated to LGBTQ-specific tourism. The higher proportion of trips to distant destinations may also be due to the fact that the earnings of the surveyed segment are generally higher than average (Ersoy et al., 2012; Guaracino, 2007). Similarities with the results of similar surveys in other countries can be observed in terms of the high proportion of domestic trips. There is a correlation between the lived spaces and sexual orientation, with those who do not come out at all in everyday life being more likely to travel domestically than abroad. Conversely, those who are openly out are not only more likely to travel abroad, but are also more likely to visit perceived gay-friendly or LGBTQ tourist spaces.

There are several factors that may explain the difference between the two categories of lived spaces and the previous two. While unproven in the present research, previous studies suggest that this could be related to the legacy of Hungary's socialist past, where homophobic public sentiment and media representation prevailed. Individuals from such a background are less likely to embrace a sexual identity different from the majority. Consequently, they may avoid embracing their sexuality even in remote tourist destinations and therefore do not travel for reasons tied to living their sexuality or fulfilling their identity. In this study, participants' tourism motivations are similar to those of the cisgender society, but the openness, diverse social attitudes, and acceptance of the chosen destination—its gay-friendliness—play a critical role (Szabó & Sümeghy, 2023). In such cases, the tourism experience may not align strictly with the definition of gay tourism. Nevertheless, it is evident that a segment of the Hungarian gay community actively chooses gay-friendly destinations and participates in LGBTQ tourism across Europe.

Future studies could benefit from focusing on the post-COVID-19 period to account for changes in travel patterns and motivations. Expanding the research to include the majority population would provide valuable insights into the differences and similarities between LGBTQ and non-LGBTQ groups. Furthermore, a more detailed investigation into individuals' travel motivations could address unanswered questions raised by this study. In the Hungarian context, the state and the media strongly influence spatial relations, as conceptualized in Lefebvrean terms. Currently, these influences are negative for the LGBTQ community. If such „push" factors are amplified, it is likely that a greater proportion of LGBTQ individuals will travel for reasons tied to their sexual identity and self-fulfillment.

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Suchi, Laila Parvin[1]

Socio-geographical Challenges of Migrants: Bangladeshi Students' Lived Spaces in Hungary

ABSTRACT

This study aims to uncover the challenges faced by Bangladeshi student migrants in their everyday lives in Hungary. The research assessed students' (a) economic, (b) cultural, and (c) gender-related experiences through a questionnaire survey. The Ministry of Education in Bangladesh nominated 420 Bangladeshi students for the Stipendium Hungaricum (SH) scholarship in Hungary between 2019 and 2022. These students participated in an online questionnaire survey conducted via social media. The survey questions were inspired by political-economic approaches (World Systems Theory), as well as post-colonial and feminist perspectives, to investigate the underlying causes of the challenges faced by students. The study argues that these challenges can be better understood by contextualizing students' everyday lives across different geographical spaces and places. Participants were asked about their experiences in spaces shaped primarily by the state (e.g., universities, immigration offices, healthcare centres), businesses (e.g., firms, restaurants), and citizens (e.g., public places). The findings reveal that students encounter economic and cultural difficulties. However, they perceive gender relations in Hungary to be better than in their home country.

Keywords: student migration, semi-periphery, discrimination, gender relations

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[1] PhD student, Doctoral School of Earth Sciences, Eötvös Loránd University, Department of Social and Economic Geography; Assistant Professor, OSD (Study leave), Directorate of Secondary and Higher Education, Ministry of Education, 16 Abdul Gani Road, Dhaka, Bangladesh, Email: laila.suchi@gmail.com, https://orcid.org/0000-0001-5766-9424
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INTRODUCTION

International student migration has spread worldwide as more individuals seek educational opportunities abroad. In this context, it becomes increasingly evident that various factors, including economic, cultural, and gender challenges, significantly impact the experiences of migrant students, which are far from homogeneous. While the number of skilled migrants has grown globally, the most talented elite, such as students, have received less attention in scholarly works compared to labour migration. Furthermore, the challenges faced by students in new societies remain underexplored, highlighting the need for greater academic focus on this issue. According to estimates, the global population of migrant students has reached nearly 6.39 million (International Students, n.d.). Student migration is particularly prevalent in Europe.

Similar to other regions, Bangladesh struggles with unresolved issues like unemployment, inadequate quality education, and a lack of decent job opportunities. Each year, numerous Bangladeshis, including students, migrate abroad in search of better education and employment prospects. This trend is driven by the limited number of universities and job opportunities within the country, leading to an increasing outflow of students seeking better prospects abroad (Jannati, 2024).

Conversely, global patterns of international student mobility have evolved gradually over time. Hungary has become increasingly active in this domain, both as a source and destination for international student mobility. Since 2000, the proportion of international students in Hungarian higher education has steadily risen, bolstering the country's presence in the global education market (Kasza et al., 2021; M. Császár et al., 2021; M. Császár & Wusching, 2014; Béres et al., 2025). As a result, Hungary is emerging as a significant European study destination for Bangladeshi and other international students. Several studies have explored the difficulties migrants face. For instance, Jamil and Dutta (2021) highlighted systemic injustices, discrimination, and deliberate neglect experienced by Bangladeshi migrants. These migrants often find themselves on the social, economic, and cultural fringes of their communities, compounding the challenges they face.

Unfortunately, limited research exists on the specific issues confronting Bangladeshi student migrants, particularly the challenges they encounter across various geographical scales. These unresolved issues necessitate further investigation. This paper focuses on the challenges faced by student migrants in Hungary, as their difficulties often stem from marginalization and the need to adapt to conditions significantly different from those in Bangladesh. This research is relevant because most migration studies emphasize movement from the periphery to the core, with little attention paid to migration from the periphery to the semi-periphery. Additionally, studies on the challenges faced by migrants from developing countries like Bangladesh—especially Bangladeshi students in Hungary and Eastern Central Europe—remain scarce.

Geography offers a valuable lens for examining the challenges migrants face by emphasizing scales, public and private spaces, and the specific places where these difficulties manifest. In this paper, I argue that the challenges faced by Bangladeshi students in Hungary can be better understood by contextualizing their everyday lives and analysing their "lived spaces" (Lefebvre, 1991). To achieve this, the study focuses on students' economic, cultural, and gendered experiences, employing three social theoretical approaches: world systems theory, post-colonial theory, and feminist theory. These approaches frame the examination of students' everyday experiences across different geographical scales.

A questionnaire survey was conducted to address the issues outlined above. Following a discussion of the advantages of these theoretical approaches, the next section reviews existing scholarly work on student migration, identifying gaps and limitations in the current research. The third section explains the methodology of the online survey conducted for this study. The fourth section presents an analysis of the survey results. Finally, the paper concludes by discussing the findings regarding the causes and challenges faced by student migrants.

THEORETICAL BACKGROUND

The social-theoretical approaches emphasize how researchers conceptualize social changes (Cloke et al., 2006). Migration is regarded as an agent of social change (Castles, 2010). To investigate how students from Bangladesh, as agents of such change, navigate these transformations upon migration, this article applies world systems theory, post-colonial, and feminist approaches. Economic, cultural, and gender differences are identified as core themes derived from these theories to examine the experiences of Bangladeshi student migrants in Hungary and how they address the challenges associated with their migration decisions.

World systems theory provides a framework for analysing the economic challenges faced by students migrating from a semi-peripheral to a peripheral region. Postulated by Immanuel Wallerstein in the 1970s (1974), this theory integrates ideas from dependency theories, the Annales School, and Marxism (Flint, 2009). It examines the unequal relationships among core, peripheral, and semi-peripheral regions within the global hierarchy. The theory elucidates how global power imbalances and economic inequities exacerbate the challenges faced by migrants and links these difficulties to broader socio-economic processes. This theoretical lens draws attention to the economic disparities between peripheral and semi-peripheral regions, which facilitate programs like the Stipendium Hungaricum fellowship, enabling Bangladeshi students to study in Hungary. However, it also highlights how students' economic challenges in Hungary—such as the cost of living—are shaped by their Bangladeshi families' financial circumstances at both the global and household scales. While world systems theory primarily focuses on global economic issues, this study considers the interplay between global, regional, and local factors, offering insights into how these scales influence migration decisions and experiences. Bangladeshi migrants often seek educational opportunities, employment, and income transfers to support their families, reflecting the interconnectedness of global and household economics.

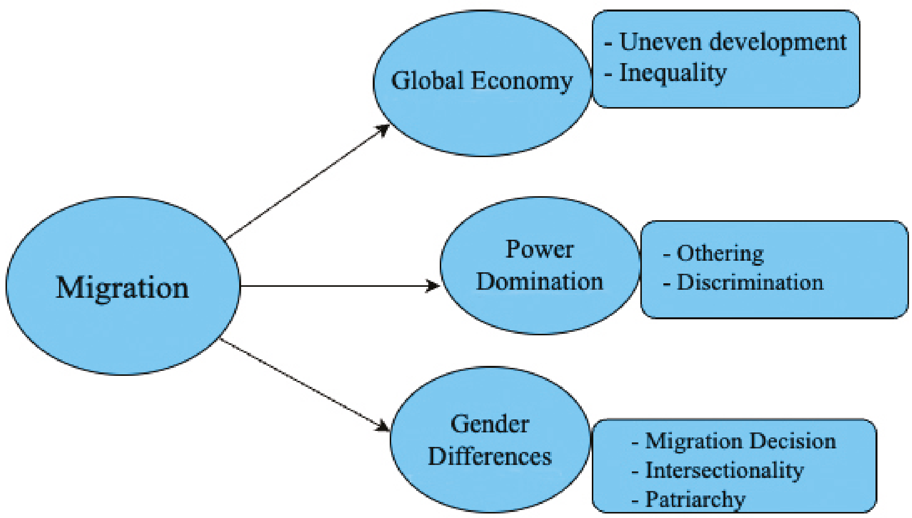
Post-colonial approaches address issues such as identity, race, ethnicity, and gender, alongside the complexities of forming postcolonial national identities and power-knowledge dynamics. These dynamics encompass both the ways colonial powers created and exploited knowledge about colonized peoples and the enduring inequalities stemming from these histories (Chakrabarty, 2007; Fanon, 2002;

López, 2001; McEwan, 2009). Post-colonial theory also dismantles assumptions embedded in cultural representations of "the Other" (Fechter & Walsh, 2010). Rather than marking a break from colonial histories, the post-colonial era reveals a reconfiguration of imperial relationships. Power relations are undergoing a process of "deconstruction-reconstruction" (Chambers & Curti, 2002, pp. 242–260). By examining language, religion, cultural habits, and state policies toward migrants, post-colonial approaches provide a lens for understanding the cultural challenges faced by Bangladeshi student migrants in Hungary. These challenges are analysed within the context of lived spaces, allowing for a comparison of students' experiences in Hungary to their prior lives in Bangladesh and their expectations upon migration.

Feminist approaches have transformed the study of migration and mobility, particularly by addressing prevailing assumptions and emphasizing the importance of everyday life. Gender is a fundamental component of migration and spatial mobilities (Visic & Poleti-Cosic, 2018), and the challenges faced by female migrants are deeply interwoven with societal structures encountered daily. Feminist geographers were pioneers in highlighting the significance of the household and body scales in migration studies (Marston, 2000; McKinley & Hyde, 1996). This study employs feminist approaches to investigate gender inequalities and their influence on Bangladeshi student migrants in Hungary. Beyond examining the specific challenges faced by female students, the study explores the structural factors contributing to these inequalities. Inspired by the work of Bélanger and Rahman (2013) and Sondhi and King (2017), the research highlights how gender intersects with household dynamics, institutional settings, and cultural norms. Additionally, it draws on Timár and Velkey's (2016) concept of gendered migration strategies to analyse students' migration plans.

The conceptual framework (Figure 1) integrates world systems theory, post-colonial approaches, and feminist perspectives to analyse the challenges faced by Bangladeshi students in Hungary. This framework provides a holistic understanding of students' experiences across various geographical scales and socio-cultural contexts. The following section applies this theoretical framework as a foundation for the empirical methods used to achieve the study's objectives.

Figure 1. Conceptual framework



METHODS

This section delves into the quantitative (descriptive) analysis method, specifically focusing on how I structured an online questionnaire survey. Three approaches helped me manage the questions in my questionnaire effectively. For instance, to uncover students' economic problems when moving from a peripheral area to a semi-peripheral region, I asked questions about their economic background based on the economic differences described in world systems theory. The survey posed a series of questions to participants, seeking information regarding their current status in both Bangladesh and Hungary, their methods for managing travel expenses, their primary sources of income in Hungary, their perspectives on economic disparities between the two countries, and any challenges they encountered in securing employment. Moreover, I included questions about the students' background history and financial or cost-related matters to elicit their previous experiences in Bangladesh. This enabled me to discern disparities in the responses based on the different socially constructed spaces.

Post-colonial approaches helped reveal cultural differences and difficulties. Under this approach, I included questions about spaces produced by institutions, firms, and national and local governments that cause problems in students' everyday lives. For example, questions were asked about the challenges or difficulties faced at immigration offices, universities, healthcare centres, restaurants, and bars, as well as in securing and using accommodations in Hungary. By incorporating such inquiries, the study aimed to comprehend the students' lived experiences in various government-operated or autonomous settings, as these serve as valuable sources of othering and inequality stemming from cultural differences.

Feminist perspectives clarify unequal social relations (Massey, 1994). Based on these views, I included questions about places and spaces shaped by gender relations in the questionnaire. This illustrates how students' social ties can influence their networks in both present and future spaces, leading them to encounter issues related to race, gender, and religion. Additionally, the questionnaire included questions about gender, year of birth, birthplace, last residence before relocating to Hungary, educational attainment, the current city of residence in Hungary, and the type of accommodation used. The aim was to compare and analyse participants' past and present circumstances, financial conditions, motivations for migrating to Hungary, and the skills they possessed, as well as to identify and compare the challenges they faced and their underlying causes. Society continuously produces all spaces and places (Lefebvre, 1991; Massey, 1994). In some cases, the state is the primary actor in creating spaces, as seen in immigration offices, healthcare centres, and universities. Conversely, citizens, particularly students, play a significant role in producing other settings, such as accommodations, restaurants, bars, and public spaces. These spaces allow for examining the experiences and challenges students face in Hungary.

The population/sample of this study was derived from scholarship nominations by the Ministry of Education of Bangladesh. Data was collected through an online questionnaire survey administered to Bangladeshi students studying in Hungary under the Stipendium Hungaricum (SH) scholarship, which was advantageous for exploring students' opinions. Flowerdew and Martin (2005) described web surveys as advantageous because they grant access to unique populations. In line with the extant literature, this study employed an online survey, a research method that facilitates question formulation and the categorisation of responses (Bryman & Bell, 2019). Additionally, internet access is increasing daily (Babbie, 2010). Therefore, administering the questionnaire via Microsoft (MS) Forms was deemed more convenient. The survey was distributed through various channels, including Bangladeshi student associations in different cities in Hungary, personal networks, and snowball sampling via Facebook, WhatsApp, Email, Viber, and Instagram. Formal consent was obtained from participants before data collection, ensuring anonymity. The study adhered to academic ethics, offering no incentives to respondents, and data was processed in compliance with institutional data protection laws.

The Stipendium Hungaricum (SH) scholarship began in Bangladesh in 2019. For the main data sources, I focused on the final nomination lists provided by the Ministry of Education (MOE) Bangladesh for student migrants from 2019 to 2022. These lists indicated that 100 students were enrolled in 2019 and 120 in 2022. Over four years, 420 candidates were selected, of which more than 71% were male students.

Following the first and second phases of distributing the MS Forms, 240 responses were received. After data cleaning, 231 respondents were included in the sample. Descriptive and explanatory approaches were used to analyse the data.

This survey also had some limitations. For instance, it was not possible to collect data from everyone on the list provided by the Bangladesh Ministry of Education. Despite its drawbacks, social media proved to be the only viable way to collect data for this research.

