Nino Dokhturishvili*
Ivane Javakhishvili Tbilisi State University,
Tbilisi, Georgia
ORCID iD: 0000-0001-8291-3388

Nino Abesadze
Ivane Javakhishvili Tbilisi State University,
Tbilisi, Georgia
ORCID iD: 0000-0002-6564-2771

*Corresponding author:
E-mail: nino.dokhturishvili@tsu.ge

STATISTICAL ANALYSIS OF EMPLOYMENT AND HEALTH IMPACTS ON DEMOGRAPHIC TRENDS IN THE KAKHETI REGION OF GEORGIA

Introduction. The demographic situation in Georgia and its regions, particularly in Kakheti, remains tense and manifests in a decrease in the birth rate, a negative natural increase, a decrease in marriage and an increase in divorce, and high migration rates. In this regard, there is a need for an in-depth analysis of these factors that reflect serious demographic challenges, to predict future changes in the population structure. Understanding these processes can help develop effective strategies to improve the demographic situation and create conditions for sustainable socioeconomic development in the region.

Aim and tasks. The study aims to conduct a comprehensive analysis of the demographic expectations and existing variations within Kakheti region of Georgia.

Results. The demographic situation in Kakheti region of Georgia was analysed based on the results of a survey conducted monthly from 2023 to 2024 among residents of the region aged 15 to 50 years. The empirical analysis showed that economic conditions and the health of one of the spouses were the main reasons for the decline in the birth rate. For most respondents, the primary source of income was employment in the public sector and private business, with a significant portion of respondents (72.7%) assessing their financial situation as satisfactory. Among the factors influencing health and life expectancy, the respondents highlighted economic well-being (22%) and environmental conditions (21.4%) as the most significant. Families with stable incomes prefer having two or three children, while low-income families are not prepared to have four or more children. The role of economic (income) and educational factors (education level) influencing the demographic attitudes of respondents was emphasised.

Conclusions. There is an apparent discrepancy between the ideal and actual number of children in families. A balance between the desired and actual number of children is lacking n many families. There has been a change in the demographic behaviour of different generations. The main reasons for having fewer children than desired were economic conditions and the health of one of the spouses. For most respondents, the primary source of income was employment in the public sector and private businesses.

Keywords: demographic expectations, economic well-being, healthcare, income, survey sampling.

1. Introduction

Georgia has been facing a serious demographic catastrophe for many years. Demographic problems in Georgia, including the Kakheti region, are exacerbated by the fact that while birth and death patterns are similar in industrialized countries, outbound migration trends are more in line with less developed countries (Rustaveli Fund, 2010). Alongside the reduction in population size, changes in the gender-age structure occur. The influence of negative demographic characteristics on the country's social features is increasing, and the effectiveness of measures to improve the demographic situation is decreasing.

This is reflected in the statistical data on the country's demographic situation, both as a whole and in regional terms. Quantitative indicators reflecting the number of the population, its composition, and changes affect the labour force because the labour force is the basis for calculating and evaluating other indicators, so it is necessary to study demographic issues. The migration problem stands out among the various reasons for population decline in Georgia (Abesadze et al., 2023). It is a fact that reality in Georgia cannot ensure the achievement of socio-demographic goals or the feeling that set goals can be achieved soon.

2. Literature review

Many women of childbearing age in Georgia face uncertainties about their future especially fear of unemployment, which discourages childbearing (Cannistraci et al., 2021). It is important to note that "the country's demographic situation does not allow for relaxation, and significant effort is required to ensure that Georgians do not become a minority in their own country" (Sakhvadze, 2024). At the same time, increasing job insecurity, abortion, migration and inadequate work-family reconciliation policies contribute to declining fertility rates and delays in family formation (Pesin et al., 2022). Equally important, it is that the health care system needs to be able to adapt to demographic variables such as fertility and life expectancy, offering care based on needs and age (Schoffer et al., 2023).

This skewed age-sex structure, which is independent of population growth, affects the social and economic structure of society (Gelashvili et al., 2022).

Therefore, high-quality social policy is a necessity for effective demographic policy measures. The goals of such policies go beyond influencing demographic trends; rather, it is the most important instrument for regulating demographic processes (Sulaberidze, 2002). Overcoming demographic problems requires significant financial resources. However, the state budget cannot ensure the implementation of an active demographic policy on a required scale. Alternative ways to secure financial resources are needed (Meladze, 2023).

Reduction in fertility rates continues to pose a demographic threat to many countries. Over the past century, global fertility has undergone significant change. Although high birth rates are still the norm in the world's poorest rural areas, high-income countries, several transition economies, and most urban regions in low- and middle-income countries have reached replacement fertility levels of approximately 2.1 children per woman.

Some countries have reached an extremely low birth rate of less than 1.3 children (Aassve et al., 2020), which is further exacerbated by migration processes, which are a significant problem for Georgia and the Kakheti region. It is believed that family chain migration exponentially increases the number of foreign residents, which reduces the state's ability to control immigration. Family-based chain migration is believed to increase the number of foreign residents exponentially, thus reducing the state's capacity to control immigration. On the other hand, family reunification is also seen as a double-edged sword concerning the integration process (González-Ferrer, 2007). The intensive ageing process should also be considered, as it leads to many adverse consequences.

