E-ISSN 2240-0524
ISSN 2239-978X

Journal of Educational and Social Research
www.richtmann.org

Vol 15 No 2
March 2025

Research Article

Received: 25 November 2024 / Accepted: 10 February 2025 / Published: 06 March 2025

Correlation Between Emigration, Birth Rate and Reduction of the Number of Students in Kosovo During the Last Decade (2013-2022)

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DOI: https://doi.org/10.36941/jesr-2025-0049

Abstract

The decline in the number of students is a very serious issue in the Republic of Kosovo as a result of numerous economic, social and political challenges. On the other hand, Kosovo in the last decade had a high rate of emigration and a continuous decrease in the birth rate. Thus this study aims to analyze these two factors and identify their impact on the decrease in the number of students. In this scope, this paper attempts to analyze the relationship between the decline in the number of students in Kosovo's schools and demographic factors such as emigration and birth rate. The analysis of the correlation between these variables constitutes an important issue for the planning of education and social policies in Kosovo. To concretize this research, statistical data on the number of students, the number of immigrants and the number of births in Kosovo for the period between 2013-2022 were used. Then the Pearson correlation coefficient was used to prove the degree of connection or impact of emigration and birth rate to the decline in the number of students. The conclusions of the study aim to provide a scientific and data-driven basis for government institutions at the central and local level to design sustainable educational and social policies.

Keywords: *Migration, Natality, Education, Primary School, Pierson's Correlation*

1. Introduction

In recent decades, many countries have experienced a significant decline in the number of students enrolled in school. This phenomenon is also quite present in Kosovo, which has raised great concerns among the educational community and policymakers, requiring an in-depth analysis of the factors that contribute to this trend. Two of the most important factors that have a direct impact are emigration and birth rate.

Emigration, which involves people leaving their country to live in other countries, often occurs because of the search for better economic, educational, and social opportunities. Kosovo is historically known as an emigrating country, with a tendency to continuously increase its emigration rate. This process particularly affects the population of the reproductive age and families with children, resulting in a decrease in the number of students enrolled in local schools.

However, birth rate, which refers to the number of births in a population, has shown a downward trend in many countries for various reasons, including economic factors, changes in cultural norms, and family planning policies. These factors have also influenced the decline in birth rate in Kosovo, especially over the last two decades. A decline in birth rate means fewer children entering the education system, further contributing to the decline in the number of students.

In this context, it is essential to understand how these two demographic phenomena–emigration and birth rate–influence interact with each other to shape the number of students in schools. Such analysis will not only shed light on the causes of this phenomenon but will also help in the development of policies and strategies to address the challenges associated with the decline in the number of students in Kosovo.

2. Methodology

To study the correlation between the drop in the number of students, immigration, and birth rate in Kosovo, a research methodology was used that includes the following steps:

- Collection and preparation of the database: statistical data on the number of students, immigration, and birth rate in Kosovo for the years 2013-2022 were collected. Data on the number of students were taken from the education statistics in Kosovo published by the Ministry of Education, Science, Technology, and Innovation. Data on Kosovo's emigration were obtained from the Statistics Agency of Kosovo, the Ministry of Internal Affairs, the Central Authority for Migration, and other international organizations such as the IOM. Data on the birth rate or number of births in Kosovo were obtained from the Statistics Agency of Kosovo, including annual publications such as the statistics of births in Kosovo for each year of the last decade. The collected data cover the 10-year period of 2013-2022, which also comprises the time scope of the research.
- Preliminary trend analysis and data visualization: creation of a unified dataset containing data on the number of students, immigration, and birth rate during the study period. The results of these data are presented as trends and graphs for each year of the research period. The trends of the increase or decrease in the three variables as well as the influencing factors were also analyzed.
- Pearson's Correlation Analysis presents the strength and direction of the relationship between variables. The Pearson correlation ranges from -1 to +1. A positive value indicates a direct relationship, whereas a negative value indicates an inverse relationship. If the values are 0, there is no correlation between the variables, while when the values are as close as possible to 1 and -1, there is a very high correlation or connection. A statistical method of correlation was used to analyze the influence of emigration and birth rate on reducing the number of students. Using the correlation formula, the correlation coefficient was interpreted to understand the connection and influence of immigration and birth rate on the decline in the number of students. Furthermore, correlation graphs were prepared to visually present the degree of connection between variables.
- Interpretation of results and preparation of the final report: All findings and results are summarized at the end of this research. The findings are presented as to whether emigration and birth rate have an impact on reducing the number of students in Kosovo schools and the degree of impact. Education and migration policies are proposed based on the results of this study. Proposals for further studies to deepen the analysis and provide better solutions to the identified issues have also been made.

2.1 Literature Review

The relationship between declining student numbers, emigration, and fertility rates is a complex and multifaceted issue that is influenced by various economic, social, and demographic factors. This literature review aims to synthesize recent research findings on this topic, highlighting key trends and theoretical frameworks. In this regard; the 'Pew Charitable Trusts (2024), claims that as birth rates decline the number of children entering the education system decreases. Which was discussed along with the Penn Wharton Budget Model (2020) that is mainly based on correlating the economic factor and the birth rate, and thus the general numbers of the students. Consecutively, M. Brown and L. Davis (2022), which correlate the impact of education on the decreasing number of births rather than vice versa, were also discussed along with the KNOMAD Report (2019), which discusses how international migration leads to reduced fertility due to new economic opportunities, cultural integration, and better access to family planning services; all of these factors have a negative impact on the number of newly enrolled students in the education system. Furthermore, the classical demographic transition theory, which suggests that as countries develop economically and socially, they experience declines in both fertility and mortality rates, eventually leading to lower population growth and fewer students, was also discussed.

According to The Pew Charitable Trusts (2024), as birth rates decline, the number of children entering the educational system decreases. This trend is evident in several countries and regions. For instance, the National Center for Education Statistics projects a 4.4% decline in U.S. public school enrollment from 2021 to 2030, primarily because of lower fertility rates. This reduction is more stressed out in areas already experiencing population decline, such as rural regions and some states, such as West Virginia and New Mexico.