In the following section, I will summarise the main findings of the survey, focusing on the students' experiences of inequality, discrimination, othering, and gender relations. Emphasis will be placed on economic differences, power dynamics, and gender relations in different spaces, as these are central to the analytical framework of this study. Space-making is an integral part of students' everyday lives and can provide insights into the challenges they face in their temporary migration destination country.

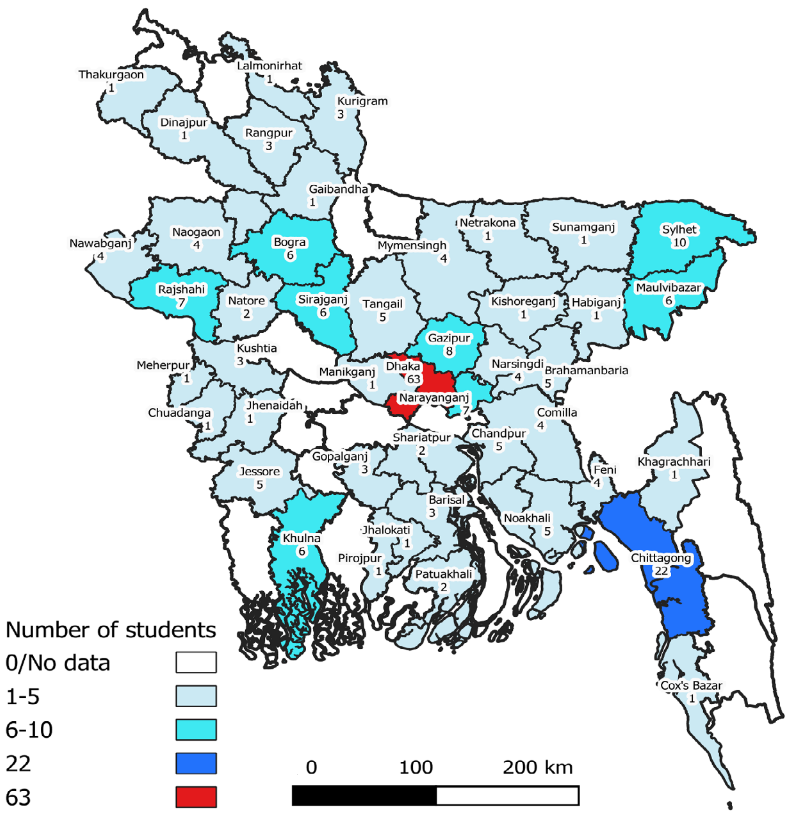
RESULTS

Students' lived spaces in Bangladesh

This subsection explores aspects of the economic situations and social relations in students' everyday lives in Bangladesh, offering a basis for comparison and insights into the challenges faced by migrants in various Hungarian cities. It highlights the complexities of inequality, social and class differences, and class structure within their former and current lived spaces and places across diverse geographical scales. To understand the students' prior experiences in Bangladesh, the questionnaire included demographic information and financial or cost-related questions. This approach provided valuable insights into the male-female structure and representation of the data, the social and economic situations of the students compared to those in Hungary, and their former lives across a range of levels—from the global to the regional, national, household, and even body scale.

According to the sample, 94 students were enrolled in bachelor's programmes, 53 in master's programmes, and 39 in PhD programmes at various Hungarian universities. In Bangladesh, the limited opportunities for undergraduate admission to desired universities after completing the secondary school certificate examination often lead students to pursue higher education abroad. Consequently, the opportunity to access higher education abroad increases the interdependence of Bangladeshi students in Hungary. Baláž et al. (2018) note that highly reputed and well-established universities in developed Western countries attract students seeking to achieve higher educational standards in those regions. This situation can create a dependency between countries, as highlighted by Raghuram (2013).

Figure 2. The number of Bangladeshi students who migrated to Hungary by district



Source: Own work based on data from the questionnaire survey, 2023

Bangladesh is administratively divided into eight divisional cities and 64 districts (BBS, 2024). A significant proportion of the surveyed students (nearly half) originated from major cities in Bangladesh before relocating to Hungary. Figure 2 illustrates that 63 students hailed from the capital city, Dhaka. Additionally, 22 students were from the second-largest divisional city, Chittagong. The third category (6–10 students per location) primarily represents other divisional cities, whereas the fourth category (1–5 students per location) reflects students coming from various other districts. These districts include both urban and rural areas.

Furthermore, the rural-urban inequalities prevalent in Bangladesh contribute to increasing in-migration into metropolitan areas, a trend observed daily (Khan, 1982). This pattern was evident in my survey results, which revealed that while 72 students were born in rural areas, only 14 students reported their last living place as rural (Table 1).

Table 1. Rural-urban scenario based on students' birth and last living place in Bangladesh

		Male	Female	Total number of students	Percent
Birthplace	Rural	58	14	72	31.20%
	Urban	104	55	159	68.80%
Last living place	Rural	12	2	14	6.10%
	Urban	105	67	217	93.90%

Source: Own work based on the questionnaire survey, 2023

It can also be inferred that a minimum of 25.1% of students have migrated from rural to urban areas. Consequently, despite their ability to manage their travel expenses and their geographical origins, these students may encounter challenges and inequalities in host societies in diverse ways. This is due to differences in Hungarian religious and cultural views, as well as more sophisticated transportation, education, and economic systems compared to those of Bangladesh. Students strongly agreed that public transportation in Hungary is superior to that in Bangladesh and somewhat agreed on the quality of education and the challenges associated with practicing religious services. However, they also noted that family relations and social ties are stronger in Bangladesh.

On the other hand, 75.7% of the students ultimately settled in Budapest, Debrecen, and Pécs in Hungary. The remaining 24.3% proceeded to other prominent university cities, such as Szeged, Miskolc, and Győr (Table 2). A notable observation is the overrepresentation of female students in Budapest and Debrecen relative to their representation in the overall sample.

Table 2. Number of students living in the different cities in Hungary

Cities	Male	Female	Total number of students	Percent
Budapest	73	37	110	47.6%
Debrecen	45	22	67	29.0%
Pécs	13	08	21	9.1%
Other	31	02	33	24.3%
Total	162	69	231	100.0%

Source: Own work based on the questionnaire survey, 2023

In a peripheral country like Bangladesh, managing travel expenses to a faraway country is a significant economic issue, especially for students. Since the scholarship does not cover plane fares, 65% of students reported that their family members contributed to their travel expenses. Many students whose families lack the financial means may find it impossible to travel to Hungary despite receiving scholarship offers for their studies. This issue is closely related to class positions in Bangladesh, which can determine whether students can afford to travel for higher education.

The findings indicate that while utilizing the advantages of the world system theory and considering the disparities in economic performance between Bangladesh and Hungary are beneficial, it is also imperative to study the household scale. For instance, as Bilecen and Van Mol (2017) argued, students' socio-economic backgrounds can significantly impact their higher studies in host countries. My survey indicates that the scholarship amount they receive is insufficient to support their living expenses in Hungary. While 35.9% of students live on scholarships, due to the high cost of living and rising commodity prices, 40.7% of students reported taking additional student jobs. This suggests that students require supplementary income to support their living expenses beyond the scholarships they receive in Hungary. (It should be noted that it is not only Bangladeshi students who must work alongside their studies to cover their living costs. Because of their class position, some Hungarians face similar challenges.) This also indicates that students from a developing country, moving from a peripheral to a semi-peripheral area, must balance their studies with work to cover their expenses. Their socio-economic backgrounds in Bangladesh often prevent them from seeking extra financial support from their families for expenses in Hungary. This limitation can hinder their ability to gain proper expertise and skills, creating additional inequalities in future job markets, which in turn may cause stress.

The research outcomes of Bernard et al. (2022) align with these results, demonstrating that part-time work—often in unstable academic and non-academic occupations—primarily contributes to students' income, causing stress and ambivalence.

Therefore, the socio-economic background of Bangladeshi students suggests a connection between local, regional, and global scales and the economic challenges they encounter in Hungary. They face disparities between rural and urban areas in their access to higher education in Bangladesh, forcing them to endure hardships with limited scholarships in Hungary and even cover their travel expenses. Moreover, many migrants rely solely on information from electronic media, exacerbating their challenges in unfamiliar places.

The following sub-sections relate to the everyday lives of students in Hungary, focusing on their experiences with cultural, economic, and gendered differences.

Places produced by national and local governments and by institutions and firms

In their everyday lives in the host country and city, migrant students must use certain places infrequently or daily, even though they may encounter othering, racism, class, and gender discrimination. These places are mainly produced by national or local governments, private companies, and other institutions. The aim of this subsection is to study students' experiences in such places, including immigration offices, healthcare centres, universities, restaurants, and accommodations.

Every foreign student needs to visit immigration offices. The survey found that the most common difficulty encountered in these institutions is language problems. Specifically, 27.8% of respondents reported a lack of information in English, 17.2% required more available official documents in English, and 17.5% complained about insufficient communication with clients. Notably, while 16%

of respondents indicated that they did not experience discrimination in immigration offices, 19 individuals reported direct experiences of racism, and two individuals reported gender discrimination.

Spending three to four years in a country far from home makes it almost certain that students will visit doctors at least once. When ill, students may be particularly sensitive to how they are treated. Many students expressed problems with state institutions, citing communication difficulties, partly due to language barriers and partly due to attitudes towards migrants. A significant proportion of students (30.2%) experienced problems finding an English-speaking doctor, while a similar number (25.3%) were unable to secure emergency doctor appointments. Survey results indicate additional challenges beyond language barriers, such as lengthy waiting periods, placing foreign students in an even more unequal position. For instance, Blommaert (2001) illustrates how such situations in other countries can create social stratification and (re)produce inequalities.

Unsurprisingly, students in smaller cities like Debrecen reported more significant challenges in securing emergency medical appointments (48%) than their counterparts in Budapest (42.1%). Additionally, 40 students experienced problems managing treatment costs and insurance. Sixteen female students reported difficulties finding female doctors or nurses, reflecting gendered expectations among migrant students. Furthermore, 29 respondents reported poor treatment from doctors, nurses, or staff, indicating othering and racism. This phenomenon is particularly concerning in state institutions, given that these students are scholarship holders (guests) of the Hungarian state.

Universities are where students spend most of their time. However, according to my 2023 questionnaire survey, just over a third of students (35.4%) felt a lack of welcoming and professional events. Institutions were also noted to lack subject-related courses in English (24.9%), and students faced communication issues with administrative officers (19.7%) and professors (17%). Financial constraints were another challenge, as 17.9% of students reported difficulty attending conferences, and 14.4% faced obstacles conducting empirical studies.

To assess whether these disadvantages stem from periphery–semi-periphery or class inequalities, a comparison between Bangladeshi and Hungarian students is necessary. Further challenges include difficulties due to diverse educational backgrounds (16.6%) and cultural differences (14.4%) with peers, compounded by institutional attitudes failing to adequately address student needs. Unfortunately, some students reported instances of bullying (1.3%) and abusive behaviour (1.7%) at the university.

Given that 88.7% of students identified as Muslim, it is unsurprising that they faced challenges adhering to dietary and religious requirements in a predominantly Christian country like Hungary. Over one-third of students who had dined out reported difficulties, although 37.7% of respondents, including 18.7% who had never visited restaurants or bars, reported no such challenges. Among those who dined out, some faced issues following special diets, while 18 students reported instances of verbal aggression from locals, and 10 students experienced sexist comments from other customers.

Students also face challenges in private places, particularly accommodations. Only 13% of respondents reported never feeling stressed about accommodation, while nearly half faced difficulties paying rent. The Hungarian state provides inadequate assistance, as 38.5% of students struggled to secure dormitory allocations. Privately owned housing presented financial and communication challenges, with a quarter to a third of students encountering difficulties recovering deposits or contacting landlords and rental agencies. Around 10% of respondents reported problems with neighbours or prejudice. Regarding housemates or flatmates, 19% of respondents faced challenges finding individuals of the same cultural background, 14.3% encountered difficulties finding individuals of the same religious background, and 6.5% reported problems finding flatmates of the same gender.

As indicated by the findings, students face various cultural challenges in prominent state-run institutions, including immigration offices, healthcare centres, and universities. These challenges encompass linguistic barriers and a lack of welcoming, professional events. Moreover, private institutions, such as those in the accommodation sector, present economic challenges and inadequate provisions for special diets in restaurants and bars (Table 3). The respondents' answers indicate that not only state institutions but also certain private establishments allow degrading behaviour and unequal treatment toward Bangladeshi students as their customers.

Table 3. The most significant challenges faced by respondents in some state and private institutions in Hungary

Name of places	Challenges selected by the highest percentage of respondents	Percent
Immigration offices	Lack of information available in English	27.9%
Healthcare centres	Getting English speaking doctor	30.4%
Universities	Lack of welcoming and professional events	31.6%
Restaurants and bars	Following special diet	26.3%
Accommodation	Maintaining rental price	19.2%

Source: Own work based on the questionnaire survey, 2023

Places and spaces produced mainly by different social relations of citizens

As discussed in the preceding subsections, some state-run and privately operated places, including healthcare centres, universities, and restaurants, facilitate interactions with locals and citizens. Additionally, the experiences of individuals in relation to public spaces and local citizens are recurring aspects of their everyday lives. Consequently, this subsection examines students' lived experiences in various public spaces.

A lack of language proficiency and inability to communicate can marginalize migrant workers (Jamil & Dutta, 2021). The results of my survey indicate that 81.8% of respondents encountered communication difficulties with local people due to the language barrier. This issue significantly impacts students' daily lives in numerous settings. Only 15.6% of respondents reported no problems communicating with locals, while a similar number (17.3%) unfortunately experienced racial discrimination. Additionally, 4.3% mentioned religious discrimination, and 1.3% reported gender discrimination.

Public spaces are primarily shaped by the locals and citizens. Migrant students in Hungary also utilize these spaces, making them important sites where the attitudes of locals toward migrants become visible and directly influence students' everyday experiences. These interactions can often be gendered, as is common across various cultures, countries, and cities (Sági, 2022).

A significant proportion of respondents agreed that women are more likely to feel like strangers in public spaces (39% strongly agree), partly because they wear distinctively patterned dresses. This underscores the importance of considering the body scale when studying migrants' experiences. The findings also suggest that Bangladeshi students perceive women in Hungary to be in a more favourable position compared to their counterparts in Bangladesh. Most respondents (65.6%) believe that women do not encounter significant issues in public spaces in Hungary.

There is a general consensus that women in Hungary are safer when using public spaces alone than women in Bangladesh. This phenomenon may be attributed to the patriarchal power relations prevalent in Bangladesh and cultural differences between the two countries. Notably, women in Hungary may experience a greater sense of freedom in public spaces. This observation aligns with Fenster's (2005) findings regarding Bangladeshi women in London.

Students' recent and future lived spaces and challenges

The student population represents the primary agents in creating their lived spaces. They build connections and form their own spaces partly as a reaction to their relationships and behaviour with their friends and families, relatives, peers, administrations, supervisors, flatmates, neighbours, etc. Moreover, they not only create their present lived spaces based on those relationships and networks but, in a sense, can also prepare the production of their future lived spaces. This subsection analyses the Bangladeshi migrant students' formation of present lived spaces and also their future lived spaces.

The decision regarding migration plays a crucial role in shaping the lived experiences of students both in the present and in the future. Many individual factors, including psychological distress, perceived urgency, and the need for certainty regarding employment prospects, frequently influence the decision-making process concerning migration. The dissemination of information through media and the Internet exerts a significant influence on these decisions, akin to the impact of self-determination and self-efficacy (Czaika et al., 2021).