Furthermore, with the physiological process of ageing, the functional capacity of each human system decreases. People develop their capacities up to around 20 or 30 when reaching a peak. After that, functional performance gradually declines, resulting in functional ageing (Alves et al., 2008).

Kakheti is a significant region of Georgia, both socially and economically, and demographically. Kakheti constituted 8.2% of Georgia's total population (306.2 thousand) in 2023 and ranks fourth in population size, following Adjara, Imereti, and Kvemo Kartli. The demographic situation in Kakheti is complex, but its indicators are differentiated according to municipalities, and migration processes have reached an unprecedented scale (Dokhturishvili, 2024).

Therefore, this study aimed to analyse the demographic characteristics of the Kakheti region based on various classification criteria.

3. Aim and tasks.

This study aims to comprehensively analyse demographic expectations and existing variations within the Kakheti region of Georgia. The objectives of this study include the following research questions (RQ):

RQ1. Analysis of statistical data on employment in the Kakheti region, including industry differences and the impact of employment on demographic processes.

RQ2. Investigation of the impact of health factors and the relationship between the population's health status and demographic trends in the region.

RQ3. Assessment of the impact of the economic situation and social factors on migration and demographic changes.

4. Methodology.

4.1. Sampling.

This study followed international statistical principles and employed a mixed-method sampling approach that combined random and proportional selection. The methodology included research design, methods of data collection, architecture of the study, model, sampling and questionnaire design, measurement scales, data processing and analysis, and reliability of the measurements. Among the sampling methods, a mixed-method approach was employed, which involved both random and proportional selection. The random method ensures unbiased results, whereas the proportional method is more accessible in terms of available resources.

The research was conducted in all municipalities in the Kakheti region.

This study focused on the reproductive-age population. The research design was developed at the initial stage. This included forming the survey questionnaire, providing instructions for completion, identifying the locations for data collection, setting timelines, and determining the forms and rules for obtaining data. The questionnaire comprised 32 questions and enquiries about the respondents' gender, age, employment status, citizenship, demographic parameters, and expected demographic behaviour. The selection base was the Kakheti aged 15-50 years, based on 2023 census data.

A representative sample of 384 people was selected, with a 95% confidence level and 5% margin of error (Good Calculators, n.d.). Studies show that the average response rate for the distributed questionnaires was 70-75%, which is considered a good result (Heslop et al., 1998). Using the possible resources of social networks and municipalities, the questionnaire was distributed to 578 respondents via email and approximately 100 respondents were interviewed in person.

Three hundred ninety-one completed questionnaires were received, representing 72.4% of the total sent. Thus, the response rate was reasonable. The research was conducted monthly from to 2023-2024 and included residents of Kakheti aged 15-50 years. The results were weighted and imputed each month. The collected data were used to form a database that was processed using MS Excel and SPSS 26 software.

4.2. Reliability of research

To assess the reliability of the research, we used Cronbach's alpha coefficient and AVE (Average Variance Extracted). As is well-known, the reliability coefficient is considered acceptable if it is equal to or greater than 0.60 (Nunnally, 1967). Cronbach's alpha was 0.62, indicating high internal consistency and reliability. This result suggests that the variables have a different substantive nature and are moderately correlated; meaning that the selected variables are related to each other and the internal consistency of the construct is good.

Regarding the results of the Composite Reliability (CR) and AVE calculations, CR was 0.89, indicating high reliability of the questionnaire (CR > 0.7 is considered a good indicator), while AVE was 0.50, which is marginally sufficient (AVE ≥ 0.5, is considered a good indicator). An empirical implementation of a binary logistic regression model was carried out to evaluate the demographic situation in the Kakheti region, given the specifics of the statistical analysis (the collected data were presented through nominal categorical variables).

5. Results

In total, 391 respondents participated in the statistical survey. The data collected during the study were based on 1) demographic characteristics of the population (such as gender, age group, marital status, and education level), 2) subjective perceptions of health and material well-being (how respondents assess their own health and material conditions), and 3) current and desired family composition (number of spouses, children, and desired number of children).

First, it examined the descriptive statistics and then proceeded with the empirical implementation of the binary logistic regression model. It should be noted that the active respondents were primarily women, comprising 80.7% of the total.

The modal age group of respondents was 30-39 years, and although the percentage of younger individuals aged 15-29 was notably high, accounting for 35% of the respondents. Despite the family status, the population of Kakheti actively participated in the survey and expressed their views on demographic behaviour and the demographic situation, which is undoubtedly a positive sign. Notably, more active respondents were married (62 %).

The positive attitude toward participation in the population survey was also encouraged by the fact that 73.5% of respondents had completed or were pursuing higher education. This positively influenced the quality of their behaviour in the survey and their views on improving the demographic situation or identifying existing problems.

Although people of different nationalities live in the Kakheti region, the majority of the participants in the survey were ethnic Georgians.

