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ASSESSING THE IMPACT OF SOCIAL TRUST ON LIFE SATISFACTION IN SOUTH CAUCASUS AND RUSSIA: A STRUCTURAL EQUATION MODELING APPROACH

Abstract: *The paper aims to explore the relationship between social trust and life satisfaction in the South Caucasus region and Russia. The study uses data from two waves of the Life in Transition Survey conducted in 2010 and 2016 to track changes in living conditions and well-being over time across countries. Structural Equation Models are performed to investigate the research question. Literature review revealed that social trust plays a crucial role in various aspects of human life such as well-being and life satisfaction. It suggests that social trust is positively related to life satisfaction at both the individual and cultural levels and policies aimed at promoting social trust may lead to improved life satisfaction. The results of the research found that social trust is positively associated with life satisfaction, particularly in Azerbaijan and Georgia. The relationship between social trust and life satisfaction is mediated by personal traits such as age, gender, and self-assessed health condition.*

Keywords: *Social trust, Life satisfaction, Structural Equation Modeling, Life in Transition Survey*

1. Introduction

Social trust, defined as the belief in the integrity and reliability of others, is an important aspect of human life as it impacts numerous outcomes, including well-being, cooperation with people, and economic growth (Delhey, J., & Newton, K. (2005)). Life satisfaction, on the other hand, refers to an individual's overall evaluation of their life and its domains (Diener, E., Suh, E. M., Lucas, R. E., & Smith, H. L. (1999)). While social trust and life satisfaction have been extensively studied in various regions, little is known about their relationship in the

South Caucasus region, Armenia, Georgia, and Azerbaijan, which is known for rich cultural, ethnic, and linguistic diversity.

Given the current geopolitical and economic developments in the region, it is crucial to understand the role of social trust in shaping life satisfaction. The investigated countries have experienced significant conflict and instability, and social trust may play a crucial role in mediating the impact of these events on life satisfaction. Additionally, these countries are undergoing rapid social and economic changes, and social trust may help individuals navigate these changes and maintain a sense of stability.

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Therefore, this study aims to examine the relationship between social trust and life satisfaction. By providing a comprehensive understanding of the role of social trust in shaping life satisfaction, this study can inform policymakers and practitioners in their efforts to promote well-being and stability in the region. The findings of this study can also contribute to the larger body of research on social trust and life satisfaction, and provide a framework for future studies in other regions.

Social trust across countries is often assessed using surveys, such as the Life in Transition Survey (LiTS) or World Values Survey (WVS). The current study uses data from two waves of the LiTS (2010, 2016). The study will take into account the potential mediating effects of personal traits on the relationship between social trust and life satisfaction. The inclusion of Russia in this study is due to the close relationship between social and economic phenomena in the Caucasus and Russia. The study aims to understand how these countries perform in social trust, whether there have been any changes in social trust over the observed 6-year period, and how it impacts overall life satisfaction.

2. Literature Review

The relationship between social trust and life satisfaction has been the subject of numerous studies in the fields of sociology, psychology, and political science (Schumann et al., 2016; Wilkinson & Pickett, 2010). In a study by Robert Putnam (1995), the author examined the relationship between social trust and life satisfaction in the context of declining social capital. The study used data from the General Social Survey, a nationally representative survey that collects data on a variety of topics, including social trust and life satisfaction. The results showed that social trust was positively related to life satisfaction, and at the same time, declining social capital was negatively related to life satisfaction. The author concluded that social

trust may be an important factor in promoting well-being in the context of declining social capital.

Another study by Susanne L. Brehm and Wendy Rahn (1997) aimed to investigate the relationship between social trust and life satisfaction at the individual level. The authors used data from the American National Election Study, a survey that collects data on a variety of topics, including social trust and life satisfaction. The results showed that social trust had a positive impact on the life satisfaction of individuals.

Similar studies are done also using the European Values Study (EVS), as well as the LiTS, which again show a positive relationship between social trust and life satisfaction. In the "Social Trust and Life Satisfaction in Transition Countries: Evidence from the LiTS" the authors used data from the LiTS to examine this relationship in a sample of transition countries in Europe. The results of the study showed that social trust was positively related to life satisfaction.