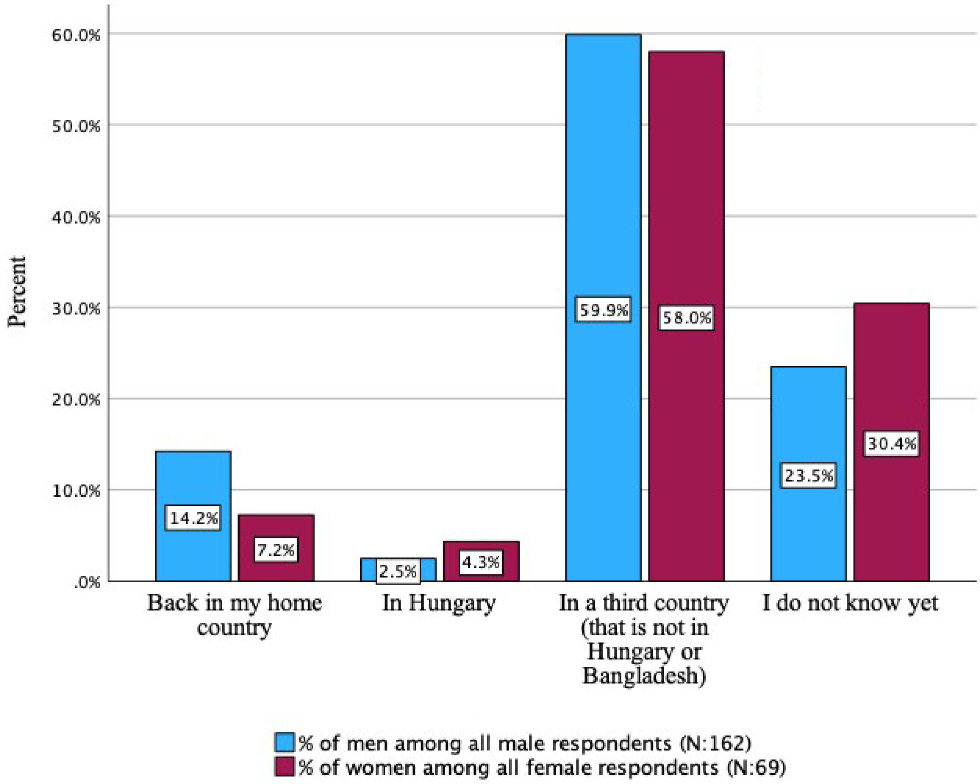
Regarding pre-migration history, 59.8% of the respondents have a family migration history. Among them, 37.3% mentioned that their family members still live in another country, which might be linked to their decision to migrate to Hungary. There are several reasons to study abroad. According to recent research on Bangladesh, getting a standard education is one of the most essential aspirations for international migrants like students (Kabir, 2021). Migrants consider several criteria when making their decision to relocate. The survey results indicate that neither teachers nor families constituted the primary source of information regarding the possibility of pursuing further studies in Hungary. It is noteworthy to observe the impact of virtual spaces, particularly in the context of mass media, and it was revealed that 55.8% of respondents indicated that mass media played a role in their decision-making processes, which is substantial compared to the perceived importance of everyday connections with personal relationships. This is particularly salient in the Bangladeshi context, where personal connections, particularly within familial relationships, are important. The survey revealed that friends were considered more important than family members, with 28.1% of respondents citing friends as a primary source of information, in contrast to the 7.8% who selected family members. These findings underscore the growing influence of virtual spaces, particularly mass media, in shaping individuals' decisions regarding further education in Hungary. It is noteworthy that the internet has emerged as a more influential source of information compared to traditional forms of communication, even within a developing nation like Bangladesh. However, within gender, females demonstrated a greater reliance on family members (11.6%) compared to males (6.2%), thereby underscoring the influence of a patriarchal society in Bangladesh.

Moreover, the decision to migrate is contingent upon the policies and interests of the countries of origin and destination (Oishi, 2005). As demonstrated by the literature of Alpek B. et al. (2022), the Hungarian government had planned to enrol 40,000 international students in various Hungarian universities by 2023. The Bangladeshi student migrants can be considered a response to the Hungarian government's policies. The survey results indicate that scholarship opportunities (73.2%) and diverse study programmes (26.8%) were key motivators for migration to Hungary, which is also similar to the findings of Rédei (2007). However, it is noteworthy that over one-third of respondents (38.1%) reported making independent migration decisions. Moreover, family influence was a significant factor, with fathers (21.2%) and mothers (15.2%) playing a pivotal role in the decision-making process. Furthermore, the data indicates a notable dependency on family members among female migrants, with 11.6% relying on family for information, compared to 6.2% of male migrants. This finding suggests a potential influence of gendered power dynamics within Bangladeshi families on migration decisions, where females (24.6%) appear to place greater reliance on their fathers compared to males (19.8%).

Furthermore, previous studies have highlighted the necessity of contextualising migration decisions within the framework of historical linkages, social networks, and the degree of success transnational communities have been established in host countries (Nagy, 2018). The migration networks play a significant role in the migration process (Haug, 2008). Substantial expenses and risks are associated with international migration. People's aspirations usually rise with access to education and information. Forming connections and building relationships with friends and global communities can facilitate the expansion of the networks (Gold & Nawyn, 2019), which can help establish a sense of belonging in one's present and future lived spaces. Connections and relationships with friends and global communities are key to expanding networks (Gold & Nawyn, 2019). These relationships help establish a sense of belonging in present and future living spaces. Students who fail to maintain these networks and relationships will struggle to settle in. As shown above, Bangladeshi students in the information age are largely informed through mass media and the internet, which is suitable for building virtual networks. However, friends also helped them get information about migrating to Hungary. Social integration can help evaluate the depth and nature of the problem in the host country. If a student is alone, without any social network, or without sharing issues, they will feel worse. An understanding of their social network can facilitate the assessment of their experiences and challenges (Nagy, 2018). This can be achieved by examining whether they engage with the Hungarian or Bangladeshi community during their stay in Hungary and by evaluating the presence of robust network patterns in Hungary. Here, it is evident that 44.4% of the respondents maintained a communication network with Bangladeshi people in Hungary and other foreign friends (37.7%), which is more characteristic than the attachment to Hungarian friends (12.1%). This means that it is not just language problems, especially in a social environment of highly educated people, which can make network-building in a host country difficult.

Therefore, the majority of students make their own migration decisions when they arrive in Hungary and, after encountering challenges, decide to relocate to another country or a third location, which is neither Bangladesh nor Hungary (Figure 3).

Figure 3. Students' migration plan in five years by gender



Source: Own work based on data from the questionnaire survey, 2023

The findings demonstrate that 50 out of 85 respondents, whose family members reside in other countries, expressed intentions to relocate to a third country. Of a total of 108 respondents who faced difficulties maintaining the rental price of accommodation, 64 expressed a willingness to move to a third country. Nevertheless, these are not solely economic disparities; cultural differences that lead to unfavourable experiences can also influence students' decisions regarding their future plans. Of the 67 respondents who faced challenges practicing religious activities, 40 expressed plans to move to a third country. Similarly, of the 67 respondents who mentioned dealing with special dietary requirements, 43 expressed plans to relocate to other countries. Of 10 respondents who experienced sexist comments in restaurants and bars, 7 mentioned their intention to move. In comparison, 11 out of 19 respondents who experienced racism in immigration offices expressed a willingness to move to another country.

This suggests that the problems students face in Hungary may intensify their desire to relocate to other countries for their future “lived spaces.”

CONCLUSIONS

The present study set out to demonstrate the challenges faced by Bangladeshi students in Hungary through the contextualisation of their everyday lives, specifically by examining their lived spaces using various social theoretical approaches. While extensive literature documents the challenges faced by migrants in host countries worldwide, it can be assumed that the social group examined here, i.e., students receiving scholarships from the Hungarian government, is somewhat protected.

The questionnaire survey presented here also allowed students to assess the economic, cultural, and gender differences between the two countries. Respondents strongly agreed that Hungary has better gender relations, while they somewhat agreed that Hungary has more favourable economic and cultural relations. This may be due to the fact that Bangladeshi female migration policy, like that of some other countries, is shaped by social ideals and the social construction of gender embedded in patriarchal global and local gender hierarchies (Bélanger & Rahman, 2013). In contrast, Bangladeshi female students in Hungary enjoy economic and social freedom through scholarships and a social security system.

However, better gender conditions alone are not enough to encourage students to imagine their future in Hungary. The multi-faceted social theoretical approach also highlights that one of the main difficulties migrant students face while residing in Hungary is that the scholarships they receive are inadequate to support themselves, compelling many to seek part-time employment. Nevertheless, compared to their situation in Bangladesh, they have a better chance of earning an income while studying and later moving to a new country.

It is clear that Hungary acts as a transit place in their lives. This may be a consequence of the problems they experience in their lived spaces in this country. At the same time, through their migration decisions, they themselves contribute to the reproduction of the periphery–semi-periphery–centre relations.

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Marcus, Thaakirah[1] – Spocter, Manfred[2]

Citizen Concerns about and Responses to the Water Crisis in a High-Income Suburb in Cape Town, South Africa

ABSTRACT

Water is the lifeblood of human and animal existence. The growth of urban populations places increasing pressure on governments to capture, store, and deliver potable water to city residents. Human-induced changes to the Earth's climate have led to unpredictable rainfall patterns. In Cape Town, South Africa, three consecutive years of below-average winter rainfall (beginning in 2015) severely tested the city's ability to provide potable water to its citizens. The city's taps were on the brink of running dry, prompting residents to implement measures to reduce water consumption. Grounded in the theoretical framework of the theory of planned behaviour, this paper investigates household water circumstances, residents' concerns, and their responses to the drought in the high-income suburb of Newlands. Semi-structured interviews were conducted with 30 household heads. A content analysis of the interview data revealed four key themes: concern about the water shortage, concern for fellow citizens, dissatisfaction with the City's crisis management, and household responses to the drought. An exploration of these themes offers valuable citizen-based insights that may inform the management of future water crises and support citizen-led water management strategies.

Keywords: Cape Town, citizen concern, Day Zero, drought, theory of planned behaviour, urban water management

[1] Geographer, Educator, Harold Cressy High School, Cape Town, South Africa, Email: thaakirahs16@gmail.com

[2] PhD, Associate Professor, Department of Geography and Environmental Studies, Stellenbosch University, South Africa, Email: mspocter@sun.ac.za, Orcid: https://orcid.org/0000-0002-4040-3168

INTRODUCTION

Water is an indispensable part of life on Earth. It is consumed directly, used in the production of food and electricity, and plays a critical role in maintaining sanitation and hygiene. Additionally, water supports recreational activities and general economic development. Access to clean, safe, and affordable water is a fundamental human right; however, water is a finite and scarce resource. Only three percent of the Earth's water is fresh, and just one percent is accessible and usable, found in rivers, lakes, and underground reservoirs, while the remainder is locked in ice caps and glaciers (Chaminuka & Nyatsanza, 2013). This vital resource is increasingly threatened by erratic rainfall, recurring droughts, and rapid population growth (Sedlack, 2014).

In May 2017, Cape Town was declared a disaster region due to a severe drought that began in 2015. The city was on the brink of becoming the first major city in the world to run out of water. According to Maxmen (2018), it was the worst drought Cape Town had experienced in the past century. The 2015–2018 drought prompted the municipal government to implement emergency measures to increase water supplies through water augmentation schemes and to urge consumers to drastically reduce their water use. Water supplies had to be stretched to prevent the worst-case scenario, ominously termed "Day Zero." On this day, most of the city's taps would have been turned off once dam storage levels dropped to a critically low 13.5% (Jacobs-Mata et al., 2018). As Day Zero loomed, Cape Town grappled with numerous drought-related challenges. Fortunately, heavy winter rains returned in 2018, gradually replenishing the city's dams.

Cape Town was not alone in experiencing water scarcity. Across semi-arid South Africa, the Nelson Mandela Bay and eThekwini metropolitan municipalities, along with smaller municipalities and Gauteng province, have either faced or are currently facing water stress (Ziervogel, 2019). Globally, other cities have also endured severe water crises. In 2014, São Paulo, Brazil, faced its worst water crisis in over 80 years, affecting approximately 20 million people (Cathala et al., 2018). Similarly, the State of California experienced a five-year-long drought beginning in 2012, while Australia endured the Millennium Drought, which lasted 15 years (1997–2012). Until recently, water was widely regarded as an inexhaustible resource (United Nations Development Programme, 2006). Today, water crises are a common challenge for cities worldwide. When cities experience water shortages, human comfort and well-being are inevitably compromised.

This paper explores citizens' concerns, their household circumstances, and their responses during Cape Town's drought crisis. Following this introduction, the next section provides a review of relevant literature. The study area, a high-income suburb in Cape Town, and the research methods are then described. The findings from a qualitative interview survey are presented, followed by concluding remarks.

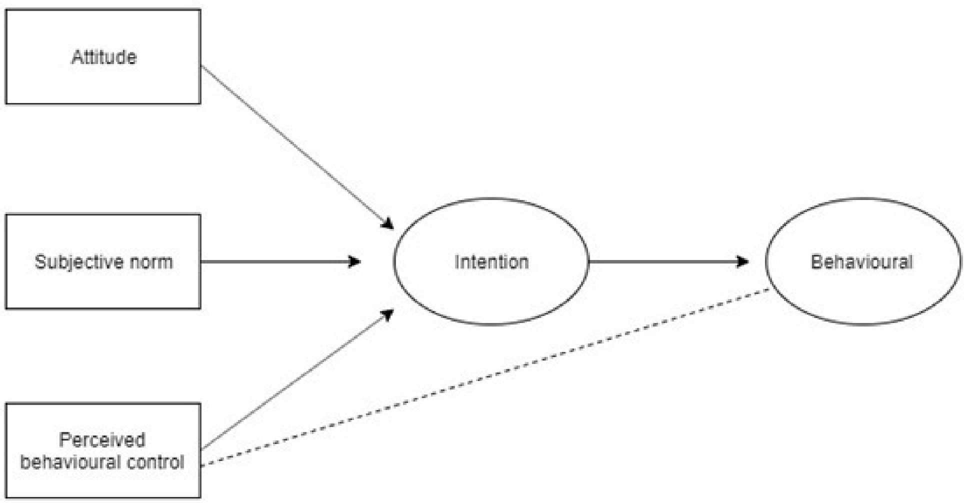
LITERATURE REVIEW

The theory of planned behaviour

Human behaviour and perceptions significantly influence actions. The theory of planned behaviour establishes a connection between beliefs and behaviours, predicting an individual's intention to act in a particular way at a specific time and place (Ajzen, 1991). According to this theory, three components—attitudes, subjective norms, and perceived behavioural control—shape a person's intentions and actions (Figure 1).

A key element of the theory is the individual's intention to perform a behaviour. Intentions reflect the effort people are willing to invest or the extent to which they are prepared to exert themselves to carry out an action. The stronger the intention, the more likely the individual is to perform and engage in the behaviour. However, it is crucial to acknowledge that actual performance depends, to some extent, on the availability of resources and opportunities (e.g., time, money). These factors collectively represent an individual's actual control over their behaviour. Ajzen (1991) posits that when individuals have the necessary resources and opportunities and intend to perform a behaviour, they are likely to succeed in doing so.

Figure 1. The theory of planned behaviour model



Source: Ajzen (1991: 182)

The theory of planned behaviour suggests three causes of intention (Figure 1). The first is the *attitude towards behaviour*. This is the degree to which someone has a positive or negative stance on the specific behaviour, considering the outcome of performing the behaviour. The second cause, *subjective norm*, refers to the societal pressures to perform or not perform the behaviour. It considers the social environment and whether society thinks they will act or not. Finally, the degree of *perceived behavioural control* is the alleged ease or difficulty of carrying out the behaviour. This may reflect past experiences or obstacles. It is important to note that, depending on the context, in some instances attitudes may make a meaningful contribution to intentions, in others subjective norms and perceived behavioural control may do so, while in other contexts all three causes can contribute to intentions. Responsible environmental behaviours have also been noted amongst tourists and it can also be applied to the scenario of urban water shortages (Gonda & Rátz, 2024). With this theoretical underpinning, the following sub-sections overview the literature associated with the study.