The Penn Wharton Budget Model (2020) argues that multiple studies have documented a significant decline in fertility rates across the globe influenced by a range of factors. Economic uncertainty, high unemployment rates, and rising cost of living are primary economic determinants that reduce fertility rates. For instance, this study emphasizes how economic pressure leads to fewer children, as families prioritize financial stability over larger family sizes. On the other hand, Brown and Davis (2022) argued that increased access to education, particularly for women, has been identified as a crucial social factor. Research has highlighted that higher education levels correlate with delayed marriage and childbirth, ultimately reducing fertility rates. This trend is evident in many low-fertility countries where higher educational attainment is linked to smaller family sizes.

Furthermore, the KNOMAD Report (2019) suggests that emigration, particularly among reproductive-aged individuals, significantly affects fertility rates in both origin and destination countries. Studies have shown that migrants often adapt to the fertility norms of their destination countries, which typically have lower fertility rates than their country of origin. For example, the report discusses how international migration leads to reduced fertility owing to new economic opportunities, cultural integration, and better access to family planning services. Hoem and others (2001), in the context of internal migration, research finds that rural-to-urban migration in countries like Austria results in lower fertility rates due to changes in living conditions and lifestyle adaptations. Similarly, studies on China's internal migration have revealed that rural migrants to urban areas experience a decline in fertility rates due to economic pressure and changing social norms.

Chen (2020) relates the decrease in student numbers to fertility rates by arguing that the decline in fertility rates directly influences the number of school-aged children, leading to a decrease in the number of students in educational institutions. Chen illustrated how reduced fertility rates result in fewer children entering the school system, which can have long-term implications for educational planning and resource allocation. This trend is compounded by emigration, as families moving abroad or to urban centers contribute to the depopulation of rural schools. Lutz et al. (2014) discuss the "education dividend" which accompanies a demographic dividend. They argue that as fertility rates decline, countries can invest more resources per child, potentially improving educational outcomes despite a reduction in the number of students.

Finally, the Integrated Theoretical Framework integrates several theoretical models to explain observed correlations. Classical demographic transition theory suggests that as countries develop economically and socially, they experience declines in both fertility and mortality rates, eventually leading to lower population growth and fewer students. Migration theories, such as those discussed by Kulu and Billari (2004), complement this by examining how migration flows influence demographic patterns and educational dynamics in both sending and receiving regions.

3. Analysis

3.1 Theoretical implications The decline in the number of students in Kosovo

The decline in the number of students in Kosovo has occurred continuously in recent years. This phenomenon reflects demographic, social, and economic changes, and has important implications for the education system and the overall development of Kosovo. The organizational structure of the pre-university education system in Kosovo is organized into four levels: Pre-school education, which includes ages zero to six years, Primary Education lasts five years (from the age of six or grades 1 to 5), Lower Secondary Education lasted four four years (from the age of 12 or grades 6 to 9), and Upper Secondary Education lasted three years (from the age of fifteen or classes 10, 11, and 12) based on the curriculum determined by the Ministry of Education (Fig 1).

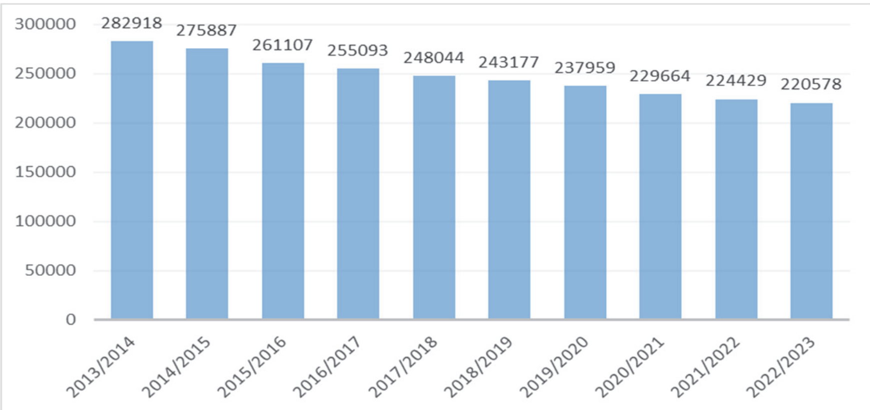

Figure 1. Declining number of students in the Republic of Kosovo over the years
Source: Authors' elaboration

The decline in the number of students in Kosovo's schools is a complex phenomenon conditioned by various economic, social, and demographic factors. Economic uncertainty, high unemployment rates, and rising cost of living are primary economic determinants that reduce fertility rates. Economic pressure leads to fewer children, as families prioritize financial stability over larger family sizes (Penn Wharton Budget Model). During the last few years, Kosovo has experienced a relatively high emigration rate. The emigration of families from Kosovo to seek better work or living conditions has influenced the reduction in the number of students in schools and the number of births. The number of births has markedly decreased every year, therefore the number of students enrolled in schools has been decreasing continuously. Economic and social conditions have led to couples having fewer children. Urbanization and internal migration with changes between urban and rural populations also have a significant impact on the number of students and the education system.

Declining student numbers is a symptom of broader demographic problems such as an aging population. These problems can affect the power of future workers, as well as the economic stability of the country. Continuous study and monitoring of immigration trends, birth rates, and other economic and social factors are essential for developing effective policies that can help mitigate these impacts.

The continuous decrease in the number of students is accompanied by numerous effects such as the possibility of closing schools due to the lack of students and insufficient resources, the increase in the distance that children must travel to school, and the loss of jobs for teachers and other school staff. It can also lead to combining classes to optimize resources, while such a possible optimization could bring out challenges for teachers who have to deal with different academic levels within the same class and could have an impact on the quality of education. Furthermore, closing or consolidating schools can affect the sense of community and opportunities for social engagement of children and parents.

3.2 The changes of the number of Kosovo emigrants

Today, migration has become an increasingly powerful determinant of the transformation of movement and demographic structure as well as the way of life of people in general. The creation of settlements, the changes in their size, and demographic and social characteristics have been influenced by emigration and immigration of the population' (Islami, 2008, pg. 255).

A person is considered an immigrant if he/she has left his/her own country of birth to settle permanently in another country regardless of whether he/she has any special status in the country to which he/she has immigrated. The person who settled in the country that migrated (settled) was considered a resident of the country (Albania IOM).

Migration waves result from political, social, and economic gaps within countries, but they can also result from outside circumstances. The combined push and pull factors generate migration flows of educated and mobile people from lower-income to higher-income countries, and the flows are likely to continue in the future (Handler, Heinz 2008). It is known that, in general, developed countries are immigration countries, while underdeveloped countries are emigrating countries. In terms of migration, Kosovo belongs to the group of emigrating countries. The high rate of emigration in Kosovo has been influenced by various factors, including the low rate of economic and social development, unfavorable political and security circumstances during different periods of history, and demographic development characteristics.