The proportion of Georgians among the respondents was 96.9%. The remaining respondents were of Azerbaijanis, Armenian, Ossetians, and other ethnicities. Respondents' demographic attitudes were generally positive, which is encouraging. About 50.4 % believed the ideal number of children in a family should be three. 24% thought two children were ideal, while another 24% believed four children were ideal. A pleasant fact is that only 1.8% of respondents desired just one child. After determining the desired number of children, exploring the alignment between the respondents' ideal numbers and their actual desires was interesting. While 50.4% of respondents believed that the ideal number of children in a family should be three, only 41% expressed the desire to have three children.

However, the number of children in a family does not align with these desires. The majority of respondents (52.6%, had two children, 22.8% had three children, and 19.1% had one child. As we can see, there is a lack of balance between the desired and actual number of children in the family, and the modal number of children, contrary to the respondents' preferences, was two (Figure 1).

Currently, some women delay childbearing for several reasons. This affects their reproductive behaviour and achieves the desired number of children at an appropriate age. This has led to a decrease in the birth rate and, accordingly, to the deepening of the ageing population.

Therefore, many issues need to be resolved, including reforming pension and healthcare systems and addressing the lack of human labour resources to support sustainable economic growth (Alcaraz et al., 2022).

Furthermore, respondents (43.4 %) considered the best or ideal time to have a child within the first year after marriage. 21.8% believed that a two-year gap should exist before having children. Only 25% believed having a child in the first year of marriage was necessary.
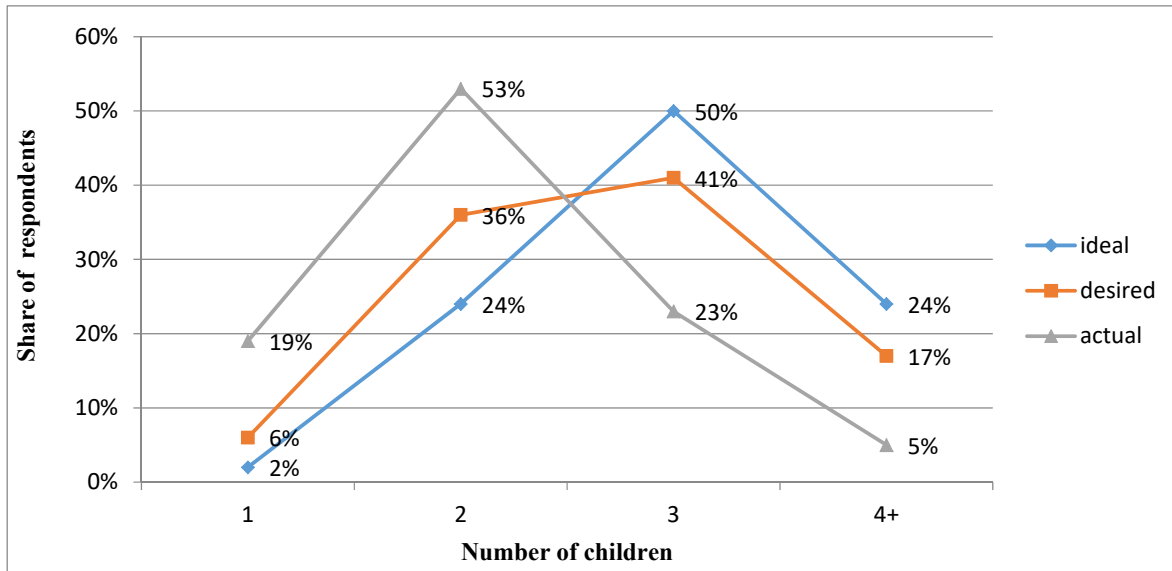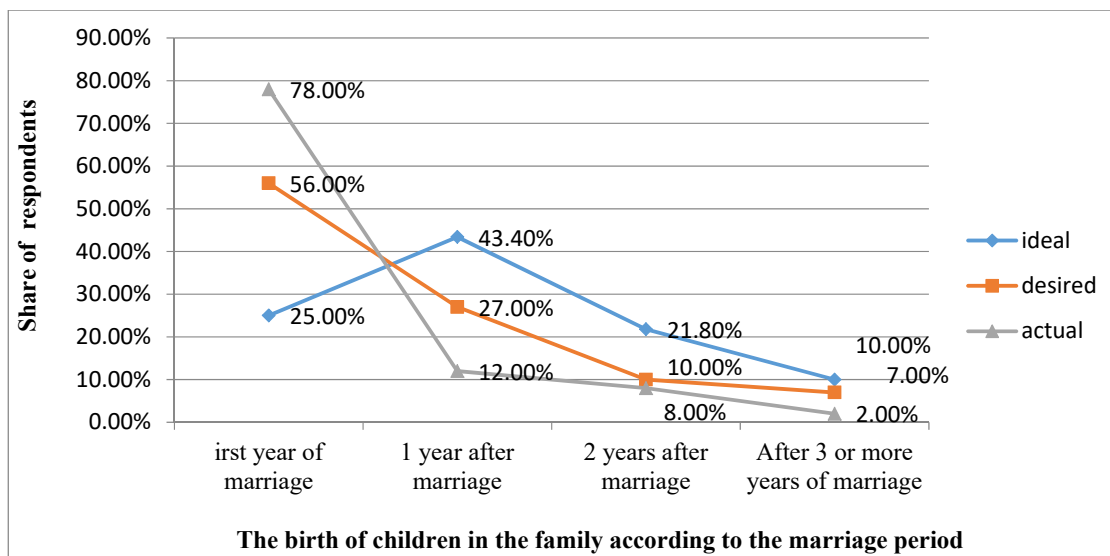
Fig. 1. Distribution of respondents based on the ideal, desired, and actual number of children in the family in Kakheti region of Georgia.
Source: based on National Statistics Office of Georgia (2024).