Brief synopsis of the relevant international literature

A drought is classified as a long period of abnormally low rainfall for which many are unprepared (Allaby, 1994). The South African Weather Service (2018) characterises a severe drought as occurring when an area receives less than 75% of normal annual rainfall. Water scarcity exists when water demands exceed water supplies over long periods of time, which could have been prevented by prudent urban water management (United Nations Development Programme, 2006). The onus falls on governments to ensure that everyone has reliable access to clean, safe, and affordable water.

Over the past few decades, severe water crises have become a regular phenomenon in some major cities and regions across the world. In Australia, the notorious Millennium Drought was caused by hot, dry weather conditions from late 1996 until 2010. In Spain, in 2007/2008, the metropolitan area of Barcelona suffered the severest drought in decades, with little or no rain for 20 months (March et al., 2013). A 100-year record low of only 29 mm of rain fell in the city of Alicante, Spain, between January and August 2014 (March et al., 2014). Similarly, two years of severe drought in 2014 and 2015 saw the city of São Paulo, Brazil, experiencing dam levels dropping to single-figure percentages (Millington, 2018). In cities of the Global North, rebate programmes and the distribution of free plumbing retrofit kits are standard demand-management implementations to encourage households to save water (Millock & Nauges, 2010; March et al., 2014). Stringent regulations for water-efficient appliances are standard in California, where toilets, showerheads, kitchen and bathroom taps, and washing machines may not exceed a specified efficiency level (Mitchell et al., 2017). In Australia, legislation dictates that new toilets must have dual-flush buttons (Dolnicar & Hurlimann, 2010). In São Paulo, the largest city in South America, small water tanks, known as *caixas*, have been required by law for all residences since 1992 (Millington, 2018). Although these regulations may prove effective in reducing household water demand, they may lead to pronounced infrastructure inequalities in the water landscape. Poorer households may struggle to afford a *caixa* or an efficient water toilet, leading to a greater water burden compared to wealthier citizens.

At the household level in Alicante, voluntary rationing, followed by the banning of outdoor water use (washing cars, watering gardens, and filling swimming pools), formed part of water conservation campaigns (March et al., 2013). To encourage water savings in São Paulo, consumers who reduced their water consumption were rewarded with a 30% discount on their water bills between February and November 2014. Water-pressure reductions and water-tariff changes were standard measures to reduce household water consumption. Emergency actions were delayed. The Governor of the state of São Paulo denied that citizens went without water, even as many citizens in the peripheral areas of the city suffered from water shortages. Only in 2015 did the Governor admit that citizens were living without water, months after downplaying the water shortages. Such political stubbornness has been identified as a factor contributing to citizens' negative experiences of the drought in São Paulo. Citizens demanded transparent management of the city's water supply, which was not met (Millington, 2018).

Generally, domestic water use can be divided into two categories: everyday basic needs and non-essential uses. Everyday basic needs include drinking water and water for washing, flushing toilets, cleaning, and washing clothes and dishes. The irrigating of gardens, filling swimming pools, washing cars, and other outdoor activities are classed as non-essential uses (Koutiva et al., 2017). When households are faced with severe water scarcity and the risk of having their water cut off during a crisis, they may change their water-use behaviour by reducing their daily water consumption and/or placing high water-use activities on hold until water supplies increase. Households may adopt strategies to increase their available water supply by installing rainwater tanks or sinking boreholes. In extreme cases, they may relocate to areas where the water supply is more reliable (Majuru et al., 2016). These water-use strategies can be described as citizen-led resilience, whereby the citizens themselves implement resilient strategies according to their attitudes, capacities, knowledge, values, and water needs (Jupp, 2016). The rise in citizen-led strategies can often follow coercion and/or the threat of implementation of punitive measures, such as fines for excessive water use, by public authorities.

Majuru et al. (2016) emphasise that drought and water scarcity place a considerable burden on households in countries of the Global South. Common strategies they name for coping with water scarcity include collecting water from alternative sources, storing rainwater, purchasing water from shops, and drilling wells or boreholes. They mention that people spend between 30 minutes and three hours collecting water from alternative sources. Households that collect rainwater store it either in large rainwater tanks or in buckets. The most common water conservation practices in countries of the Global North like Australia include ensuring that taps are correctly closed after use, only using a washing machine when full, and using minimal water for cleaning (Dolnicar & Hurlimann, 2010). In countries of the Global South, some common practices include reducing the frequency of bathing and showering, limiting laundry loads, reducing the flushing of toilets to once a day, and even decreasing the intake of fruits and vegetables that need rinsing. Households were also found to cook fewer meals per day and used water for drinking purposes only (Majuru et al., 2016). Reusing bath and washing machine water for mopping floors, flushing toilets, and watering gardens is common in Southern cities too. There is wide support for water-saving appliances, especially in the Global North. The main barrier to using water-saving appliances is the cost of purchasing and installing them. Positive attitudes towards water conservation and water-saving appliances, but not implementing them in practice, were found to be commonplace in Australia (Dolnicar & Hurlimann, 2010). The use of water-saving appliances is prevalent as a coping strategy to reduce water consumption. Wealthier households in the Global South are more likely to implement longer-term water-saving strategies that focus on the quality, quantity, and convenience of accessing water (Majuru et al., 2016). The burden of water-saving strategies should not fall solely on citizens, as it is incumbent on municipal water authorities to play their role too.

South African literature on potable water issues

In South Africa several laws and policies regulate water use, its management and citizens' water rights. These include the Water Services Act (Act 108 of 1997), the national Free Basic Water Implementation Strategy and the National Water Act (Act 36 of 1998). In the South African Constitution, the Bill of Rights [Section 27 (1) (b)] clearly states that everyone has the right to access sufficient water. Furthermore, principles of environmental protection are mentioned, ensuring the right to an environment that is not harmful to citizens' well-being and to have the environment protected for the benefit of present and future generations (Section 24). The aims of the National Water Act (Act 36 of 1998) echo the Constitution principles achieving sustainable use of water for all consumers. Regarding water scarcity, the National Disaster Management Act (Act 52 of 2002) guides South Africa's response to the risks of drought. The act aims to ensure that progressive action is taken, and improved responses are made to mitigate the impacts of drought rather than reacting to drought after it has taken place.

The Western Cape Sustainable Water Management Plan is a framework developed by the Western Cape provincial government and the National Department of Water Affairs to guide sustainable management of water and it specifically aims to protect water resources and promote water efficiency in the Western Cape province (Western Cape Government, 2018). However, these are only options for consideration in municipal strategies, meaning that despite being put into plans and policy, there is a likelihood that they may not be put into practice. Other activities mentioned in the Water Management Plan's policy document, but not in the immediate to long-term plans, are management of water pressure; monitoring and maintaining water quality; greywater reuse; installation of rainwater tanks; retrofitting with water-saving appliances in commercial, domestic and state-owned buildings; as well as by-laws to enforce the use of water-saving fittings in new developments; appropriate water tariff structures to encourage water-saving behaviour; and awareness campaigns for water conservation by the public. These laws and principles are meant to steer sustainable water-related decisions.

Turning to Cape Town, almost three decades ago the Water Research Commission predicted that water demand in the city would exceed supply by 2007 (Mistry & Spocter, 2018). Since then, options for increasing Cape Town's water supply have been proposed, such as building new dams, exploring transfer schemes, clearing alien vegetation and looking into efficient irrigation practices (Matthews, 2005). Furthermore, in 2014 targets were set for South African municipalities to reduce their water losses by half (Van Vuuren, 2014). Those targets have come and gone. A decade after the predicted shortage, Cape Town encountered a major water crisis with the then mayoress of Cape Town, Patricia de Lille, announcing, in October 2017, that the city would run out of the water by March 2018 (Davis, 2018). According to Patel (2003), long before the crisis, the city managers' complacency had already contributed to inaccurate disaster forecasts. Olivier (2018), however, disagrees with Patel's contention and argues that the city's lacking preparedness is a myth. Central to his argument is that dams were overflowing in the winter of 2014 and weather forecasts had not indicated that the 2015 drought would carry over into the following year.

Cape Town uses 64% of the Western Cape's total water supply, followed by agriculture at 29% with non-metropolitan settlements in the province using 7%. Seventy percent of Cape Town's water demand was for domestic use with the balance for the industrial, commercial and institutional sectors (Department of Water and Sanitation, 2018). The cost of water for non-domestic use (such as for commercial and industrial water use) more than doubled resulting in 20% reduction of use in these sectors (Ziervogel, 2019). The domestic use volume was calculated to be approximately 15% for households in informal settlements and 85% by formal domestic households. Thus, focus of the city's water demand management strategy was concentrated the formal domestic household sector, particularly in wealthier suburbs (City of Cape Town, 2018a; Calverley & Walther, 2022). It is the wealthier suburbs of Cape Town that consumed the largest per capita per day share of potable water which speaks to the uneven geography of water consumption in Cape Town (Savelli et al., 2021).

Climate change impacts have undoubtedly impacted negatively on the filling of the rain-fed dams that service Cape Town, with the catchment areas receiving insufficient rainfall since 2015 and the 2017 annual rainfall being only one third of an average year's rainfall (City of Cape Town, 2018a). Olver (2019) has observed that the City mismanaged the water crisis monumentally because of administrative, leadership and political failures. Despite 2015 having demonstrated drought-like conditions compared to previous years, it did not pressure the authorities to diversify water supplies and initiate drought-relief measures. The United Nations' Human Development Report (2006) argues that failures in water management and policy are key drivers of water scarcity where cities indulge in using more water than they have.

In order to secure quick results in reducing water demand, measures such as punitive tariffs for high-volume water consumers, reducing water pressure, installing household flow regulators and engaging with businesses, were initiated (City of Cape Town, 2018a). Communication campaigns via printed media, radio and social media informed citizens about how to reduce their water consumption. Novel strategies to curb high water consumption included personal visits by the mayoress to the offending water users. The City also published in the media the street names where the 100 highest water users lived (Olivier, 2018). The imposition of water restrictions was inevitable.

Level 1 water restrictions were introduced at the end of 2015, with the City setting sights on reducing its collective water consumption by 10% (Collins, 2015). With dam levels sharply declining from 72% in 2014 to 50% in 2015, the City implemented Level 2 water restrictions at the start of 2016. Level 3 was implemented in November 2016 and a further strengthening of restrictions at Level 3B was implemented on 1 February 2017. By then the dam levels were at 39%. Level 4 water restrictions, which were implemented on June 1, 2017, required citizens to reduce their water usage to 100 liters per person per day. A month later, Level 4B limited water use to 87 litres per person per day (City of Cape Town, 2018b). The City called on all residents to use municipal water only for essential purposes such as drinking, cooking and washing (Western Cape Government, 2017). Level 5 water restrictions came into effect on 3 September 2017 where the capping of water usage at the household level was emphasised (City of Cape Town, 2017). The limit per household was set at 20,000 liters per month for a 'typical' family of four. Level 6 water restrictions were imposed at the beginning of 2018 as dam levels reached 31%. On 1 February 2018, Level 6B water restrictions were enforced limiting water usage to just 50 litres per person per day (Felix, 2018). On 23 April 2018, the city's dams were at 20% capacity, with the final 13.5% being unusable. The situation was dire.

The last level of water restrictions was Level 7, the implementation of the dystopian-sounding 'Day Zero'. On this day, the Cape Town's taps would have run dry as dams and bulk water infrastructure would not have been able to deliver potable water (City of Cape Town, 2018a; Maxmen, 2018). Cape Town could have been the world's first major city to run out of water. Day Zero meant that most residents, businesses and institutions would be unable to access drinking water from their taps. Citizens would have had to collect water from approximately 200 sites around the city. Each person was to be rationed to 25 litres of water per day. Thankfully, the 2018 winter rains arrived in sufficient quantities to stave off Day Zero. Attention now turns to the study area and methods used in the study.

METHODS

The 'suburbs' are regarded as the residential spaces of the wealthier cohorts of society in South Africa. The high-income suburb of Newlands, Cape Town, is characterised as a green, leafy suburb with a low density of housing units, with lush gardens and private swimming pools being common features of residences (Ouweneel et al., 2020; Marcus & Spocter, 2022). Little is known about the concerns and household responses to drought in wealthier suburbs in the South African context because the scholarly focus has largely been on other urban precincts, allowing the wealthy classes to continue consuming vast amounts of resources outside the analytical attention and academic gaze of scholars (Pieterse, cited in Visser, 2013). The legacy of low-density, sprawling suburbs in South Africa is the "antithesis of sustainability as they place a high demand on resources, such as... inefficient use of water and costly service reticulation" (Swilling, cited in Nel, 2016, p. 83). Newlands is one of the wettest suburbs in South Africa, receiving approximately 2000 mm of rainfall per year (Watson, 2015).

Institutional ethical clearance for the study was obtained prior to the start of the data-collection process. A linear snowball sampling method was used, whereby the researchers recruited the initial respondents in the study area, who in turn provided the contact details of the next wave of potential respondents. In total, semi-structured interviews were conducted with 30 adult household heads with the aid of an interview guide. The interviews were conducted in October 2018, four months after Day Zero was postponed indefinitely. Interviews were digitally recorded and then transcribed. The manager of the Newlands spring was also interviewed for his insights into the water-collection activities of citizens at the spring. A thematic content analysis of the transcribed interviews generated four key themes: concern with the water shortage, concern for fellow Capetonians, criticisms of crisis management by the municipal authority, and the respondents' household responses to the drought. These are the four foci of the next section.

RESULTS

Domestic water consumption is the largest share of overall water demand in Cape Town, meaning that citizens needed to adapt to living with limited water supply to their homes. An understanding of households' water circumstances, their concerns, and their responses during and after a water shortage provides valuable information for improving municipal communication efforts, reducing water demand, and managing water supplies (Jorgensen et al., 2009; Dolnicar & Hurlimann, 2010; Koutiva et al., 2017; Booysen et al., 2019). Respondents' concerns and the accompanying changes in water-use behaviours, along with water crisis management by municipal officials, mirrored what was observed in similar studies in Australia, Brazil, and Spain. Insights gathered from respondents' narratives on their domestic water-use behaviour and their perceptions of the city's water management strategies inform the analysis and discussion of the results. An exposition of each key theme follows in turn.

Concern with and responses to the water shortage

Respondents were required to recall precisely when they began to follow the water restrictions strictly. More than half of respondents (55%) mentioned that it was towards the end of 2017, when Level 5 water restrictions were in place, that the possibility of a water shortage became a reality for them. Only when the authorities launched a broad-based media information campaign about the looming water shortage, warning citizens of the water crisis and actively implementing punitive measures such as issuing fines and publishing the street names in which high-volume water users resided, did the respondent households start to use water wisely. Respondent A recounted that households knew that the situation was dire when they became aware that dam levels were dropping precipitously.

Emotions of fear were often mentioned in the respondents' narratives. Respondent G succinctly stated that "…the higher the level, the more panicky people became." She clarified that as the water restrictions became stricter, households became increasingly aware of a water shortage, coupled with an awareness that winter rains were not arriving. Emotions of helplessness were mentioned too, in the context of water tariffs, water cuts and access to water resources by the elderly. On the topic of water tariff pricing, 52% of the participants agreed that water tariffs were reasonable. Respondent H expressed the consternation that households had no choice but to pay for their water during the episodes of tariff increases: "…what are you supposed to do? You got to pay your account! Otherwise, you won't have water if you don't pay." Respondent F expressed feelings of accomplishment, then defeat mixed with emotions of anger, when describing the issue she had involving her water meter.

She described how a municipal employee ardently insisted that a water-management device be fitted on her property, but her husband refused. She justified the refusal by insisting that the high amount of her water bill was not the result of her family's water usage but due to inaccurate readings of her water meter and incorrect water-use estimations by the municipality:

> One month my bill comes to zero rands, the next month maybe four, five thousand rands. So, where does that come in? The council said ok maybe they did an estimate, maybe it's from previous [months]. Then, two months later I get another bill of zero rands, so they don't know what they are doing. We don't know how our water must be because they don't know how to redo the reading, so they can just estimate anything, and we must just accept it.