According to the 2011 census, Kosovo had 380,826 immigrants or about 22% of the resident population who had migrated in different periods of time and were distributed in different countries of Europe and the world. To analyze the trend of emigration for the period 2013-2022, emigration data were obtained from the Statistics Agency of Kosovo and the Governmental Authority for Migration. The data below show that in the last ten years, a significant and continual change in emigration has occurred (Fig.2).

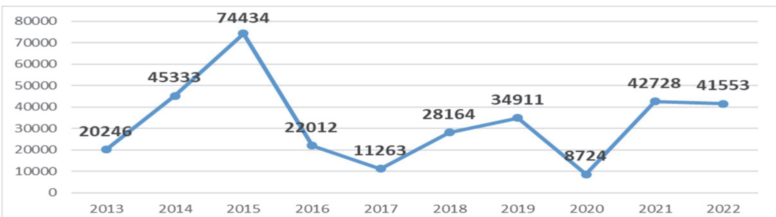

Figure 2. The number of immigrants who went from Kosovo to other countries through years
Source: Authors' elaboration

According to the data from the graph, emigration from Kosovo increased significantly from 2013 to 2015, remarking the highest emigration period within the scope of this article (2013-2022). The emigration rate declined in 2016 and 2017, but rose again in 2018 and 2019. The lowest emigration rate occurred in 2020 as a result of the pandemic. Since 2020, more than 40 thousand people have emigrated from Kosovo annually. These people have mainly emigrated to EU countries, particularly to Germany.

3.3 The changes of the number of Kosovo emigrants

The birth rate in Kosovo changed significantly during different periods. As in many other countries, the birth rate in Kosovo was very high, especially after the Second World War, until the 2000s. During this period, Kosovo recorded over 50 thousand births per year, consisting of over 40 per thousand births. The downward trend in the birth rate began after 2000 and has continued until recent years. As part of this research, the number of births in Kosovo in the last 10 years (2013-2022) was analyzed (Fig.3). During this period, there was a continuous decrease in the number of births.

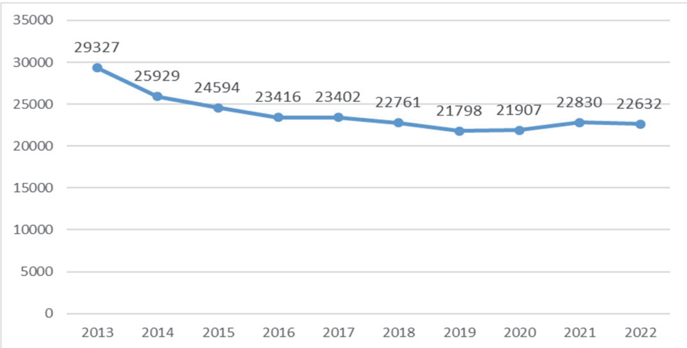

Figure 3. Number of births in Kosovo through years
Source: Authors' elaboration

The number of births in Kosovo in 2013 was 29,327, and this number markedly decreased in the following years. In 2022, there were 22,632 births or 6,695 births compared to 2013. A combination of economic, social, cultural, political, and demographic factors has impacted the decline in the birth rate in Kosovo. Economic factors include economic insecurity, high unemployment, high cost of living, and low income. This has negatively influenced the birth rate. There are also other important social, cultural, and political factors that have had a negative impact on birth rates and should be taken into consideration. In this regard, it is important to emphasize that raising the level of education, especially for the female gender (Brown and Davis, 2022), internal migration to urban areas and urbanization (Hoem and others, 2001), the promotion of family planning programs (Knomad, 2019), the lack of policies to support families, the increase in the age of biological reproduction, the improvement of health services and reproductive health, etc. have raised the tendency among families to have fewer children. Another important factor that has influenced the decline in the number of births is emigration, especially of the reproductive age and young kites.

3.4 The correlation between the decline in the number of students and emigration

The Pearson correlation method was applied in order to analyze the relationship between the decline in the number of students in Kosovo schools and emigration. This method shows whether there is a relationship or correlation between these variables and the closeness of a possible relationship. After analyzing the statistical data of the number of students (X) and immigrants (Y) for the period 2013 to 2022, a correlation table was prepared for these two variables (Table.1). The degree of correlation was then calculated using the formula, and this was reflected in the correlation graph that visually shows the relationship between these two variables.

Table 1. Correlation between the decline in the number of students in Kosovo schools and emigration in the last decade

School Year	X	X2	Y	Y2	Xi Yi	(X-$\underline{x}$)	(X-$\underline{x}$)²	(Y-$\underline{Y}$)	(Y-$\underline{Y}$)2	(X-$\underline{x}$) * (Y-$\underline{Y}$)
2013/2014	282918	80042594724	20246	409900516	5727957828	35032.4	1227269050	-12690.8	161056404.6	-444589181.9
2014/2015	275887	76113636769	45333	2055080889	12506785371	28001.4	784078402	12396	153665774.4	347110954.7
2015/2016	261107	68176865449	74434	5540420356	19435238438	13221.4	174805418	41497	1722017608	548651080.1
2016/2017	255093	65072438649	22012	484528144	5615107116	7207.4	51946614.76	-10925	119351255	-78739403.52
2017/2018	248044	61525825936	11263	126855169	2793719572	158.4	25090.56	-21674	469753606.4	-3433129.92
2018/2019	243177	59135053329	28164	793210896	6848837028	-4708.6	22170913.96	-4773	22779619.84	22473206.08
2019/2020	237959	56624485681	34911	1218777921	8307386649	-9926.6	98537387.56	1974	3897465.64	-19597093.72
2020/2021	229664	52745552896	8724	76108176	2003588736	-18221.6	332026706.6	-24213	586259683.8	441195956.5
2021/2022	224429	50368376041	42728	1825681984	9589402312	-23456.6	550212083.6	9791	95867597.44	-229668261.9
2022/2023	220578	48654654084	41553	1726651809	9165677634	-27307.6	745705017.8	8616	74238902.44	-235287743.1
	2478856		329368				3986776684		3408887918	+1359431197
	$\underline{x}$=247885.6		$\underline{Y}$=32936.8				398677668.4		340888791.8	-1011314814
							Sx= 19966.914		Sy=18463.17	+348116383