It is undeniable that two or three decades ago, having children immediately after marriage was a priority for many families. Statistics show that between 1994 and 2000, the average birth rate was 11.4%, significantly higher than the 2023 figure of 1.2% (National Statistics Office of Georgia, 2024). At the same time, 56% of respondents desired a child in the first year of marriage, but only 78% had a child within the first year (Figure 2).
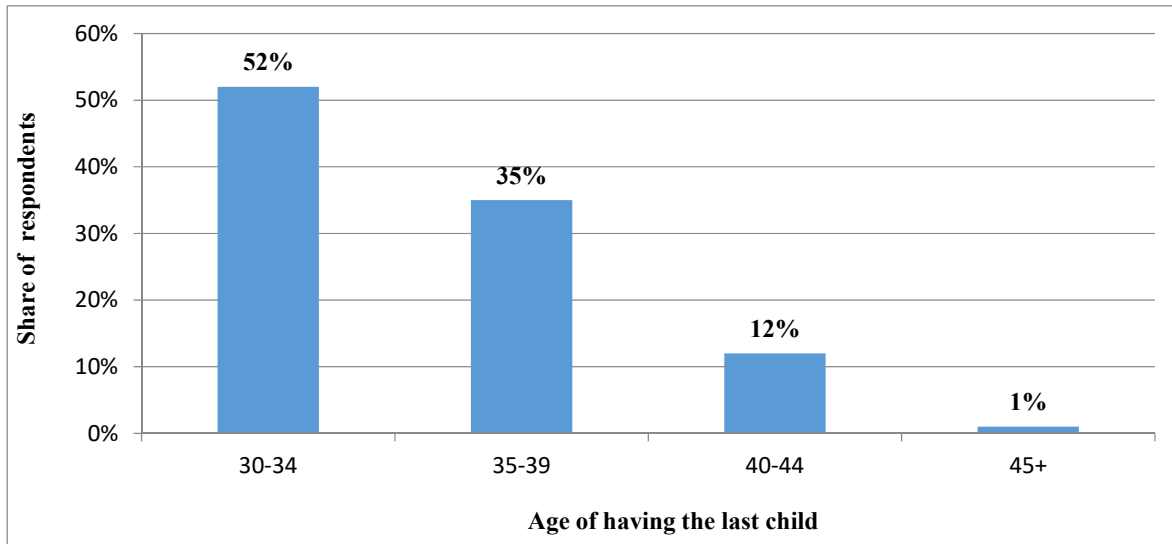

Fig. 2. Distribution of respondents based on the ideal, desired, and actual marriage period for having children in the family in Kakheti region of Georgia.
Source: based on National Statistics Office of Georgia (2024).

An important finding is that 66.3% of respondents had children at a young age, before 25, but 52.3% believed women should have their last child at 30-34. Moreover, 34.9% of respondents believe that women should have their last child at age 35-39 (Figure 3).
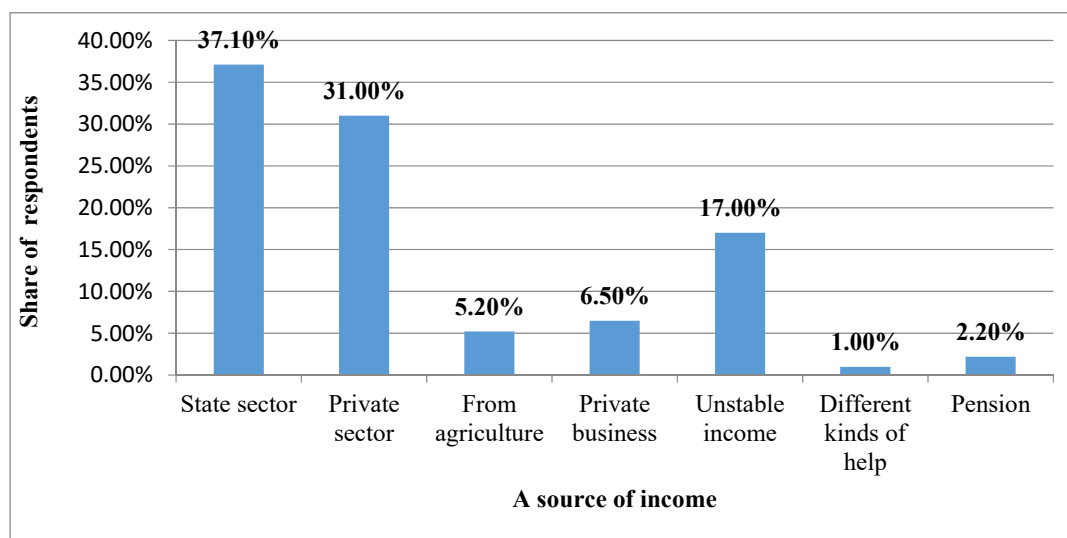
Fig. 3. Distribution of respondents by age of their last child in Kakheti region of Georgia.
Source: based on National Statistics Office of Georgia (2024).