Respondent H, like several other interviewees, labelled the municipal billing system disparagingly as: 'taking a lot of chances', 'taking advantage', 'making a lot of money out of us', and 'a total rip-off'. In the case of Respondent G, emotions of helplessness were evident when she related the time her water was cut off. She expressed that without water and no warning from the City, her daily water-use activities were disrupted, and this proved to be a huge inconvenience. She explained that she did not think it was reasonable for the authorities to terminate her water supply as a punitive measure. When prompted about how she managed with no water, she replied that she first looked around her house for some water and found a few litres stored in bottles. She explained that she was able to continue her morning routine by only doing 'the necessary' as there would be water at her workplace. Furthermore, she strongly suggested that at least ten litres of water should be stored in each household because if no water is available, panic will set in among the citizenry.

Concerning the arrival of Day Zero, half of participants were convinced it would have arrived at some point. The rest reported that they were unsure or firmly believed that the event would not arrive. Nonetheless, all households made some preparation for this doomsday event by conserving water and stocking up supplies of bottled water. Several respondents (14%) indicated that they had prayed for rain, an activity that was also encouraged by the then mayoress. Thirty-six per cent of the respondents reported that they had some spiritual or cultural beliefs related to water. Respondent I mentioned that although he had hoped Day Zero would not arrive, he decided not to sink a borehole or implement anything that would dent his household budget. Respondent J's household was prepared to relocate temporarily to where water resources were more reliable:

> So, the first time, the March one, we were going to, we actually looked for a house to rent. We looked at the stats where water restrictions, where water resources were better like Hermanus and I think Worcester, not permanent maybe like a year or something.

She arranged with the school for her children to do distance learning and only attend school during examination periods to which the school agreed as the sanitation conditions at the schools would be 'crazy'. Other preparations people made involved households' decreasing their reliance on municipal water supplies by collecting spring water, purchasing and filling up water dispensers, purchasing and storing bottled water and collecting rainwater. While 59% of the respondents maintained that they were prepared for Day Zero, almost one fifth of households (18%), indicated that they did not have any backup stores of water. However, unprepared respondents added that should Day Zero have arrived they would have planned to increase their water supplies. Respondent K said: "Look, if it had come, we probably would have [put something in place], because I could have pumped borehole water to these tanks." Similarly, Respondent D mentioned: "I mean, we would have gone out and got bottled water and we would have survived. Were we prepared? No. Some people must have had massive stores of water hoping it was going to arrive." He was correct in his assumption about people storing numerous litres of bottled water, as Respondent C described storing approximately 100 five-litre bottles of water. Likewise, two other households indicated that they had large stores of bottled water. Marked differences were evident in the responses regarding whether respondents thought Day Zero would have arrived, whether households considered their household to have been prepared should Day Zero have arrived; and about the preparations made by each household.

Another method by which households prepared for Day Zero was to actively search for information regarding the water crisis. Households primarily mined the Internet for information on the city's dam levels and how to use their 50-litre water stipend efficiently. One respondent reported having shared ways in which to save water via her lifestyle-related blog with over 2000 followers. Others (7%) have joined water-related social media groups to keep themselves informed, while 20% of the respondent households indicated that although they had not actively searched for information, they had stayed informed by reading the daily news. Respondents also maintained that although Day Zero did not arrive, they would be in a better position to cope with future drought events as they had changed their water-use habits and become more water-use conscious.

Despite the warnings and preparations, some respondents related a particular issue that interfered with their water-saving efforts. One tenth of the residents reported having had a water leak during the drought period. Water leaks, which at times are difficult to detect, could result in hefty water bills. Respondent I complained that their household was unaware of their water leak as it happened when it was raining and only when the rain had stopped did they notice running water near their garage. The leak had occurred under a tree and their municipal water bill came to R16 000. Residents that had experienced leaks commented that the authorities speedily resolved issues with water meters and formally offered each household a rebate. The respondents, however, bemoaned the rebate as not being much.

Concern for fellow Capetonians

Complementing their personal water-saving issues, respondents also revealed their worries for those more vulnerable than themselves. Three out of every five respondents considered the drought to be very severe. Easy access to the springs and habitual water-saving actions were justifications for others to label the drought as less severe and serious. Nevertheless, some respondents expressed apprehension regarding the elderly. Respondent L alleged:

> It's severe in terms of usage but dangerous in terms of the downstream consequences. Look at the spring collection point, for example, old ladies were there in scarfs, the floor is slippery,

> they are moving 25-litre containers around, people are ushering to get you in, someone can get hurt, and there were fights.

Respondents also emphasised their grave concern for the less fortunate citizens of Cape Town. They believed that their fellow Capetonians' situations might be bleaker as they may not possess the financial means to purchase water or afford to travel regularly to the spring collection point should their water be cut off. Respondents mentioned that having one's water supply terminated should be situation-dependent as the poor and large households should not be liable to having their water cut off. On the other hand, some felt that if water use was excessive and accompanied by multiple warnings, water provision should be terminated. Residents who strongly opposed water cuts offered alternative measures. Respondent G suggested: "I think pressure should be reduced. It should be a very drip basis [for those] who are not paying and saving water." Respondents mentioned that the City was fining households incorrectly and rationing households that failed to comply with the water restrictions. Residents reflected on and questioned the ownership of water as well as the decisions about who should receive water and who not, given that water is a basic human right. Other residents reasoned that although water is a basic human requirement, households should keep within their means and limits if they could not afford to pay for the water they used.

Many residents reported postponing their visits to the local Newlands spring(s)[3] during the height of the drought. Those who continued to collect water usually visited the springs either twice a week or once every fortnight. Residents cited the long queues and regular fights as the main reasons for no longer collecting water at the spring(s). Towards the end of January 2018, one person was arrested following a fight at the Newlands spring(s). As a result, security guards were posted as a safety precaution (Chambers, 2018; Stone, 2018). The manager of Newlands spring(s) noted that fights did not take place at the new water collection point: "Not physical fights but there was a bit of chaos because we were just in the beginning phases of the collection point." He added that he had been called upon to mediate rising tensions among water collectors.

Respondents expressed displeasure over how the City prepared for the water crisis. Respondents expressed opinions about how the municipality should have constructed desalination plants before the onset of the crisis as well as capturing other water resources such as springs around the city. Respondent M revealed that he had moved to Cape Town five years previously and he recalled the garden-related water restrictions and warnings. He opined that if the City was aware of the scarce water conditions, the available water resources in the area and on Table Mountain should have been proactively tapped. Other residents echoed these sentiments, lamenting that other countries also have limited freshwater supplies, yet they manage to successfully supply all their citizens. These expressed

[3] There were three well-known springs in Newlands. By October 2019 there was one. The city closed the Kildare Road spring on 23 May 2018 by covering the spring with concrete. This was due to disruptive traffic congestion and complaints from nearby residents about the noise made by visitors collecting water at all hours of the day and night. In February 2018, the city re-routed the Newlands spring from its location at South African Breweries, to a place 700 metres down the main road next to the Newlands municipal swimming pool. The new location was cited by Mayoral Committee Member for Safety and Security, JP Smith, to be easier to access and have more parking for water collectors (Robins, 2018; Cape Argus, 2019).

personal concerns regarding the water shortage were extended to fellow Capetonians who may or may not have been in a more vulnerable position than themselves.

Water-crisis management by the City

During the height of the drought, participants indicated that the municipal authorities carried out ambitious campaigning to alert households to the water shortages. The intensive publicity about the drought, more specifically the number of days left until Day Zero, the water restriction levels, images of the dry dams, pictures of citizens with buckets and bottles queueing at the spring(s) and slogans calling on residents to take shorter showers, were the messages respondents reported to stand out for them. Communiques on billboards along highways as well as information given in their rates and taxes bills impressed Respondents G, L and M. Then again, Respondents A and C commented on the flood of drought-related pamphlets in their letter boxes which resulted in their overlooking important information. Respondent O stated that the City made it relatively clear how the new water tariffs structure worked, and Respondent P mentioned that if there was blame regarding water consumption, the onus was on the residents for not doing their homework. Respondent J mentioned that her husband used their monthly water bills to compile water-consumption graphs for their household to impress on their children how much water the household was consuming. This would undoubtedly have assisted in cultivating a culture of wise water-use awareness among the children.

Regarding the opinions about the general communication efforts of the City, it was surprising that many respondents complimented the authorities for frightening residents about the drought. Respondent Q commented: "Putting fear into everybody for Day Zero actually did a lot more good than harm. I think it was needed to let everybody take it seriously." Respondent R added that the warnings and media attention concerning people at the spring(s) were effective in alerting residents in the area: "It was very scary for kind of middle-class people who are not used to the idea of queuing up for anything so I think their scare tactics have been effective." Other respondents commented about the success of the notices in most public places that urged citizens to save water. The timing of these drought warnings, however, was widely criticised by the respondent households. The late implementation of drought warnings was often mentioned in the respondents' descriptions. Many added that, as a result, they felt fearful and helpless, and that they lost trust in City management.

Despite the warnings given and messages sent by the City, the unfair measures to recover shortfalls in revenue due to declining water demand were pointed out by the respondents. On the topic of water billing, respondents mentioned that the City was fining households unfairly and that water-billing systems were not functioning correctly. Approximately half (52%) of participants did not have any issues with the punitive water tariffs. The reasons they offered were that the water tariffs did not incur huge expenses on household budgets nor affect them; that water infrastructure and maintenance require funds; and that the price of water was low compared to international prices. Respondent N added that the tariffs should have been higher as the aim was to encourage households to consume less water. Respondent D expressed the sentiment that the City should have increased water tariffs years ago. One third of the respondents disagreed, arguing that the water tariffs were too high. The rest of the respondents were unsure of their opinion on the water tariffs. Participants, whether they were impressed with or frustrated by the City's drought-management strategies, noted that there is always the prospect of better strategies to manage drought. Consequently, many participants made recommendations about how the authorities should handle the next water crisis should another arrive in the future.

Household circumstances during the drought

Severe drought conditions had prompted the respondents to adjust their current water-use habits. Respondents disclosed that although they had always used water responsibly, during the drought they became more aware of their water consumption and were moved to use water more wisely. Respondent J said: "Before the drought, we never done the buckets', now we are very strict with water." Most residents also associated their new water-saving habits with placing buckets under water appliances such as showers and taps to collect extra fresh water and greywater from bathing for re-use. Water collected in these buckets was reported to be reused for watering gardens, doing handwashing and for washing dishes, fruit and vegetables. Similar initiatives were reported in Mistry & Spocter's (2018) study on water use in Kuils River. Newlands' spring water was mainly used for drinking, cooking and washing dishes, while water collected from rainwater tanks was used for irrigating gardens, topping up pools, washing cars, flushing toilets and mopping floors.

Respondent U stated that the main reasons for adopting a rainwater tank were deep uneasiness about the drought and the limited availability of freshwater resources at the time. Respondent F, on the other hand, purchased a rainwater tank as she felt vulnerable and expressed her concern that the City was not managing water resources carefully. Respondent V expressed great difficulty with conserving water but highlighted that their contribution to minimising household water demand was: "We made a lot of effort saving water, like trying to catch all the water from the washing and use those [sic] for the toilets, it's a painful process, but we are trying to do our part."

Residents appeared to place considerable aesthetic value on their gardens. Most residents reported having not watered their garden with municipal water at all during the drought with a few residents lamenting that their lawns died during that period. Other residents, however, reported about watering their lawns with greywater from their showers, 'detergent water,' 'kitchen water' and water from rainwater tanks. Others opted to limit their irrigation practices to pot plants. Respondents also spoke of increased investment in drought-resistant plants. Dramatic changes in water-use behaviour due to the water crisis have created a 'new normal' in households. For example, hitherto the limiting of the number of toilet flushes was not normal practice but it was reported to have become common practice in many households.

The significant adjustments to water-use practices engendered a variety of drought-related experiences. Living in areas where there are springs, dams, aquifers and rivers nearby made some respondents' drought experiences more manageable. Respondents also mentioned that owing to their water-saving efforts and water-saving appliances they had been given peace of mind during the drought. After describing their household's water-saving ways and water-saving appliances, Respondent N confirmed that: "We are quite comfortable like we've got a nice set-up in the house." Respondent R expressed disquiet over the illegal abstraction of water from the Liesbeek River which flows through Newlands: "We live across the road [from the river] and at night we have bakkies pulling up catching river water, they would put a pipe into the river and would pump it into a tunnel with drums." According to Section 22(1) of the National Water Act (Act 36 of 1998) it is not permissible to abstract water from a river without a licence. Respondent R added that a few neighbours mentioned the idea of a sharing group of those who had boreholes and those who did not. She expressed a deep anxiety for her neighbours without a borehole.

Most respondents (62%) reported that 50 litres per person were enough for daily water-related activities. Participants expressed their satisfaction with their considerable efforts in saving water. Others, however, identified many difficulties. Respondent E conveyed: "It is enough to survive but I mean you gotta get rid of all your frills, bells and whistles like you just have enough to drink!" Residents had to examine their water-use habits and the realization set in that water for personal consumption was all that mattered and that they had to forego the green gardens and washing of vehicles amongst other water-consumption activities. Overall, the respondents were quite willing to do so. Respondents also mentioned that their experiences of the drought had brought a behaviour change to be conscious of water saving that would continue in the future.

CONCLUSIONS

Cape Town faced a near-disaster as dam levels dropped to dangerously low levels following three consecutive years of dry winters. Citizens were compelled to reduce their water consumption to 50 litres per person per day. Using the theory of planned behaviour as the theoretical framework, this study examined citizen concerns and responses to the water crisis. This theory is particularly suited to exploring citizen resilience to drought by analyzing water conservation practices and the adoption of water-saving appliances in households.

Respondents' willingness to drastically reduce their water consumption during the severe crisis (their behavioural intention) was influenced by three factors: (1) Attitudes towards the drought; (2) Subjective norms – their perception of what others think of the drought (family members, neighbours and city management), as well as adherence to water restriction guidelines; and, (3) Perceived control – their assessment of the ease or difficulty of complying with stringent water restrictions or using water-saving appliances.

Although the study focused on a small segment of the city's population, a significant finding was that respondents placed a high moral value on water, with some referring to it as "the new gold." Spiritual and environmental values were strongly linked to water conservation. Households managed to comply with water consumption restrictions while maintaining personal hygiene standards by showering, flushing toilets, and washing clothes less frequently. In outdoor activities, respondents demonstrated a deep aesthetic appreciation for their gardens, replacing potable water with reused water and using stored rainwater to fill pools.

Public education campaigns about the drought proved to be strong motivators for reducing water consumption. Respondents believed they contributed positively to the city-wide goal of reducing water usage. As a result of continuous water-conservation messaging during the drought, it is unlikely that excessive water consumption will return.

Respondents expressed concern for fellow citizens during the crisis and criticized local, provincial, and national governments for their lack of preparation, which they identified as a key factor behind the severe shortages in Cape Town. Dissatisfaction was also directed at the late implementation of alternative freshwater supply infrastructures and the perceived unreasonableness of water tariffs. To promote sustainable water consumption, future efforts should target barriers such as cost by subsidizing water-saving appliances and providing rebates for households that achieve significant water savings.

Media coverage of the water crisis and Day Zero spurred swift citizen action. Respondents reported reducing water use after seeing warnings about low dam levels and water restrictions displayed on billboards, in public places, on the Internet, and in daily news reports. This widespread publicity created a sense of urgency, prompting households to address water-related risks and improve their water resilience through behavioural changes.