Source: Authors' elaboration

Based on the data in the table, the degree of correlation was calculated using the following formula:

$$Rxy = \frac{(x-\underline{x})*(y-\underline{Y})}{N*Sx*Sy} = \frac{348116383}{10*19966.914*18463.17} = \frac{348116383}{3686631100.218} = 0.094$$

The correlation coefficient of 0.094 represents a very low relationship between the variables. This shows that the considerably high number of immigrants from Kosovo to other countries had a very low correlation with the reduction in the number of students over the last 10 years. If one analyzes the emigration trends during the last 10 years, one can conclude that the number of emigrants has changed significantly from year to year. In 2015, there were over 74,000 immigrants, whereas in 2020 there were only 8,724 immigrants. On the other hand, the number of students enrolled in Kosovo's schools had a continuous decreasing trend, while there were no large fluctuations, such as emigration. If the number of students depended on the number of immigrants, then the values would go next to each other. Another fact that should be taken into consideration is, that emigration has mainly involved active and labor force ages, meaning that children were not involved in emigration, or their involvement was very low when compared to emigration of other family members. Thus, emigration has not had a direct impact on the decreasing number of school students, but its impact has been rather indirect by affecting the reduction of the birth rate (due to emigration of the active age population, available for reproduction); this reduction in the birth rate has influenced the reduction in the number of students in Kosovo's schools.

A correlation graph was prepared to visually present the degree of correlation between emigration and reduction in the number of students. This graph, which is also called a 'scatter diagram,' shows that if the points are scattered, there is no high correlation; on the contrary, if the points are clustered, the correlation between given variables is much higher (Fig.4).

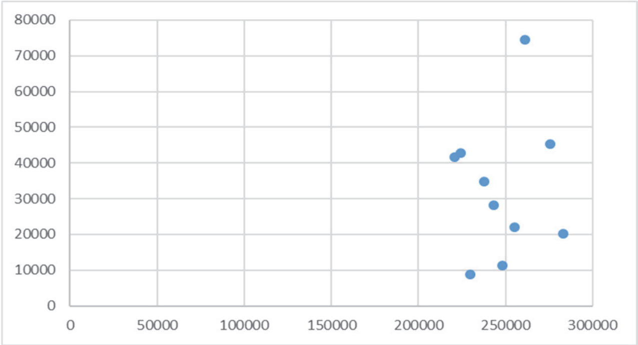

Figure 4. Graph of the correlation between the decrease in the number of students in Kosovo schools and emigration in the last decade
Source: Authors' elaboration

This distribution of points shows a very low correlation between emigration and the decline in the number of students in Kosovo's schools during the last decade.

3.5 *The correlation between the decline in the number of students and the birth rate*

One of the main factors directly affecting the drop in the number of students in schools is the drop in the birth rate. With a decline in births, the number of children entering the education system has decreased (Chen, 2020). This trend is visible in many countries and regions. For instance, the National Center for Education Statistics predicts a 4.4% decline in US public school enrollment from 2021 to 2030, largely due to lower birth rates (Pew Trusts). This reduction is most pronounced in areas already experiencing population decline, such as rural regions and some states, such as West Virginia and New Mexico (Pew Trusts). With declining birth rates, countries can invest more in the potential and opportunities to improve the quality of their children's education (Lutz and others, 2014).

In recent years, the birth rate in Kosovo has been continuously decreasing, and a continuous decrease in the number of students enrolling in schools has also been recorded (Fig.5). Additionally, with the decrease in the birth rate, the base of the Kosovo population pyramid has narrowed significantly.

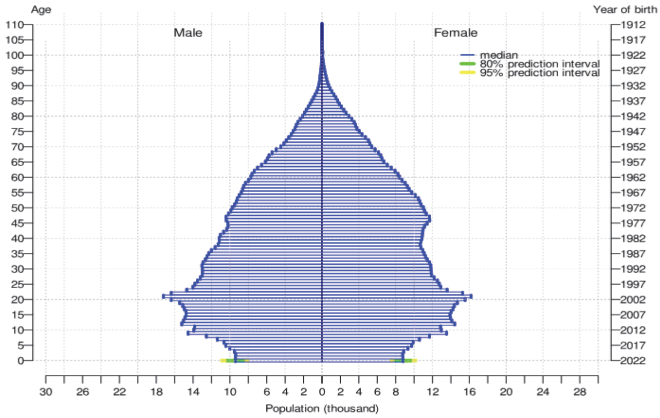

Figure 5. The population pyramid of Kosovo in 2023
Source: https://population.un.org/wpp/Graphs/DemographicProfiles/Pyramid/412

Until 2002, over 36,000 births were registered in Kosovo annually, whereas after 20 years (in 2022), approximately 22,000 births were registered. This high and continuous decline in the birth rate in Kosovo has caused the narrowing of the base of the population pyramid, which also means a continuous reduction in young age groups or school age.

To analyze the correlation between the drop in the number of students in Kosovo's schools and the drop in the birth rate, the Pearson correlation method was applied. The statistical data of the number of students (X) and the number of births (Y) for the period 2013–2022 were analyzed, followed by a correlation table that was prepared for these two variables (Table.2). Subsequently, the degree of correlation was calculated using the formula and a correlation graph was prepared to visually show the correlation between the variables.

Table 2. Correlation between the decline in the number of students in Kosovo schools and birth rate in the last decade