The demographic attitude of generations has improved. Respondents would like to have three children, but 42.2% had parents with only two children, 39.4% had ancestors with four or more children, and 37.8% had three children. The main reason why 27.6% of respondents have fewer children than they desired is due to financial conditions and the health status of one of their spouses (28.8%). Interestingly, the average age of women giving birth and getting married is increasing both in Georgia and in other countries (Tan & Shao-Tzu, 2024).

While differences in regional fertility levels increased at the turn of the century, the total fertility rate (TFR) decreased significantly. (Li, 2024) Of the population surveyed, 57.2% have relatively large families with five or more members.

For 37.1% and 31% of respondents, the primary income source is employment in the public sector and private businesses, respectively. 17% have an unstable income. 5.2% have income from agriculture, and 6.5% from private businesses (Figure 4).

Fig. 4. Distribution of respondents by source of income in Kakheti region of Georgia.
Source: based on National Statistics Office of Georgia (2024).

Based on income, 72.7% of the respondents considered their family's material situation satisfactory, 14.3% said it was terrible, and 13% said it was good. Additionally, 60% of the respondents considered their housing conditions satisfactory, 29.5% said they were good, and 10.1% said they were bad. Under these conditions, 43.4% of respondents believed the optimal lifespan was 90 years. 28.9% thought it was 80 years old, while 5.2% believed it was 70 or less. Interestingly, a large proportion of respondents from the population of Kakheti prioritised material well-being (22%) and ecological conditions (21.4%) among the factors that affect human health and longevity.

Therefore, 18.3% believed people should dedicate a significant amount of time to self-care and maintenance, whereas 7.1% believed improving healthcare services is essential. The survey results indicated that 19.6% of the respondents regularly checked their health, 11.4% paid attention to their dietary habits, 13% monitored their sleep, 10.6% prioritised physical activity, and 5% had a regular rest schedule. According to 59.4% of the respondents, people should start caring for their health at age 15-29. At the same time, 15.1% believed that the best age was 20-39, and 22.1% believed it was not necessary to define an age but to act according to the need.

Therefore, demographic differences and recent needs should be studied for public health interventions (Bierens & Hoogenboezem, 2022). Alongside increasing life expectancy, people's health conditions may not improve. This naturally increases the financial burden of an unhealthy and ageing population in society. Therefore, the state needs to determine the average and healthy life expectancy. Recently, attention has shifted to quality of life, not just quantity. A higher life expectancy does not necessarily mean more years of health (Jackie, 2024). As life expectancy rises, there is growing concern that the pace of health improvement may not follow. An ageing population that spends more years in disability and long-term sickness can place a significant financial burden on society. Therefore, governments must forecast life expectancy accurately, not just for life expectancy but also for healthy life expectancy (Li, 2024).

A promising trend was observed among the aged 15-29 group in Kakheti, where 58% believed the ideal family should have three children. This view was shared by 71% of respondents aged 30-39 and 47% aged 40-50. Regarding the desired number of children, 49.5% of the 15-29 age group, 51.4% of the 30-39 age group, and 46.7% of the 40-50 age group desired three children. As educational levels increased, the demographic outlook of respondents appeared to be more favourable.

This trend was observed for both the male and female respondents. In general, 68.2% of the higher-education respondents believed three children should be raised in a family. This is the highest percentage of the ideal number of children by educational level. Among them, 65.9% of female and 50.6% of male respondents agreed with this viewpoint.

Among respondents working in the public sector (74.8%), most considered their family's material situation satisfactory (74.8%), 8% said it was good, and 6.4% rated it harmful. If we consider the number of family members, the cross-tabulation analysis reveals detailed differences based on gender. A significant proportion of female respondents considered their families' material situation satisfactory. It is known that women's labour and social activities often conflict with their household duties (Shinjiashvili et al., 2014).

Interestingly, respondents from Kakheti with relatively satisfactory material conditions tend to have higher education, with their primary sources of income being the public and private sectors (34% and 26%, respectively). As for the cross-tabulation of income and the desired number of children, the analysis provides interesting insights: in families with stable incomes (e.g., those employed in the private or public sectors), there is a clear preference for having 2 or 3 children, indicating decisions based on the available financial resources.

The desire for four or more children is less prevalent in these families. In households with unstable incomes or those relying on benefits, the desired number of children is lower, with the desire for four or more children being rare. Due to economic conditions, these families may be limited in the number of children they can afford.

Families with income from agriculture frequently desire to have four or more children. This could have a dual effect. First, it can improve the demographic situation, and second, it can contribute to an increase in the production volume.