As the study was conducted in a high-income suburb, it was assumed that respondents had the financial means to install rainwater-collecting tanks and drill boreholes to access water for household use. Families implemented numerous water-saving measures to reduce their consumption. This experience underscored the finite nature of Earth's resources. Renewable resources must be consumed sparingly and at a rate that allows for renewal. Population growth presents a significant challenge for resource management, raising concerns about the future provision of resources, including water quality and availability, food production, livelihoods, and overall quality of life.

Cape Town residents came perilously close to experiencing dry taps. It is hoped that the lessons learned during the crisis, particularly about water-wise habits, will endure. By the end of winter 2020, the dams were full again, but the memory of the drought remains a sobering reminder of the importance of sustainable water management.

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Sadiya, Iffat[1] – Hasan, Iqra[2]

GIS-Based Longitudinal Analysis of Female Education and Domestic Violence in India

ABSTRACT

The aim of this study is to examine the correlation between female education levels and the incidence of domestic violence over time, with the objective of visualizing spatial patterns and emerging trends in India. A mixed-method approach was employed, incorporating both quantitative and qualitative data. District-level census data from 2001 and 2011 were analyzed, complemented by primary data from surveys conducted with 102 women. GIS mapping techniques were used to illustrate spatial distributions, while the integration of primary data with NFHS statistics offered a comprehensive understanding of the underlying social dynamics. The analysis revealed that employed women were more likely to experience domestic violence compared to their unemployed counterparts. Furthermore, statistical findings affirmed a notable inverse correlation between female education levels and the prevalence of domestic violence. This study contributes meaningfully to the fields of gender studies and domestic violence research. It underscores the urgent need to translate these insights into evidence-based interventions that promote female education and combat domestic violence. Future research should prioritize intersectional analyses to more deeply understand the multifaceted nature of domestic violence against women in India.

Keywords: India, domestic violence, employed women, female education, mixed-method, GIS mapping

[1] PhD student, Institute of Geography, Slovak Academy of Sciences, Štefánikova 49, 814 73 Bratislava, Slovak Republic. Tel: 02/57510214, Email: iffat.sadiya@savba.sk

[2] Geographer, Department of Geography, Jamia Milia Islamia, Delhi, India. Email: iqrahasan29@gmail.com

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INTRODUCTION

Education lights the path to empowerment. Yet in India, for many girls, it remains a distant dream overshadowed by the dark spectre of domestic violence. Education serves as a powerful antidote to domestic violence, equipping individuals with the knowledge, skills, and resources to challenge harmful norms and behaviours. When girls receive an education, they gain confidence, awareness, and independence, reducing their vulnerability to abuse. Educated girls are more likely to recognize the signs of domestic violence—particularly in the context of dowry—and to seek help, breaking the cycle of silence and stigma. Through education, communities can foster respect, equality, and empathy, creating a safer environment where violence has no place. Dowry remains a significant factor contributing to violence against women in India. This violence can manifest in various forms, including physical harm, emotional abuse, and sexual exploitation (Pushpam, 2024).

Previous studies[3] have highlighted that cultural and societal norms prevalent in society—such as male dominance, patriarchy, discrimination, and misogynistic outlooks—were the main causes of the incidence of violence. Couples who consumed alcohol, had a history of family violence, experienced child marriage, or had longer marital durations were more likely to experience intimate partner violence (IPV). Furthermore, women belonging to Muslim and Scheduled Caste communities, as well as those who were employed, faced a heightened risk of IPV (Mondal & Paul, 2023). Women who are employed face notably higher levels of IPV compared to those solely engaged in domestic work, primarily due to what is termed the "male backlash" channel. This suggests that women in paid employment may justify IPV against them more than those not engaged in paid work, thus further increasing their exposure to IPV (Dhanaraj & Mahambare, 2022).

To prevent intimate partner violence, higher education, modified cultural norms, and economic empowerment are required (Dalal, 2011). Certain protective factors have been associated with lower odds of experiencing IPV, including residence in rural areas, higher economic status, greater levels of education, and decision-making autonomy (Mondal & Paul, 2023).The narrative that women's educational attainment and financial independence will shield them from abuse has been proven wrong. The main causes of the prevalence of domestic violence are cultural and societal. Even if women are independent and educated, unless society grants equal rights and recognition to both women and men, equality cannot be achieved. The prevailing anti-women mentality is worsening women's position; to change the current scenario, a shift in individual mindsets is necessary (Raju et al., 2020). Approximately 31% of women who had ever been married experienced domestic violence perpetrated by their partners in 2015–16. Notably, women's empowerment in decision-making processes was linked to a reduced probability of spousal violence (Mondal & Paul, 2021).

To empower women, it is necessary to promote equal opportunities for both genders. Currently, more governmental policies and programs are needed to begin bridging the massive gender gap. Community-based programs should also be prioritized, especially to help women understand their

[3] In the current journal, several articles focusing on the society of India have been published in recent years. These articles mainly focus on gender dynamics, regional inequalities, metropolitan mapping, religious heritage, and the urbanization process in India, providing a comprehensive analysis of the country's evolving societal structures and urban development (Nemes, 2016; Singh, 2014; 2015; Zagyi, 2009; Wilhelm, 2008).

role and importance in society. The old narratives of patriarchal society can only be dismantled from the grassroots level. Gender inequality can be eradicated only through active community participation (Amutha, 2017). Policies promoting female-led businesses and enterprises are urgently needed in Indian society. Society must become a place where both genders recognize and respect the roles and contributions of each other, rather than maintaining a dominant mindset. Domestic violence and its impacts should be explored and explained through new and diverse approaches to eliminate this scourge.

Indian society needs massive awareness campaigns—both at micro and macro levels—about women's rights and related policies. The issue of low women's empowerment is not limited to the traditionally identified 'BIMARU' states (Bihar, Madhya Pradesh, Rajasthan, and Uttar Pradesh) but also extends to several others, including Andhra Pradesh, West Bengal, and Tripura. Kerala, often lauded for its progressive stance on women's rights, surprisingly does not rank among the top fifteen states in terms of women's empowerment. Conversely, states like Chhattisgarh, despite their relatively underdeveloped status, rank high on the women's empowerment index (Kumar & Mondal, 2024a, 2024b). Certain protective factors have been associated with lower odds of experiencing IPV, including rural residence, higher economic status, and greater levels of education and decision-making autonomy (Mondal & Paul, 2023).

In light of the above, this paper aims to examine the transformative role of education in combating domestic violence, particularly in relation to dowry-related abuse in India, and to highlight the urgent need to identify gaps in existing research on girls' education and dowry-linked violence. By understanding these gaps, we can better pinpoint areas for future study and develop targeted interventions, ultimately enhancing the effectiveness of educational initiatives in addressing and preventing domestic violence. In recent years, researchers have shown growing interest in the relationship between girls' educational attainment and their experiences of dowry-related violence. Studies have explored how education enhances girls' empowerment and agency to resist and report abuse, assessed the impact of educational programs aimed at preventing violence and promoting gender equality in communities, and examined how educational empowerment functions as a protective factor by increasing girls' autonomy within marital relationships.

However, these studies have largely failed to address critical questions: How have trends in women's education and domestic violence changed over time? What improvements have occurred across different periods, and what issues remain persistent? What role do economic factors—including women's financial independence—play in mediating the impact of education on dowry-related domestic violence? How does the prevalence of domestic violence correlate with changes in female educational attainment over time? To what extent does education serve as a protective factor against such violence? And how can insights from GIS-based mapping and census data analysis inform policies and interventions aimed at addressing gender-based violence and promoting female education?

In this study, Geographic Information Systems (GIS) technology, in conjunction with Census data from 2001 and 2011 and National Crime Records Bureau (NCRB) data, is used to analyse temporal changes in female educational attainment and domestic violence. Utilizing data from the National Family Health Survey (NFHS), the research aims to understand the correlation between female education levels and incidences of domestic violence over time. GIS-based mapping techniques are employed to visualize spatial patterns and trends, offering valuable insights into the dynamics of these social phenomena. By integrating primary data with NFHS statistics, this study provides a comprehensive analysis of the relationship between female education and domestic violence at a granular level, thereby contributing to evidence-based policy formulation and intervention strategies.

METHODS

In this methodology, we adopted a mixed-method approach to gather information, explore phenomena, and answer specific research questions. This study undertakes a comprehensive analysis involving statistical research as well as both primary and secondary data collection. Key variables identified for the research include education (primary, secondary, and tertiary levels) and domestic violence. Census data from 2001 and 2011 (Government of India, n.d.) serve as crucial sources, supplemented by data from the National Crime Records Bureau (NCRB), which underwent thorough cleaning and preparation. Using QGIS software, we visualized this data to create informative maps aligned with our research objectives.

Primary data were collected from a sample of 102 respondents using a systematically designed questionnaire. The instrument included dichotomous and multiple-choice questions, rank-order scales, demographic items, and open-ended questions. Respondents were drawn from North India, specifically Uttar Pradesh. The most important criterion in selecting the study area was that the majority of dowry death crimes and domestic violence cases in India occur in this state. The survey focused on educational attainment, income level, and broader socio-demographic characteristics, enabling a nuanced analysis of the intersections between education and domestic violence. Data collection was conducted digitally via Google Forms to ensure wide and accessible participation. A non-probability sampling strategy—specifically convenience and voluntary response sampling—was employed due to its practicality, cost-effectiveness, and appropriateness given resource constraints.

Additionally, we drew insights from a diverse range of sources, including official publications from the Ministry of Human Resource Development, the Government of India, the National Crime Records Bureau (NCRB), the National Institute of Public Finance and Policy (NIPFP), and the digital repository Shodhganga. By integrating statistical analysis with primary data collection and drawing upon a rich body of literature, this study aims to provide a comprehensive understanding of girls' education and domestic violence, particularly in relation to dowry-related cases.

RESULTS

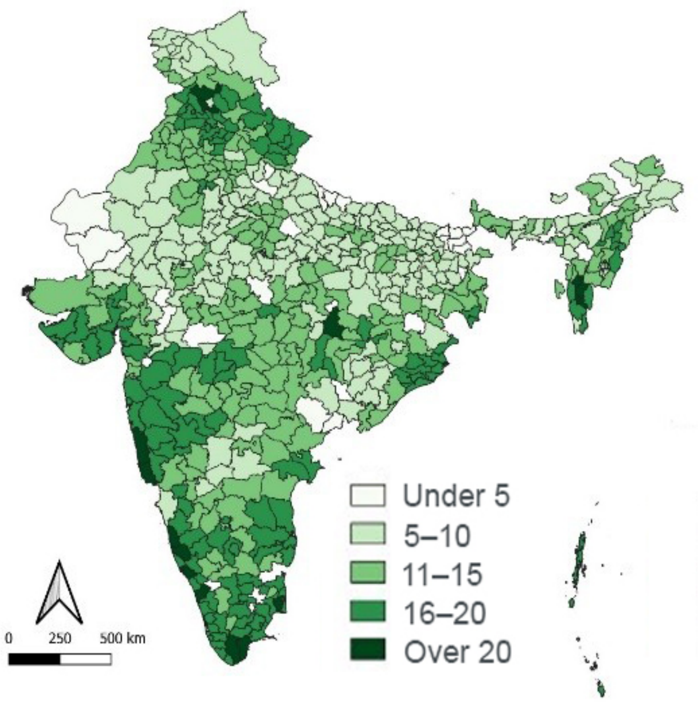
Education attainment and dowry-related domestic violence in early 2000s India

In India, primary education spans the ages of 6 to 14, focusing on foundational skills such as literacy, numeracy, environmental science, and language studies. In 2001, the landscape of primary education for females faced numerous challenges, despite ongoing efforts to improve access and quality (Figure 1). Gender disparities persisted, with girls encountering greater obstacles in both accessing and remaining in school compared to boys. Contributing factors included poverty, cultural norms, early marriage, and domestic responsibilities, all of which posed significant barriers to girls' enrolment and consistent attendance. Although enrolment rates for girls had gradually improved, substantial gender gaps remained, particularly in rural and marginalized areas. Many girls either remained unenrolled or dropped out prematurely due to a range of socio-economic pressures. Additional concerns included inadequate school infrastructure, a shortage of qualified teachers, and the limited relevance of curricula—issues that were especially pronounced in remote and underserved regions and that disproportionately affected girls' educational experiences and outcomes. Recognizing the critical link between health and education, efforts were undertaken to enhance health and hygiene facilities in schools. Initiatives focusing on menstrual hygiene management, improved sanitation, and school nutrition programs aimed to create a more supportive and inclusive learning environment for girls.

Secondary education for girls, typically covering ages 14 to 18, represents a shade of perseverance and hope. In 2001, although some improvements had been made at the secondary education level (Figure 2), significant challenges persisted. The quality of secondary education varied widely across regions, with disparities in teaching standards, curriculum relevance, and infrastructure—issues that were particularly pronounced in rural areas. Many schools lacked adequate facilities and qualified teachers, adversely affecting the learning experiences of both male and female students. Girls, however, faced additional challenges stemming from societal expectations and the limited resources allocated to their education. Gender disparities were especially stark in certain regions and among marginalized communities, where intersecting barriers related to caste, religion, and socio-economic status further hindered girls' access to education. These disparities were reflected in lower enrolment rates, higher dropout rates, and reduced educational opportunities for female students. Non-governmental organizations (NGOs) and civil society groups played a vital role in complementing government initiatives by addressing specific obstacles—such as offering scholarships, mentorship programs, and advocating for policy reforms. Despite these efforts to expand opportunities for girls' secondary education in India in 2001, substantial challenges remained in achieving gender equity and ensuring quality education for all.

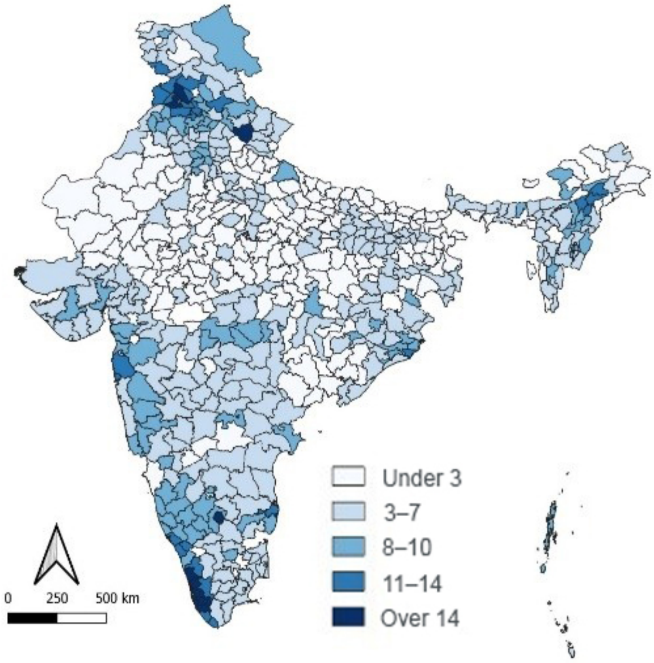
In 2001, tertiary education for females in India reflected both progress and persistent challenges (Figure 3). Tertiary education served as a pivotal force in empowering women by enhancing their skills, knowledge, and economic prospects. Educated women increasingly contributed to the workforce, household incomes, and the dismantling of traditional gender norms. However, fewer females accessed higher education compared to their male counterparts. While female enrolment surpassed that of males in fields such as the humanities and social sciences—signaling a shift in traditionally gendered academic interests—significant gender gaps remained in Science, Technology, Engineering, and Mathematics (STEM) disciplines, with fewer women pursuing education and careers in these areas. Moreover, disparities in the quality of tertiary education were evident, with institutions differing in infrastructure, faculty resources, and academic standards. Many colleges and universities struggled to offer a supportive learning environment for female students, facing ongoing issues related to safety, accessibility, and the availability of gender-sensitive facilities. In response, the Government of India implemented several initiatives, including scholarships, grants, and affirmative action policies designed to increase female enrolment in higher education. Despite these measures, ensuring equitable access to and quality within tertiary education for women remained a critical concern demanding continued focus and intervention. The state-level data on dowry deaths in India refer to instances in which a bride either commits suicide or is killed by her husband and his family shortly after marriage due to dissatisfaction with the dowry. According to the 2001 Census data depicted in Figure 4, Uttar Pradesh reported the highest incidence of such tragic events, accounting for over 25.8% of the total cases involving women.