School Year	X	X2	Y	Y2	Xi Yi	(X-$\underline{x}$)	(X-$\underline{x}$)²	(Y-$\underline{Y}$)	(Y-$\underline{Y}$)2	(X-$\underline{x}$) * (Y-$\underline{Y}$)
2013/2014	282918	80042594724	29327	860072929	8297136186	35032.4	1227269050	5467.4	29892462.76	191536143.8
2014/2015	275887	76113636769	25929	672313041	7153474023	28001.4	784078402	2069.4	4282416.36	57946097.16
2015/2016	261107	68176865449	24594	604864836	6421665558	13221.4	174805418	734.4	539343.36	9709796.16
2016/2017	255093	65072438649	23416	548309056	5973257688	7207.4	51946614.76	-443.6	196780.96	-3197202.64
2017/2018	248044	61525825936	23402	547653604	5804725688	158.4	25090.56	-457.6	209397.76	-72483.84
2018/2019	243177	59135053329	22761	518063121	5534951697	-4708.6	22170913.96	-1098.6	1206921.96	5172867.96
2019/2020	237959	56624485681	21798	475152804	5187030282	-9926.6	98537387.56	-2061.6	4250194.56	20464678.56
2020/2021	229664	52745552896	21907	479916649	5031249248	-18221.6	332026706.6	-1952.6	3812646.76	35579496.16
2021/2022	224429	50368376041	22830	521208900	5123714070	-23456.6	550212083.6	-1029.6	1060076.16	24150915.36
2022/2023	220578	48654654084	22632	512207424	4992121296	-27307.6	745705017.8	-1227.6	1507001.76	33522809.76
	2478856		238596				3986776684		46957242.4	378082804.9
X mes	$\underline{x}$ =247885.6		$\underline{Y}$ =23859.6				398677668.4		4695724.24	-3269686.48
							Sx=19966.914		Sy=2166.961	374813118.4

Source: Authors' elaboration

Based on the data in the table, the degree of correlation was calculated using the following formula:

$$Rxy = \frac{(x-\underline{x})*(y-\underline{Y})}{N*Sx*Sy} = \frac{374813118.4}{10*19966.914*2166.961} = \frac{374813118.4}{432675239.283} = 0.866$$

A correlation coefficient of 0.866 represents a highly positive relationship or correlation between the given variables. This shows that, in addition to the reduction in the number of births in Kosovo during the last 10 years, the number of students enrolled in schools has also decreased (Fig.6).

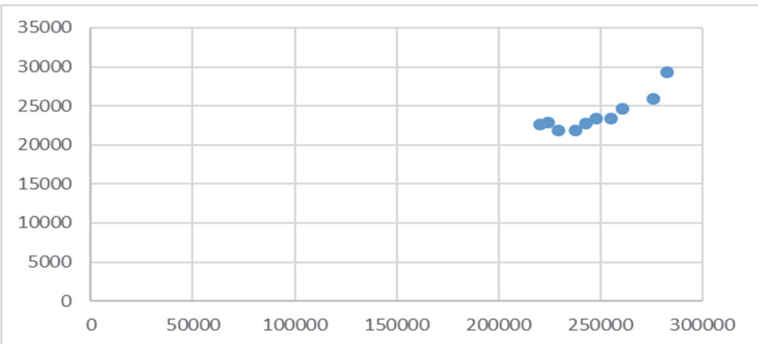

Figure 6. Graph of the correlation between the decline in the number of students in Kosovo schools and the birth rate in the last decade
Source: Authors' elaboration

In the correlation graph, it is easy to conclude that the points are clustered, which shows that there is a high correlation between the birth rate and the decrease in the number of students in Kosovo's schools.

4. Conclusion

Based on the results presented in this research, it was concluded that the number of students in Kosovo's schools has continuously decreased every subsequent school year from 2013 to 2022. In the school year 2013/2014, a total of 282,918 students attended classes in all schools in Kosovo, while 10 years later, in the school year 2022/2023, the number of students was reduced to 220,578. This shows that in the school year 2022/2023 Kosovo has had 62,340 fewer students in grades I to IX compared to the number of students in the school year 2013/2024. In percentage, during the academic year 2022/2023, Kosovo had 22% fewer students than in the school year of 2013/2014 (Fig.7).

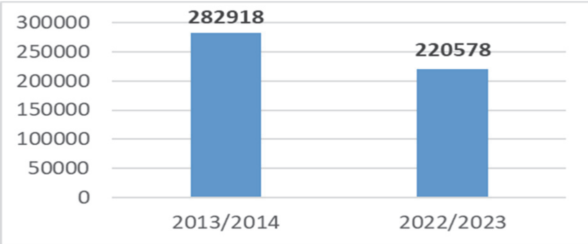

Figure 7. Number of students in the school years 2013/2014 and 2022/2023
Source: Authors' elaboration

The factors that have influenced the decline in the number of students in Kosovo's schools are quite complex and are related to the economic, social, and demographic changes that Kosovo has experienced in the last decade. Two direct factors that influence the drop in the number of students are emigration and a drop in the birth rate. The analysis of the correlation between these two factors and the drop in the number of students has shown that the birth rate has a high correlation, while emigration has a very weak correlation with the given issue. This shows that the main cause of the decrease in the number of students in Kosovo's schools was a drop in the birth rate. The correlation coefficient between emigration and the drop in the number of students was 0.094, indicating a very weak correlation, while the coefficient between the birth rate and the number of students was 0.866, indicating a considerably high correlation (Fig.8).

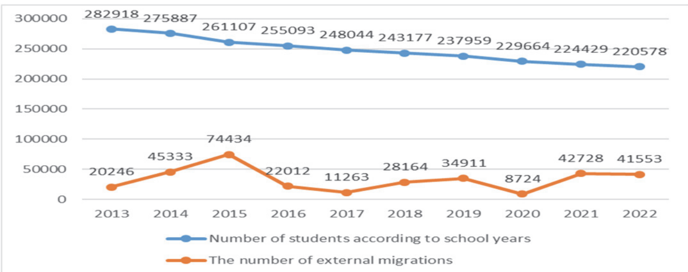

Figure 8. The changes of the number of students and the number of immigrants in Kosovo during the last 10 years
Source: Authors' elaboration

It can be seen from Fig. 8, the trend in the number of immigrants has changed significantly over the 10 years. In 2015, there were over 74,000 immigrants, whereas in 2020, there were only 8,724 immigrants. However, the number of students showed a continuous downward trend throughout the study period. The statistics show that the number of students does not follow the trend of emigration, indicating that there is a weak correlation between these two variables.

The trend of the decrease in the number of students increased along with the trend of the decrease in the number of births in Kosovo. The data for these two variables showed a high positive correlation, with a correlation coefficient of 0.866. Thus, it can be concluded that the decrease in the number of births had a direct impact on the number of students, causing a direct decrease in the latest variable. The data show that the number of students enrolled in Kosovo's schools decreased in parallel with a decrease in the birth rate (Fig.9).