This highlights the importance of family size in this category. A clear trend has emerged regarding the desire to have three children, varying across generations. Specifically, 49.5% of the 15-29-year-old population, 51.4% of the 30-39-year-olds, and 46.7% of the 40-50-year-old population prefer having three children. The empirical implementation of a binary logistic regression model was conducted for a more detailed assessment of the demographic situation in the Kakheti region, given the specific nature of the statistical investigation (data collected through nominal categorical variables). In the initial stage of the study, a system of variables for the regression model was defined. Specifically, the dependent variable is the current number of children. The independent (factor) variables include 1) gender of the respondent, 2) age group, 3) marital status, 4) level of education, 5) desired number of children, 6) subjective perception of one's material situation, 7) subjective assessment of one's health, and 8) status membership in any religious faith (church membership) (Table 1).

Table 1. Structure of variables included in the regression model.

Variable	Variable Category
Current Number of Children	1) One; 2) Two; 3) Three; 4) More than three
Gender	1) Female; 2) Male
Age	1) 15-29; 2) 30-39; 3) 40-50
Marital Status	1) Married; 2) To be married; 3) Divorced; 4) Widowed
Desired Number of Children	1) One; 2) Two; 3) Three; 4) More than three
Subjective Assessment of One's Material Situation	1) Good; 2) Satisfactory; 3) Poor
Subjective Assessment of One's Health Status	1) Good; 2) Satisfactory; 3) Poor
Membership in a Religious Faith (Church Membership)	1) Yes; 2) No

Source: SPSS Statistics Version 26.

The variables and their categories involved in the study are presented in Table 1 within the structure of the variables included in the regression model. Note that the following steps were taken to realise the binary logistic regression model empirically:

- A binary outcome variable (increase in the number of children) was created, which takes the value of "1" when the number of children is more significant than one and "0" when fewer than 2.

- The remaining seven categorical variables generated 24 binary variables (with values of "0" and "1").

Among these two alternatives:

1) Missing data values are imputed and subsequently used in regression analysis.

2) The latter option was prioritised after excluding respondents with missing answers from the regression analysis.

This was because imputation inherently carries the risk of error, which could lead to more distorted estimations in subsequent stages of the research. The binary logistic regression model has the following form:

$$\ln(y) = B_0 + B_1 X_1 + B_2 X_2 + \cdots + B_{24} X_{24} \quad (1)$$

From the empirical realisation of the model, it was found that among the presented factor variables; only the desired number of children was statistically significant.

From the empirical realisation, the least significant category of the initial factor variable was excluded, which was subsequently transformed into a binary variable. The study showed that out of the 24 binary variables created; only three variables were reliable (Table 2).

Table 2. Coefficient estimations of the factor variables in the binary regression model.

	B	S.E.	Wald	df	Sig.	Exp(B)
x1	-.472	.615	.590	1	.442	.624
x3	-.549	.615	.798	1	.372	.578
x4	-.374	.434	.742	1	.389	.688
x6	-21.686	15032.630	.000	1	.999	.000
x7	-18.921	15032.630	.000	1	.999	.000
x8	-20.632	15032.630	.000	1	.999	.000
x10	-.310	.776	.159	1	.690	.734
x11	.090	.478	.035	1	.851	1.094
x13	-2.406	1.133	4.513	1	.034	.090
x14	1.394	.452	9.520	1	.002	4.030
x15	2.514	.518	23.556	1	.000	12.350
x17	.966	.818	1.396	1	.237	2.628
x18	.396	.605	.428	1	.513	1.486
x20	-.215	.925	.054	1	.817	.807
x21	.035	.487	.005	1	.942	1.036
x23	.497	.778	.409	1	.523	1.644
Constant	18.986	15032.630	.000	1	.999	176055590.304

Source: SPSS Statistics Version 26.

In the next stage of the research, the following variables were excluded from the analysis (Table 3):
1) The free member (intercept);
2) Statistically insignificant variables;
3) One category of the initial categorical variable (which was subsequently transformed into a binary variable).

As a result, it is determined that the model has high explanatory power.

Table 3. Statistical characteristics of the explanatory power of the factor variables in the binary logistic regression model.

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	230.265[a]	.381	.508
a. Estimation terminated at iteration number 5 because parameter estimates changed by less than .001.			

Source: SPSS Statistics Version 26.

The value of the (Nagelkerke) coefficient is 0.51. Furthermore, the model evaluates 79.5% of the observed values of the dependent variable (Table 4).

According to the Wald test with 95% confidence, the alternative hypothesis regarding the statistical significance of the variables in the empirical model is accepted. The X13 variable is unreliable at the strict 95% significance level; however, it is recommended to leave it in the model, as it represents a category of the initial variable.

Table 4. Accuracy of the evaluation of the observed values of the dependent variable in the binary logistic regression model.

		Observed	Predicted		Percentage Correct
			y 0	1	
Step 1	y	0	12	51	19.0
		1	1	190	99.5
	Overall Percentage				79.5

a. The cut value is 0.500.

Source: SPSS Statistics Version 26.