Figure 1. Regional disparities in primary educational attainment among the female population (2001, %)



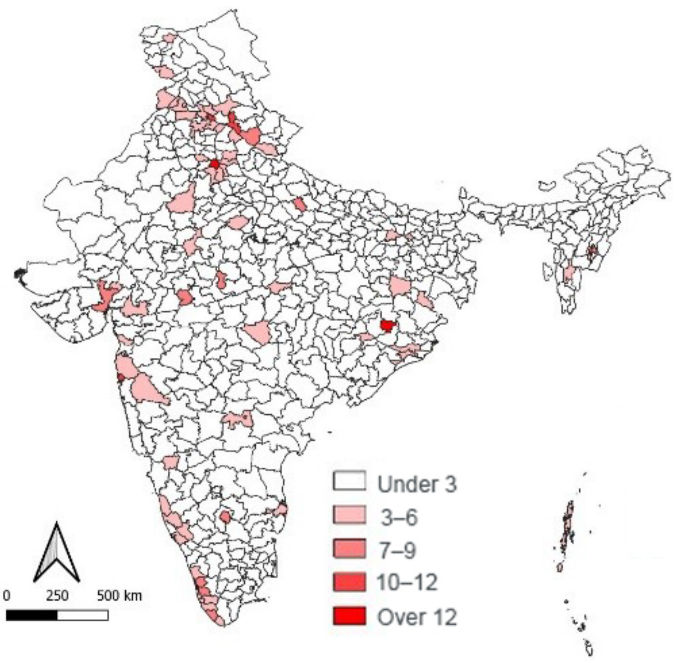
Source: Census of India 2001

Figure 2. Regional disparities in secondary educational attainment among the female population (2001, %)



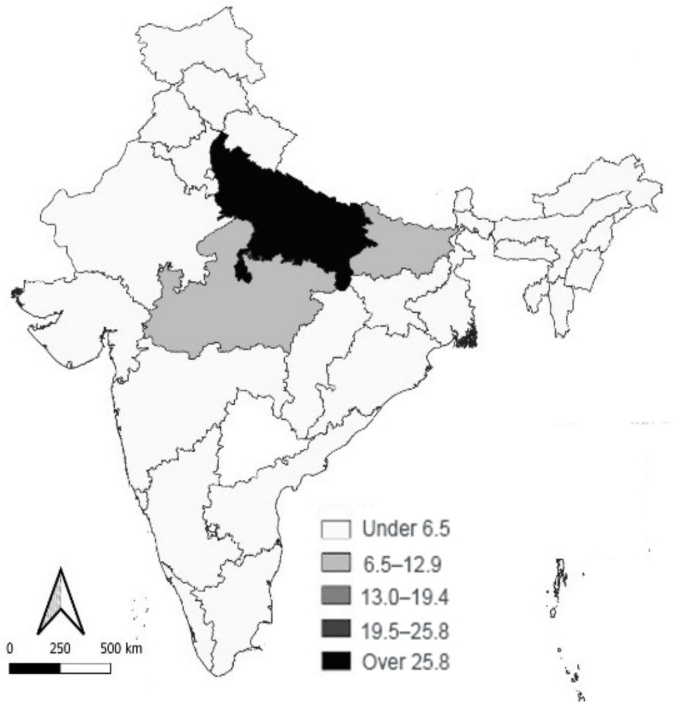
Source: Census of India 2001

Figure 3. Regional disparities in tertiary educational attainment among the female population (2001, %)



Source: Census of India 2001

Figure 4. Spatial concentration of dowry deaths among the female population (2001, %)



Source: NCRB report 2001

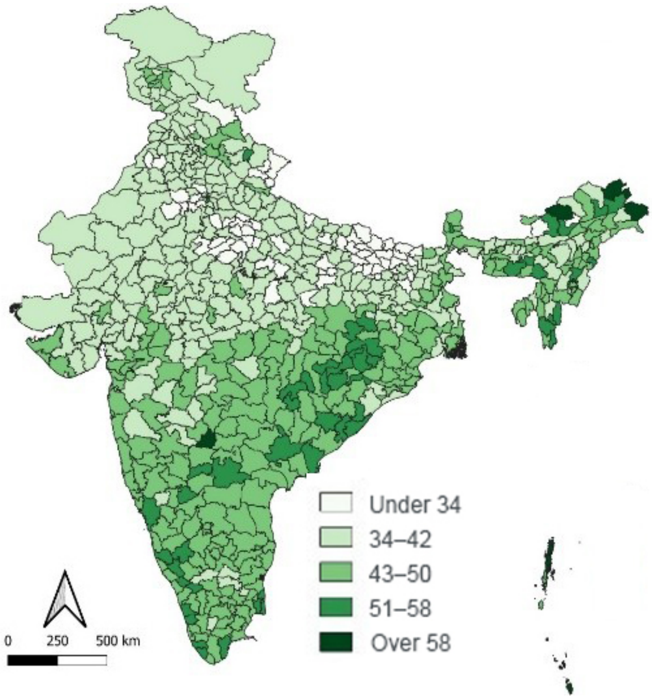
Education attainment and dowry-related domestic violence in 2011

In 2011, the primary education rate for females in India reached 65.46 percent (Figure 5), reflecting a 38 percent increase compared to 2001. However, myriad challenges emerge as girls transition to secondary education. By 2011, the female secondary education rate had surpassed 47 percent (Figure 6), marking a 33 percent increase from 2001. Despite this progress, the dropout rate among girls at the primary and middle school levels remained high. According to the NSSO Survey, contributing factors include lack of interest in studies, financial constraints, responsibility for household chores—predominantly borne by girls—obligations to work on family farms or businesses, early marriage, limited proximity to educational institutions, unsafe transportation, and inadequate facilities such as proper toilets, sanitation, and hygiene standards. These barriers collectively hinder girls' continued education, perpetuating cycles of inequality and limiting access to learning opportunities.

A comparison of tertiary education participation among females between the 2001 and 2011 Census years reveals significant progress (Figure 7). By 2011, the female tertiary education rate exceeded 16 percent, indicating a substantial increase in enrolment and participation over the decade. This advancement can be attributed to several factors, including government initiatives promoting gender equity in education through scholarships, financial aid programs, and awareness campaigns emphasizing the importance of girls' education. Additionally, evolving societal attitudes toward women's education and its long-term benefits have supported increased enrolment. Enhanced infrastructure and expanded access to higher education institutions have also played a critical role in encouraging female participation in tertiary education.

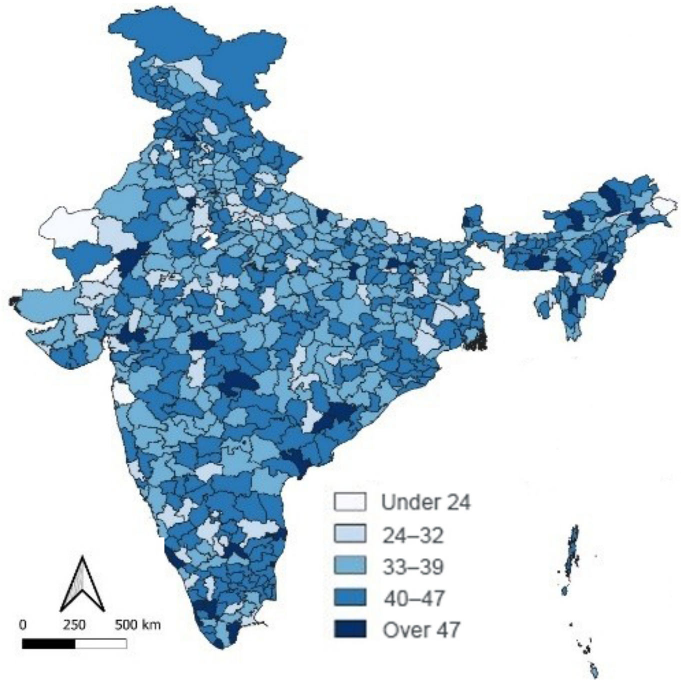
According to NCRB data from 2011, Uttar Pradesh reported the highest incidence of dowry-related deaths, accounting for over 21 percent of such cases involving women (Figure 8). In comparison, the 2001 NCRB data also identified Uttar Pradesh as having the highest incidence, with over 25.8 percent. This reflects a decrease of approximately 4.8 percent over the decade.

Figure 5. Regional disparities in primary educational attainment among the female population (2011, %)



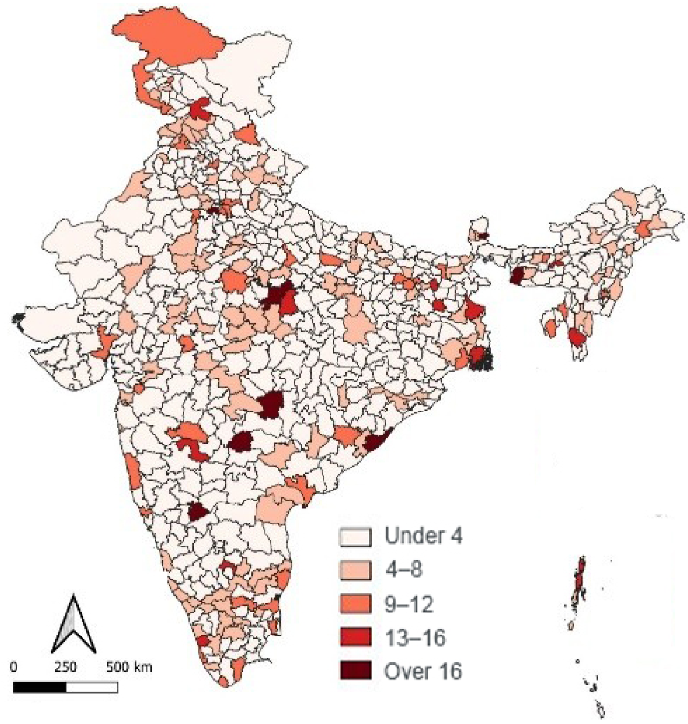
Source: Census of India 2011

Figure 6. Regional Disparities in Secondary Educational Attainment among the female population (2011, %)



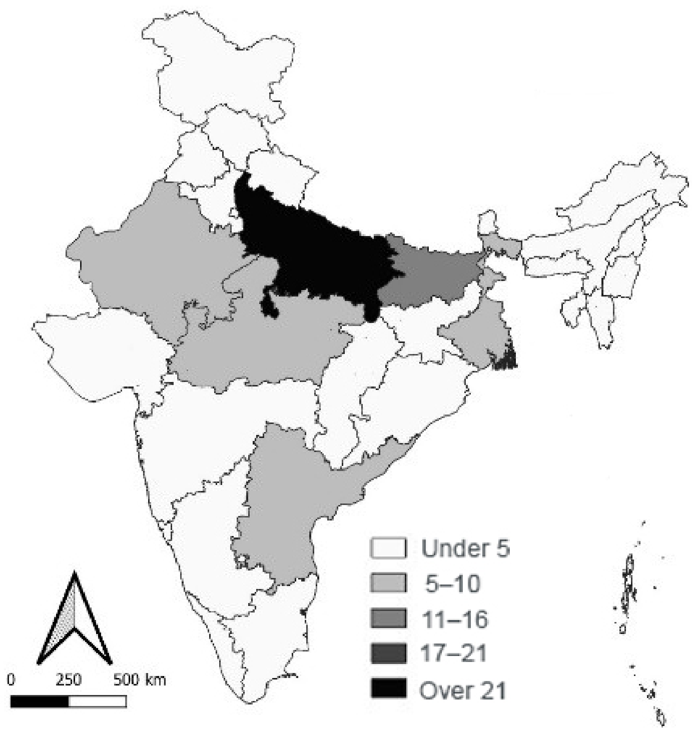
Source: Census of India 2011

Figure 7. Regional Disparities in Tertiary Educational Attainment among the female population (2011, %)



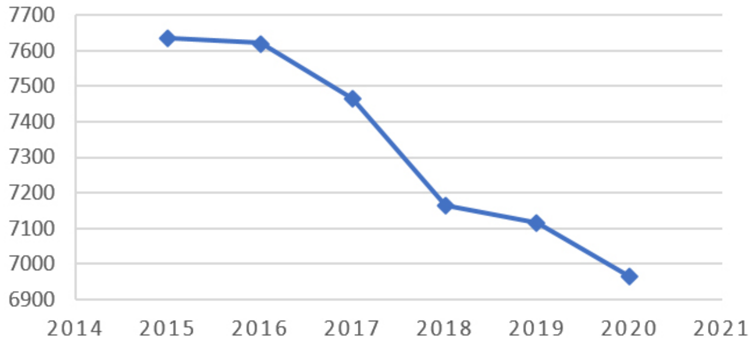
Source: Census of India 2011

Figure 8. Spatial Concentration of Dowry Deaths among the female population (2011, %)



Source: NCRB report 2011

Figure 9. Dowry Deaths (2015–2020)

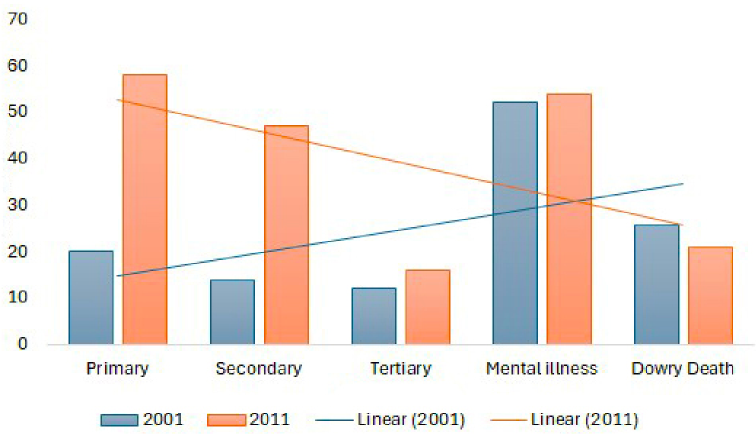


Source: National Crime Reports Bureau

Dowry remains a primary cause of domestic violence against women in India. However, a positive trend has emerged, with a gradual decline in dowry-related deaths over the years (K & Sumathy, 2022). Based on this analysis, it can be concluded that as girls' education levels increase, instances of dowry deaths tend to decrease. This correlation highlights the significant role education plays in mitigating dowry-related fatalities. Educated girls are more likely to be aware of their rights, empowered to make informed decisions, and equipped with the skills and opportunities necessary to pursue independent livelihoods. These factors may contribute to shifting societal attitudes toward dowry practices and reducing the prevalence of such harmful traditions. Therefore, investing in girls' education stands out as a critical strategy for addressing the complex issue of dowry deaths and advancing women's empowerment.

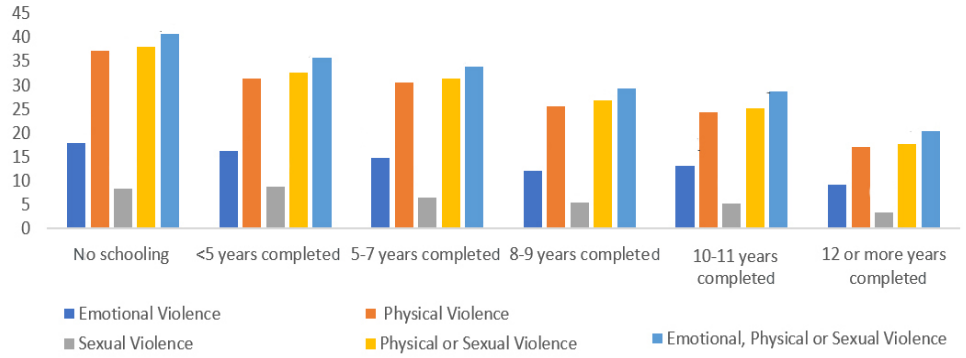
The data were analyzed by categorizing the sampled participants into two groups: women who had experienced domestic violence and those who had not. It was found that 22 women had faced domestic violence, of whom 5 were currently experiencing it. Notably, all the women who reported domestic violence were educated, and some were also employed and earning a livelihood. However, a recurring factor in many cases was financial constraint, which limited access to education and healthcare services.