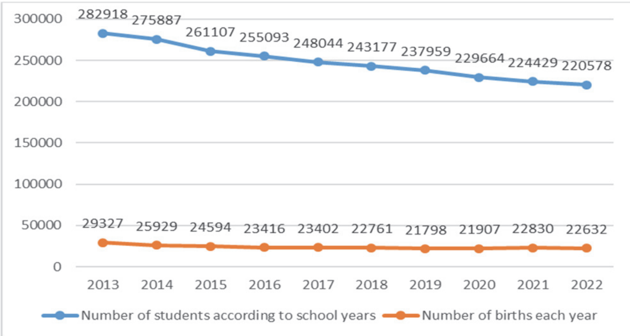

Figure 9. The change of the number of students and the number of births in Kosovo during the last 10 years
Source: Authors' elaboration

As a matter of fact, emigration from Kosovo has mainly involved active age groups or the workforce, and school-age groups have immigrated much less. However, emigration also includes family emigration, which means that some families have immigrated to their children as well. This migration method has led to a decrease in the number of students in schools. Furthermore, emigration has also influenced the reduction in the number of births in Kosovo, which was indirectly reflected in the smaller number of students enrolled in the education system. To put it simply and briefly, the continuous decrease in the number of births has influenced the decrease in the number of students in schools. The fewer the children born, the fewer students expected to enter the educational process. In 2013, there were 29,327 births in Kosovo, whereas in 2022, there were 22,632 births. These statistics show that in 2022, 6,695 fewer children were born than in 2013.

The phenomenon of reducing the number of students in Kosovo's schools is related to broader socio-economic, infrastructural, and demographic complexities. In this regard, it is important to emphasize that the aging population not only affects the demographic structure of the population but also affects the future workforce and economic stability of the country, with all of these issues negatively affecting the number of new enrollments in the school years. On the other hand, the drop in the number of new enrollments in school years brings out other socioeconomic and infrastructural issues, including the merging of creating schools and closure of others associated with job losses in the education sector and a possible decrease in the quality level of education.

Continuous research and monitoring of immigration trends, birth rates, and other economic and social factors are essential to develop effective policies that can help mitigate these impacts. The most common problem in reducing the number of students appears to be rural areas. Settlements in rural areas are being emptied much more, mainly caused by internal migration. In this regard, a comparative analysis of the trends of new students in rural and urban areas is pivotal to further understanding the disparities in the two given areas as well as the challenges that should be addressed in this regard.

This trend of reducing the number of students in Kosovo's schools requires better planning of policies, strategies, and education systems in the country. The results and trends of the changes in the number of students provided a good basis for predicting the number of students in the future, which could also help in the planning and spatial distribution of school facilities in the future. It could also help improve budget distribution and provide financial support to the education system.

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E-ISSN 2240-0524
ISSN 2239-978X

Journal of Educational and Social Research
www.richtmann.org

Vol 15 No 2
March 2025

Research Article

Received: 1 November 2024 / Accepted: 6 February 2025 / Published: 06 March 2025

The Role of Age and Gender as Moderators of Customer Loyalty Programs in Albanian Telecommunication Sector

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DOI: https://doi.org/10.36941/jesr-2025-0050

Abstract

Loyalty programs have long been an important element of customer relationship management for companies in different industries, used to retain their customers and attract new ones. While extensive research has provided insight on the effectiveness, design and outcomes of loyalty programs, the role of demographic factors as moderators remains underexplored. It is essential to understand the elements that affect customer engagement, in order to maximize the success of loyalty programs. This study explores the effects of age and gender on loyalty program knowledge and usage in Albania's telecommunication sector-a topic with little previous research. Utilizing a quantitative approach, data were c gathered from 750 customers through convenience sampling and analyzed via SPSS.

Keywords: *customer loyalty, loyalty programs, demographics, telecommunication, marketing*

1. Introduction

Global economies have changed dramatically in recent years, with crises posing difficulties for businesses and escalating competitiveness as the main engine of business.

Studies have shown that the cost of acquiring a new customer is six to eight times more than that of retaining an already existing customer (Gruen, 1997), making it imperative for companies to focus on customer loyalty. Brand loyalty and loyal customers are very important for the future of the business and should be studied carefully (Aydin & Özer, 2005). To enhance consumer loyalty, companies adopt many strategies, and the most popular among them is the loyalty program (Singh et al, 2008). The implementation of the loyalty programs helps the companies to keep their existing customers by encouraging repeated purchases and also attracts the new ones by programs offering various incentives, such as discounts, points, and exclusive benefits. Loyalty programs are widely used in different industries as strategic tools to enhance customer retention. In a similar vein, mobile network providers around the globe have introduced loyalty programs to favorably impact consumer behavior.

The liberalization of the economy, which includes the telecom industry, has changed the competitive environment in Albania. This process came as e result of market economic deliberations, a common feature to other Balkan countries. Four businesses were in operation at first, but due to mergers and acquisitions, there are currently only two. This has increased the competition in the offered services between the operating companies, making the customer loyalty an important area of research in the telecommunication sector.

In an increasingly competitive market between the actual operating companies, telecom companies in Albania are turning to loyalty programs to retain customers and enhance brand loyalty. However, the effectiveness of these programs may vary across different demographic segments. As stated by Ailawadi et al. 2010, loyalty programs offer benefits for consumers who can receive rewards and/or reach a higher tier as well as for firms that can potentially gain more repeat businesses and, at the same time, gather detailed consumer insights that allow them to deliver targeted marketing activities. Though, loyalty programs can help companies to monitor and influence the consumer behavior.

Although previous studies have provided insight on the effectiveness, design and outcomes of loyalty programs, there is a notable gap in examining the role of moderating variables such as age and gender. Understanding these elements is crucial for maximizing the efficacy of loyalty programs and customizing them for various demographic segments. This study addresses this gap by investigating how age and gender influence the knowledge and usage of loyalty programs in Albania's telecommunication sector, offering insights into an understudied context.

2. Literature Review

2.1 Customer Loyalty

Loyalty as a concept has gained a lot of attention in customer research even though it is nothing new for the world economy. Customer loyalty is a complex and difficult construct to define (Salegna & Goodwin, 2005). Depending on the study's aim, the literature has provided a wide range of definitions. Oliver's (1999) definition is among the most often used, and suggests that customer loyalty is a deeply held commitment to rebuy or repatronizes a preferred product or service consistently in the future, despite situational influences and marketing efforts having the potential to cause switching behaviour.

One of the most important key drivers of long-term business success is certainly customer loyalty. According to Dick and Basu (1994), loyal customers tend to repeat purchases, are less prone to price changes and recommend the brand to their social circle.