The empirical model shows that the desired number of children is negatively associated with the demographic-positive number of children. In contrast, the desired number of children (two or three) is positively associated with the outcome variable. The empirical model is as follows:

$$Y = e^{-2.485X_{13}+1.290X_{14}+2.262X_{15}} \qquad (2)$$

Additionally, the desired number of children being 1 $e^{-2.485}$ affects the value of the outcome variable.

This means that $(0.083 - 1 = -0.917)$ reduces the chances by 0.917, while the desired number of children being two and the desired number of children being 3 increase it by 2.632 and 8.6, respectively.

The research results are entirely new to Georgian practice, as a comprehensive study and assessment of the region's demographic situation has not yet been conducted. Therefore, these findings and conclusions are highly valuable and relevant from theoretical and practical perspectives.

Table 5. Evaluation of the coefficients of the factors in the binary regression model.

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	x13	-2.485	1.041	5.700	1	.017	.083
	x14	1.290	.259	24.779	1	.000	3.632
	x15	2.262	.332	46.330	1	.000	9.600

a. Variable(s) entered on step 1: x13, x14, x15.

Theoretically, the results of this study deepen the understanding of the impact of regional demographic indicators on population size. This research was conducted in Georgia's most active and third-largest regions. This study also holds practical significance, as the demographic problems identified are nearly identical to those found in other regions. The quantitative values of demographic parameters and the density of their connections with the desired number of children and the overall population of Kakheti have made cross-tabular conclusions a solid basis for drawing correct conclusions.

Government structures can use the research results to develop social and effective demographic policies for the Kakheti region and other regions of Georgia.

6. Discussion

A distorted gender-age structure, negative natural population growth, large-scale migration, reduced birth rates, and other factors characterise the demographic situation in Kakheti. A firm social policy is a prerequisite for implementing effective demographic policy measures (Beenstock, 2023). It is important to consider the migration flow characteristics of the region, which, along with the decrease in population size, usually contribute to the region's ageing.

A significant demographic threat is the sharp decline in birth rates (González-Ferrer, 2007). Along with physiological ageing, scientists have focused on functional ageing (Pessin et al., 2022), evident in the Kakheti region. The reproductive behaviour of the population in the Kakheti region is influenced by factors such as the duration of parental leave, especially paid parental leave, job insecurity, family support policies, and others (Pessin et al., 2022). In Kakheti, it has been observed that worsening a population's health condition negatively affects the demographic situation. Therefore, this is concerning because, with the increase in life expectancy, there is growing concern that the pace of improvement in health care may not be achieved (Bierens & Hoogenboezem, 2022).

Recently, more attention has been received to quantitative and qualitative life indicators. An increase in life expectancy does not necessarily mean additional years of good health (Jackie, 2024). Many factors influence the demographic situation in the Kakheti region. Econometric modelling proved that the empirical model variables are statistically significant. Significantly, having two or three children in a family positively correlated with the outcome variable, the population size of Kakheti.

7. Conclusions

This study reveals the critical demographic challenges in the Kakheti region. The demographic situation in the Kakheti region is critical, in which 50.4% of the respondents believe that the ideal number of children in a family is three. Only 40.8% expressed a desire to have three children. There is an apparent discrepancy between the ideal and actual number of children in families. The balance between the desired and actual number of children is lacking, and the modal number of children is two, which contradicts the respondents' desires. Only 25% of respondents believed having a child in the first year of marriage is necessary.

However, 66.3% of the respondents had children before age 25. A significant proportion (52.3%) believed that the last child should be born between the ages of 30 and 34. There have been changes in the demographic behaviour of different generations – children, parents, and grandparents.

The main reasons for having fewer children than desired were economic conditions and the health of one spouse. For most respondents, the primary source of income was employment in the public sector and private businesses. A large proportion of respondents (72.7%) considered their financial situation satisfactory. Regarding health and life expectancy, respondents prioritised economic well-being (22%) and environmental conditions (21.4%).

In general, women with higher levels of education have fewer children than those with lower education. According to the research results, as the level of education increased, respondents' demographic attitudes became more positive.

This trend was evident among both male and female respondents. A significant difference was found in the demographic attitudes of married and unmarried participants. While 72% of married respondents considered three children to be the ideal family size, only 8.7% of unmarried respondents shared this opinion.

The desire for three children was strongly prioritised across generations. For the 15-29 age group, 49.5% found three children ideal, 51.4% of the 30-39 age group, and 46.7% of the 40-50 age group. Age did not significantly affect the respondents' desire for children. Age does not explain the behavioural variation in the desired number of children.

Families with stable incomes have a clear preference for having two or three children, indicating that financial resources play a key role in decision-making. Fewer families expressed a desire to have four or more children. Families with unstable income or social benefits tend to have fewer children. Families with income derived from agriculture more frequently desire to have four or more children.

The empirical analysis of the model shows that the desire for only one child has a negative relationship with the demographic number of children while desiring two or three children has a positive relationship with the outcome variable.

The desired number of children being one affects the value of the outcome variable, which means that (-0.917) reduces the chances by 0.917, while the desired number of children being two and the desired number of children being three increases it by 2.632 and 8.6, respectively.