Figure 10. Direction of change in selected indicators between 2001 and 2011



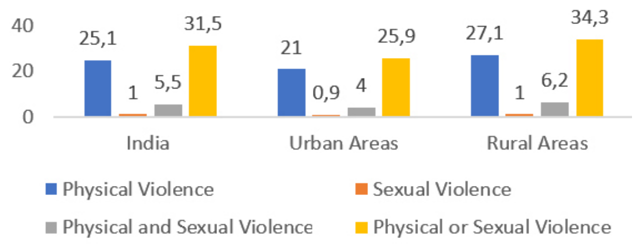
Source: Census of India (2001, 2011); National Crime Reports Bureau

Figure 11. Spousal violence based on schooling (Percentage of ever-married women Age 18–49; NFHS-5)



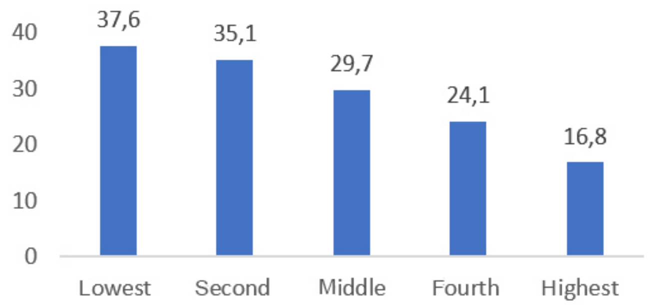
Source: National Family and Health Survey–5

Figure 12. Different types of Violence (Percentage of women age 18-49 (NFHS-5)



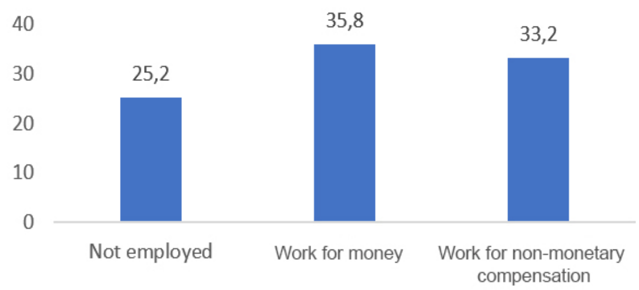
Source: National Family and Health Survey–5

Figure 13. Percentage of women experienced physical violence since age 15 (NHFS-5) based on wealth



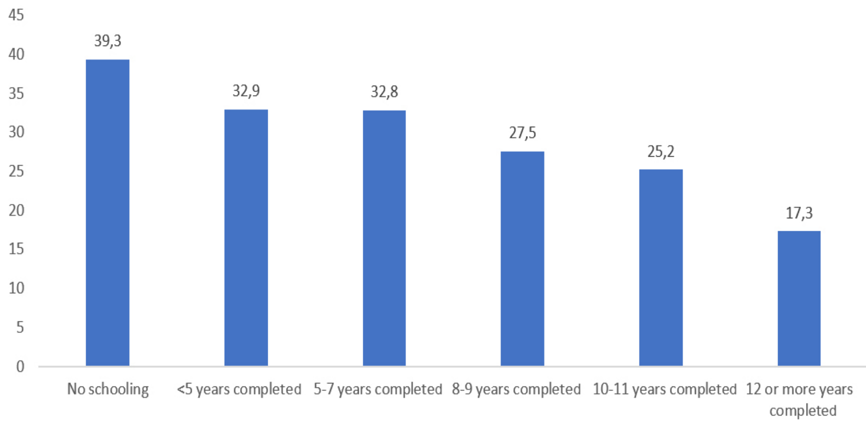
Source: National Family and Health Survey–5

Figure 14. Percentage of women experienced physical violence since age 15 (NHFS-5) based on employment status



Source: National Family and Health Survey–5

Figure 15. Percentage of women experienced physical violence since age 15 (NFHS-5) based on schooling



Source: National Family and Health Survey–5

The women reported experiencing various forms of abuse, including emotional, physical, psychological, financial, and sexual violence. Despite frequent (monthly or occasional) occurrences of abuse, many did not seek external help due to a lack of awareness, feelings of embarrassment, and insecurity. Several women cited financial dependency on their abuser as a primary reason for not seeking assistance. Although some attempted to reach out to friends and family, they remained victims of abuse.

Women from vulnerable backgrounds—those with limited financial resources and belonging to marginalized communities—were found to be at a heightened risk of experiencing spousal violence. Additionally, residing in social environments characterized by harmful norms, high domestic crime rates, and the prevalence of underage marriage increased the likelihood of spousal abuse (Ahmad et al., 2021). According to Mondal and Paul (2023), the prevalence of intimate partner violence (IPV) included 27.4% of women reporting physical violence, 12% emotional violence, and 6.7% sexual violence. Furthermore, nearly 24.5% of women experienced violence-related injuries.

Women who had not experienced domestic violence reported being informed about it and believed financial dependency was a major contributing factor. However, the survey data challenged this assumption, revealing that a significant number of women facing domestic violence were employed. This indicates that financial independence alone does not guarantee protection from abuse.

Many women remain unaware of their rights, and even those who are informed often hesitate to act due to societal pressures. It is therefore essential to establish accessible and trustworthy spaces where women can safely report domestic issues. Increasing female representation across sectors, ensuring equal opportunities, and enforcing gender equality must become actionable priorities rather than rhetorical commitments. Strict measures should be taken to hold abusers accountable, and continuous monitoring is necessary to ensure effective implementation and periodic review of relevant policies.

Data from the National Family Health Survey (NFHS) reveal further insights: women's experience of physical violence increases with age, rising from 16% among women aged 18–19 to 32% among those aged 40–49. Violence is less common among never-married women than among those who have ever been married. Spousal violence also declines with higher levels of education (Figure 11). Physical violence is more prevalent in rural areas (31%) than in urban settings (24%) (Figure 12). Significantly, the incidence of violence sharply declines with increased schooling and wealth. Among women with no formal education, 39% reported physical violence, compared to just 17% among those with 12 or more years of education (Figure 13). Similarly, violence affects 38% of women in the lowest wealth quintile, in contrast to 17% in the highest (Figure 14).

The NFHS data also reinforced findings from the current analysis: women who are employed are more likely to experience physical violence than those who are not. For instance, 36% of women working for cash reported experiencing physical violence since age 15, compared to 25% of unemployed women (Figure 15).

Age-specific trends in education and domestic violence: survey evidence from Uttar Pradesh

A survey conducted in Uttar Pradesh among 102 women revealed key patterns related to demographics, educational attainment, and experiences of domestic violence. Approximately half of the respondents were aged 18–24, predominantly single and engaged in tertiary education, with students comprising the majority. Reported barriers to education included safety concerns, financial constraints, prevailing cultural norms, and a lack of awareness regarding governmental support schemes. Notably, only 29 participants reported being aware of such programs, while 22 were not (Figure 16).

Among respondents aged 25–34 (Figure 17), most were either employed or enrolled in tertiary education. Urban, married homemakers within this group often reported cultural and financial challenges encountered during their educational trajectories. In the 35–44 age group (Figure 18), a significant number of educated and employed women reported experiencing domestic violence. Many chose silence, often due to social stigma or economic dependency. Importantly, experiences of violence were not confined to marital settings; some single students also reported such incidents.

Respondents identified illiteracy, male behavioral patterns, and alcohol abuse as key contributing factors to domestic violence. While some participants had received education on the issue, a substantial number reported feelings of disempowerment or a lack of knowledge about available resources. The minimal participation of women aged 44 and above suggests persistent challenges in reaching older cohorts.

These findings underscore the complex interplay between education and domestic violence, highlighting the need for comprehensive awareness campaigns, accessible support systems, and age-specific governmental interventions aimed at empowering women across the life course.

Figure 16. Distribution of education levels and occupations among respondents aged 18–24

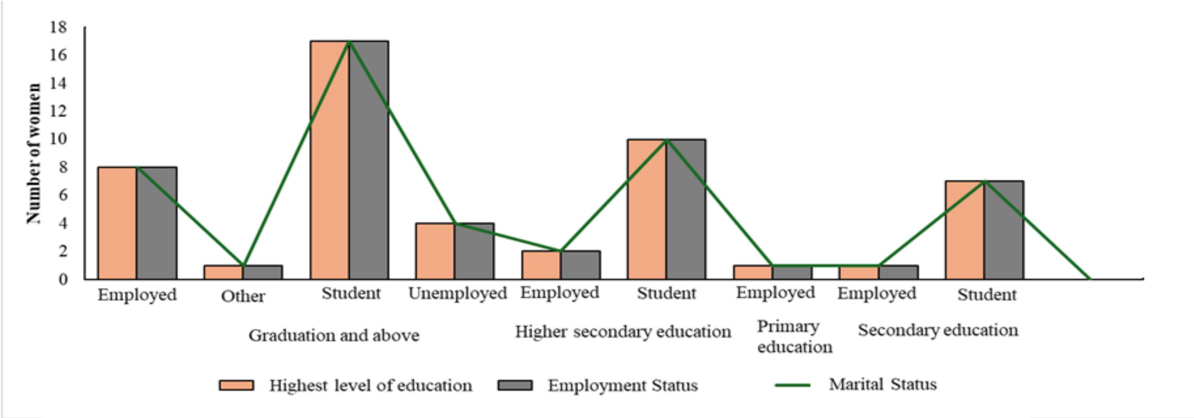


Figure 17. Distribution of education levels and occupations among respondents aged 25–34

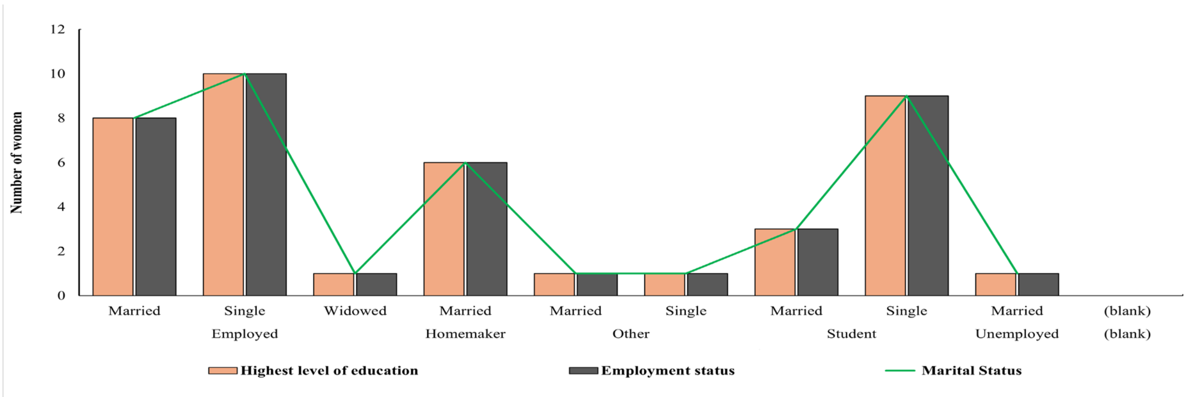
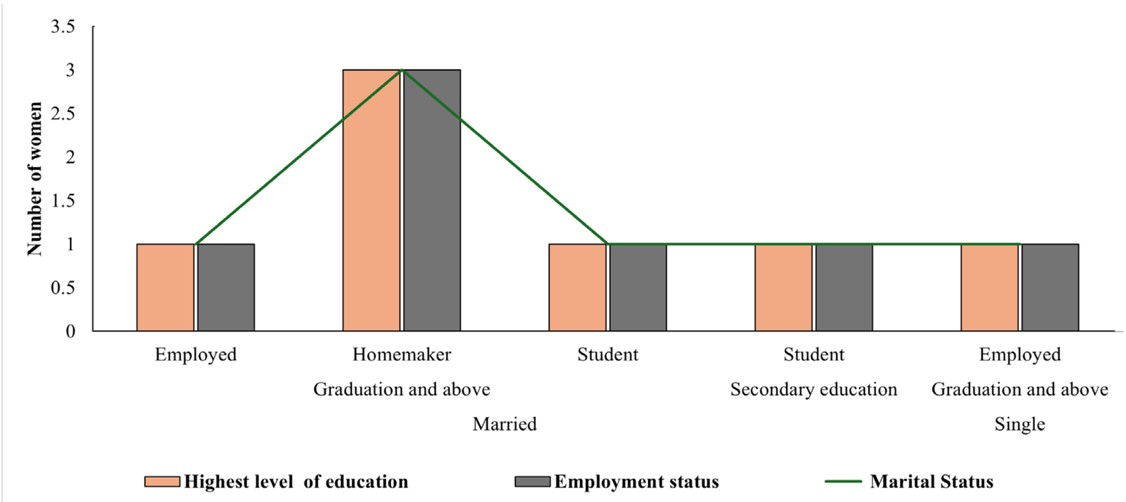


Figure 18. Distribution of education levels and occupations among respondents aged 35–44



CONCLUSIONS

The analysis reveals distinct spatial and temporal patterns in female educational attainment and domestic violence across the study period. GIS-based maps effectively illustrate regional variations in female education levels, highlighting areas with both high and low attainment rates. Similarly, states with varying incidences of domestic violence were mapped, offering a comprehensive spatial perspective on these social issues.

Statistical analysis confirms a significant inverse relationship between female education levels and the prevalence of domestic violence. Higher levels of female education are consistently associated with lower incidences of intimate partner violence, indicating that education functions as a protective factor. This finding underscores the critical importance of investing in female education as a strategy for reducing domestic violence and advancing gender equality. Interestingly, the sampled data revealed that employed women were more likely to face domestic violence compared to their unemployed counterparts, suggesting the need for further investigation into the socio-cultural dynamics influencing this trend.

Temporal analysis identifies evolving patterns in both female education and domestic violence, reflecting broader shifts in socio-economic conditions and cultural norms that shape gender relations. For instance, regions experiencing rapid economic development often show improvements in female education and corresponding declines in domestic violence. This may reflect changing societal attitudes towards gender roles and increased female empowerment. Conversely, regions facing economic hardship or social instability may witness stagnation or declines in education attainment, exacerbating women's vulnerability to violence.

The integration of National Family Health Survey (NFHS) data corroborates findings from the primary sample survey, enhancing the reliability and robustness of the overall analysis. The use of GIS technology enables the visualization of complex spatial relationships, assisting policymakers in identifying high-priority areas for targeted intervention and efficient resource allocation. By pinpointing hotspots of domestic violence and educational disparity, this study offers a strategic framework for designing context-specific policies and initiatives aimed at addressing root causes and empowering women to break free from cycles of abuse.

This research highlights the utility of GIS-based mapping and census data analysis in exploring temporal changes in female education and domestic violence. By illuminating the interplay between education, socio-economic conditions, and gender-based violence, the study contributes valuable insights to the fields of gender studies, social policy, and public health. To effectively reduce domestic violence and promote gender equity, comprehensive, evidence-based strategies are essential—ones that address both the symptoms and structural determinants of inequality.

Future research on domestic violence against women in India should adopt an intersectional lens to examine how overlapping forms of discrimination—such as caste, class, religion, and geographic location—compound vulnerability. Further investigations should evaluate the effectiveness of existing interventions, explore the role of digital technologies in addressing violence, examine the psychological impact of abuse on survivors and their children, and assess the healthcare sector's role in prevention and response. Additionally, in-depth studies on socio-economic determinants can provide a deeper understanding of risk factors and inform more nuanced, effective strategies to support survivors and combat domestic violence in India.

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