As mentioned before, it costs less to keep the existing customers than to attract new ones. In this context, companies are using different strategies and tools in order to enhance customer loyalty, especially the loyalty programs.

2.2 Loyalty Programs

Over the past decades, loyalty programs have been in the centre of attention of customer research and in practical use as well. Although they have been in existence since the 18th century and since then they have evolved and continue to evolve as many areas remain unexplored (Xie & Chen, 2013).
Loyalty programs are intended to increase incentives among the loyal customers for their continued clientele and to inspire repeat purchases. Loyalty programs are well known and used in various sectors of business such as; hospitality, retail and telecommunications. There are many studies and analysis performed on the relationship between loyalty programs and customer loyalty. Some of the findings including those of Meyer-Waarden (2007) and Fook & Dastane (2021), suggest that a well-made loyalty program can improve customer loyalty thus providing concrete and psychological benefits. According to Yi and Jeon (2003), effective loyalty programs can improve and increase customer satisfaction, higher retention rates, and better financial performance for the companies.

Characteristically, loyalty programs offer various rewards such as: points, discounts, exclusive offers and other bonuses. The value and composition of these rewards impact considerably customer satisfaction and participation. Bolton et al. (2000) state that membership in loyalty programs have a positive effect on customer retention and value, stressing also the importance of program design and execution.

2.3 Demographic Factors and Loyalty Programs

In order to increase the impact and the engagement with the loyalty programs of the customers, the companies should consider the factors that affect the consumer behaviour and the responsiveness to the different marketing strategies. Age and gender are two of these factors that can impact the way customers perceive and participate in loyalty programs.

2.3.1 Age

A significant factor that greatly influence the engagement of the customer with the loyalty programs is the age. Leenheer et al. (2007) states that young customers including millennials and Generation Z, have a tendency to participate in loyalty programs due to their acquaintance with the digital platforms and have a greater disposition towards value-added benefits.

On the other hand, Bolton et al. (2000) underline that older customers appreciate tangible rewards and clear benefits. That is the reason why this category of customers shows different engagement patterns towards loyalty programs. According to Eastman and Iyer (2004), digital loyalty programs usually remain a challenge for the older customers and limit their participation due to lack of interest and familiarity with the digital platforms and technological barriers.

2.3.2 Gender

Various studies examining the differences of genders in participation in loyalty programs can be found in literature. Some researches specify that there are no substantial gender differences in loyalty program engagement, whereas some others stress big differences between them. For example, Bridson et al. (2008) found that both men and women show similar levels of participation in loyalty programs that suit to their individual needs and preferences.

On the other hand, Noble et al. (2006) revealed that women tend to be more involved in loyalty programs compared to men, likely because of their increased participation in shopping and a stronger desire for rewards. Other studies show that men may support loyalty programs that provide tangible benefits and fit to their shopping preferences.

Based on the literature review, we propose the following hypotheses:

Hypothesis 1: There is a significant difference in the knowledge of loyalty programs based on gender among the consumers of mobile operators in Albania.

Hypothesis 2: There is a significant difference in the knowledge of loyalty programs based on age among consumers of mobile operators in Albania.

Hypothesis 3: There is a significant difference in the usage of loyalty programs based on gender among consumers of mobile operators in Albania.

Hypothesis 4: There is a significant difference in the usage of loyalty programs based on age among consumers of mobile operators in Albania.

3. Methodology

This study uses a quantitative approach to explore the role of demographic factors on the knowledge and usage of loyalty programs among customers in the telecommunication sector in Albania. Data were collected through an online questionnaire distributed to 750 customers. The responses were analysed using SPSS. Given the target population of this study which includes all telecommunication customers in Albania who are potential participants in loyalty programs, a convenience sampling technique was employed. This approach was chosen due to its effectiveness in reaching a large number of respondents in a limited amount of time. While facilitating the collection of valuable insights, convenience sampling may introduce selection bias and limit the generalizability of the findings to a wider population. Future research could overcome this issue by implementing probability sampling techniques, in order to secure a more representative sample.

4. Results

In order to investigate the relationship between gender and loyalty program knowledge among Albanian mobile operators' customers and to test hypothesis 1, a Chi-Square test was used. The following Table 1 displays the findings:

Table 1. Gender and knowledge of loyalty programs

Gender	Knowledge of Loyalty Programs	Count	% within Gender	% within Knowledge	% of Total
Male	Yes	81	39.5%	24.8%	10.8%
	No	124	60.5%	29.3%	16.5%
Female	Yes	246	45.1%	75.2%	32.8%
	No	299	54.9%	70.7%	39.9%
Total		750	100.0%	100.0%	100.0%

The Chi-Square test result was $\chi 2(1, C=750)=1.917$, p=.166 – presented in Table 2 below. This result suggests that there is no statistically significant difference in the knowledge of loyalty programs based on gender among consumers of mobile operators in Albania. The test did not provide sufficient evidence to accept the hypothesis, which suggests that there are no differences in the level of information that men and women have about loyalty programs offered by mobile operators.

Table 2: Pearson Chi Square results of gender and knowledge of loyalty programs

Test	Value	df	Asymptotic Significance (2-tailed)
Pearson Chi-Square	**1.917**	**1**	**.166**
Continuity Correction	1.695	1	.193
Likelihood Ratio	1.927	1	.165
Fisher's Exact Test			.186
Linear-by-Linear Association	1.914	1	.166
N of valid cases	750		

The Chi-Square test was also used to investigate the relationship between age group and knowledge of loyalty programs among consumers of mobile operators in Albania. The results divided by age group are presented in Table 3.

Table 3: Age and knowledge of loyalty programs

Age Groups	Knowledge of Loyalty Programs	Count	% within Age	% within Knowledge	% of Total
18-24	Yes	189	48.8%	57.8%	25.2%
	No	198	51.2%	46.8%	26.4%
25-34	Yes	98	38.7%	30.0%	13.1%

Age Groups	Knowledge of Loyalty Programs	Count	% within Age	% within Knowledge	% of Total
	No	155	61.3%	36.6%	20.7%
35-44	Yes	30	38.5%	9.2%	4.0%
	No	48	61.5%	11.3%	6.4%
45-54	Yes	9	36.0%	2.8%	1.2%
	No	16	64.0%	3.8%	2.1%
Over 55	Yes	1	14.3%	0.3%	0.1%
	No	6	85.7%	1.4%	0.8%
Total		750	100.0%	100.0%	100.0%

The value generated by the Chi-Square test was $\chi 2(4, C=750) = 10.623$, $p=.031$ – shown in Table 4. Based on these results, there is a significant difference in awareness of loyalty programs based on age group between customers of mobile operators in Albania. The analysis provided sufficient evidence to support the hypothesis which suggests that there is a difference in the knowledge of loyalty programs depending on the age group, among consumers of mobile operators in Albania.