REFERENCES

Aassve, A., Cavalli, N., Mencarini, L., Plach, S., & Livi Bacc. (2020). The COVID-19 pandemic and human fertility. Science, 369(6502), 370–371. https://doi.org/10.1126/science.abc9520

Abesadze, N., Abesadze, O., Kinkladze, R., & Paresashvili, N. (2023). Emigration statistics – The Herald of the Survival. Business and Management, 1-7. Vilnius, Lithuania: Vilnius Gediminas Technical University. https://doi.org/10.3846/bm.2023.945

Alcaraz, M., Hayford, S. R., & Glick, J. E. (2022). Desired fertility and educational aspirations: Adolescent goals in rapidly changing social contexts. Journal of Marriage and the Family, 84(1), 7–31. https://doi.org/10.1111/jomf.12815

Alves, L. C., Leite, I. d., & Machado, C. J. (2008). The concept and measurement of functional disability in the elderly population: A literature review. Ciência & Saúde Coletiva, 13(4), 1199-1207. https://doi.org/10.1590/S1413-81232008000400016

Beenstock, M. (2023). Economic development without rural–urban migration in Georgia. Central Asian Survey, 42(3), 537–560. https://doi.org/10.1080/02634937.2023.2219278

Bierens, J., & Hoogenboezem, J. (2022). Fatal drowning statistics from the Netherlands – An example of an aggregated demographic profile. BMC Public Health, 22, 339. https://doi.org/10.1186/s12889-022-12620-3

Cannistraci, C. V., Valsecchi, M. G., & Capua, I. (2021). Age-sex population adjusted analysis of disease severity in epidemics as a tool to devise public health policies for COVID-19. Scientific reports, 11(1), 11787. https://doi.org/10.1038/s41598-021-89615-4

Dokhturishvili, N. (2024). The main directions of the demographic policy of Georgia and the peculiarities of its manifestation in the Kakheti region. IX International Scientific Conference of TSU: Challenges of Globalization in Economy and Business, 70-75. Tbilisi: TSU.

Gelashvili, S. (Ed.), Abesadze, N., Maisuradze, I., Todradze, G., Kinkladze, R., Khmaladze, M., Shavishvili, P., Charekishvili, L., Chitaladze, K., & Tsiklauri, S. (2022). Demographic and social statistics of the regions of Georgia. Ivane Javakhishvili Tbilisi State University Publishing House.

González-Ferrer, A. (2007). The process of family reunification among original guest-workers in Germany. Journal of Family Research, 19(1), 10–33. https://doi.org/10.20377/jfr-335

Good Calculators. (n.d.). Sample size calculator. Good Calculators. Retrieved November 18, 2025, from https://goodcalculators.com/sample-size-calculator/

Heslop, L. A., Papadopoulos, N., & Bourk, M. (1998). An interregional and intercultural perspective on subcultural differences in product evaluations. Canadian Journal of Administrative Sciences/Revue Canadienne des Sciences de l'Administration, 15(2), 113–127. https://doi.org/10.1111/j.1936-4490.1998.tb00156.x

Jackie, L. (2024). Bayesian modelling of best-performance healthy life expectancy. Journal of Population Research, 41, 8–25. https://doi.org/10.1007/s12546-024-09330-5

Li, J. (2024). Bayesian modelling of best-performance healthy life expectancy. Journal of Population Research, 41, 8. https://doi.org/10.1007/s12546-024-09330-5

Meladze, G. (2023). Low Fertility - the Challenge of Demographic Security of Georgia. Georgian Geographical Journal, 3(2). https://doi.org/10.52340/ggj.2023.03.02.08

National Statistics Office of Georgia. (2024). Population. https://www.geostat.ge/en/modules/categories/41/population

Nunnally, J. C. (1967). Psychometric theory. McGraw-Hill.

Pessin, L., Rutigliano, R., & Potter, M. H. (2022). Time, money, and entry into parenthood: The role of (grand)parental support. Journal of Marriage and the Family, 84(1), 101–120. https://doi.org/10.1111/jomf.12782

Rustaveli Fund. (2010). Georgian demographic development: Social-demographic and family policy. Ministry of Education and Science of Georgia, Institute of Demography and Sociology. Tbilisi, Georgia.

Sakhvadze, A. (2024). Our demographic situation does not allow us to relax, we must make great efforts to avoid finding ourselves in a minority in our own country. https://kvira.ge/924933

Schoffer, O., Schriefer, D., Werblow, A., Gottschalk, A., & Pesc. (2023). Modelling the effect of demographic change and healthcare infrastructure on the patient structure in German hospitals: A longitudinal national study based on official hospital statistics. BMC Health Services Research, 23, 1081. https://doi.org/10.1186/s12913-023-10056-y

Shinjiashvili, T., Chanturia, N., & Metreveli, Sh. (2014). Women's employment and reproductive behavior: Mutual influence in the post-Soviet space. In Demography and Sociology (pp. 88-90). Tbilisi: Ilia State University.

Tan, J., & Shao-Tzu, Y. (2024). A life course perspective: Women's childhood background and family formation trajectories in low-fertility South Korea. Journal of Population Research, 41, 13. https://doi.org/10.1007/s12546-024-09328-z