Table 4: Pearson Chi Square results of age and knowledge of loyalty programs

Test	Value	df	Asymptotic Significance (2-tailed)
Pearson Chi-Square	**10.623**	4	**.031**
Likelihood Ratio	10.981	4	.027
Linear-by-Linear Association	8.614	1	.003
N of Valid Cases	750		

The Chi-Square test was performed to examine the relationship between gender and the use of loyalty programs among consumers of mobile operators in Albania. The results of gender are presented in Table 5.

Table 5: Gender and usage of loyalty programs

Gender	Usage of Loyalty Programs	Count	% within Gender	% within Usage	% of Total
Male	Yes	87	42.4%	25.1%	11.6%
	No	118	57.6%	29.2%	15.7%
Female	Yes	259	47.5%	74.9%	34.5%
	No	286	52.5%	70.8%	38.1%
Total	Yes	346	46.1%	100.0%	46.1%
	No	404	53.9%	100.0%	53.9%

The value generated by the Chi-Square test was $\chi 2(1, C=750) = 1.549$, $p = .213$ – presented in Table 6. This result shows that there is no significant difference in the use of loyalty programs based on gender between customers of mobile operators in Albania. The analysis did not provide sufficient evidence to accept the hypothesis, suggesting that the use of loyalty programs does not differ significantly between males and females in this sample. Consequently, this result suggests that there is no difference in the use of loyalty programs depending on gender among consumers of mobile operators in Albania.

Table 6: Pearson Chi Square results of gender and usage of loyalty programs

Test	Value	df	Asymptotic Significance (2-tailed)
Pearson Chi-Square	**1.549**	**1**	**.213**
Likelihood Ratio	1.352	1	.245
Linear-by-Linear Association	1.547	1	.214
N of Valid Cases	750		

The Chi-Square test was performed to examine the relationship between age group and the use of loyalty programs among consumers of mobile operators in Albania. Descriptive results are presented in Table 7.

Table 7: Age and usage of loyalty programs

Age Groups	Usage of Loyalty Programs	Count	% within Age	% within Usage	% of Total
18-24	Yes	196	50.6%	56.6%	26.1%
	No	191	49.4%	47.3%	25.5%
25-34	Yes	106	41.9%	30.6%	14.1%
	No	147	58.1%	36.4%	19.6%
35-44	Yes	40	51.3%	11.6%	5.3%
	No	38	48.7%	9.4%	5.1%
45-54	Yes	4	16.0%	1.2%	0.5%
	No	21	84.0%	5.2%	2.8%
Over 55	Yes	0	0.0%	0.0%	0.0%
	No	7	100.0%	1.7%	0.9%
Total		750	100.0%	100.0%	100.0%

As shown in Table 8 below, the value obtained from the Chi-Square test shows a statistically significant relationship between age group and the use of loyalty programs, $\chi 2(4, C=750)=20.960$, $p=.000$. As a result, the hypothesis will be supported which suggests that there is a statistically significant difference in the use of loyalty programs based on age groups among consumers of mobile operators in Albania. This implies that different age groups report different levels of usage related to loyalty programs.

Table 8: Pearson Chi Square results of age and knowledge of loyalty programs

Test	Value	df	Asymptotic Significance (2-tailed)
Pearson Chi-Square	**20.960**	**4**	**.000**
Likelihood Ratio	24.678	4	.000
Linear-by-Linear Association	10.616	1	.001
N of Valid Cases	750		

5. Discussion

The study discussed the effect of demographic factors on understanding the usage of loyalty programs as a crucial factor to design effective customer retention policies and strategies in the telecommunication sector. It also intends to provide understandings into these relations thus making a contribution to the designation of more focused and comprehensive loyalty programs.

The main aim of the study was to analyse the role of demographic factors, particularly gender and age, in understanding and usage of loyalty programs in telecommunication sector in Albanian market. The findings provide important information and valuable insights on how the above-mentioned factors effect customer engagements with loyalty programs.

The findings highlight that both genders have equal information about the loyalty programs provided by the Albanian mobile operators. As a result of that, the companies can concentrate their efforts, in implementing loyalty program awareness, without tailoring them specifically to either gender. This is also supported by the study of Melnyk and van Osselaer (2012), which states that both men and women possess knowledge about loyalty programs

Young generation, especially those aged 18-24 and 25-34, showed that their information about loyalty programs is higher compared to the older age targeted groups. This shows that young customers have more information about loyalty programs most probably because of their engagement with the cutting-edge technology and digital platforms where loyalty programs are often promoted. Telecommunication companies must take into consideration to target younger generation in a more effective way and improve awareness approaches to the older generation. Tahal (2014) also implies that, in comparison to older age groups, younger customers are more aware in loyalty programs.

Both genders showed almost the same levels of participation in loyalty programs, suggesting that gender does not make any difference in influencing the use of these programs. The findings highlight the need to design loyalty programs that attract all customers regardless gender division, as also supported by a study of Statista (2018).

Nevertheless, it should be mentioned that noteworthy differences were found in the usage of loyalty programs by age groups. The young customers, especially those aged between 18-24, were more frequent users of loyalty programs than the old aged customers. The findings show a higher trend of the young generation in actively engaging in loyalty initiatives most probably due to their convenience with the digital platforms and digital rewards. Telecommunication companies must concentrate on the ways to improve user experience and accessibility of loyalty programs in order to keep high level of participation and engagements of young generation and find out new strategies to increase the participation of the old generation customers.

6. Conclusions

The study shows that while gender seems to have little role on customer use of loyalty programs in the Albanian telecom industry, age plays a significant role. Young customers show higher levels of attention and awareness in participating in loyalty programs compared to the old generation of customers. The telecommunication companies should use and implement these findings to re-arrange their loyalty programs and marketing strategies in order to make them appealing to different age groups and to maximize customer retention and engagement.

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