The article "Social Trust, Pattern of Difference, and Subjective Well-Being" by Bai, Gong, and Feng (2020) discusses the relationship between social trust and subjective well-being in China from the perspective of interpersonal distance. The authors classify social trust in China into three categories: trust in family members, trust in acquaintances, and trust in strangers, which shows a decreasing law. The article finds that only trust in acquaintances and strangers has a significant positive correlation with subjective well-being.

Similar research, conducted by Haiping Xu, Chuqiao Zhang, and Yawen Huang (2019): "Social trust, social capital, and subjective well-being of rural residents: micro-empirical evidence based on the Chinese General Social Survey (CGSS)" explores the relationship between social trust, social capital, and subjective well-being in rural China. The study finds that social trust and social capital have a positive impact on the

happiness of rural residents. Rural residents rely on social capital to promote information sharing and resource allocation. The control variables' effects on well-being show that being female, being married, and being in good health raise happiness, while education has no clear-cut direct beneficial effect on advancing happiness.

In his article "The Moral Foundation of Trust" Eric M. Uslaner (2002) discusses the concept of trust and its moral foundations. The article explores the relationship between trust and morality and discusses various factors that influence the level of trust people have in others, including social and cultural norms, individual characteristics, and past experiences. The article raises several research questions, including the nature of trust, the moral foundation of trust, the role of social and cultural factors in shaping trust, and the relationship between trust and social capital. The author examines the results of several surveys to investigate these questions and finds that trust is influenced by various factors such as cultural background, socialization, and past experiences. The main findings of the article include that trust is a moral concept based on reciprocity, and that people are more likely to trust others if they share common cultural and social norms. The article also finds that trust is linked to various positive outcomes, such as economic growth, social cohesion, and political stability. Finally, the article concludes that trust can be fostered through various means, such as promoting social and cultural norms that emphasize reciprocity and encouraging civic engagement.

The article "Subjective Well-Being, Life Satisfaction and Interpersonal Relationships Associated to Socio-Demographic and Contextual Variables" by Bibiana Ramos dos Santos, Jorge Castellá Sarriera, and Lívia Maria Bedin (2018) explores the relationship between children's subjective well-being, life satisfaction, and their interpersonal relationships in various contexts (family, friends, and school) in Brazil. The study also examines the impact

of socio-demographic variables such as age, gender, type of school (public or private), and housing context (capital or non-capital city) on children's satisfaction with their interpersonal relationships and well-being. The authors found significant differences in children's satisfaction with their interpersonal relationships based on gender, type of school, and housing context. Girls were more satisfied with their relationships with friends and at school compared to boys. Children from private schools reported higher levels of satisfaction with their family relationships and at school, while children from public schools were more satisfied with their relationships with friends. Children living in country towns reported higher levels of satisfaction with their family relationships compared to those living in the capital city. The study concludes that socio-demographic and contextual factors such as gender, type of school, and housing context have an impact on children's satisfaction with their interpersonal relationships and well-being. Public school environments, characterized by political and governmental changes, lack of resources, and relocation of students to new groups, may contribute to lower satisfaction with school relationships. The study suggests that interventions aimed at improving children's well-being and satisfaction with their interpersonal relationships should take into account these socio-demographic and contextual factors.

The author of the article "Social and Political Trust: Concepts, Causes, and Consequences" Kevin Vallier (2019) discusses the concept, causes, and consequences of social and political trust. Social trust refers to trust in strangers or people within one's society with whom one has little personal familiarity. It is based on shared social rules and creates a climate of practical and strategic stability. Political trust refers to trust in political institutions and their actors. The article highlights the importance of social trust in sustaining a diverse social order and concludes that liberal-democratic market societies play a modest role in sustaining

social trust and a larger role in sustaining political trust.

Jovanović (2018) conducted a study in Serbia to investigate the relationship between trust and subjective well-being. The research questions focused on whether trust has a direct effect on subjective well-being, and whether the relationship is mediated by social capital. The study found that trust had a positive direct effect on subjective well-being and that the relationship was partially mediated by social capital. Additionally, the study found that age, education, income, and gender were significant predictors of subjective well-being. Overall, the study highlights the importance of trust and social capital in promoting subjective well-being.

In the article "Trust, social dilemmas and collective memories" by Barry Rothstein (2000), the author explores how trust can be built and maintained in social dilemmas, and how collective memories can influence trust-building processes. The main findings suggest that trust can be established through shared experiences, communication, and repeated interactions, while collective memories play a critical role in shaping the way individuals perceive social dilemmas and their willingness to cooperate. Overall, the article highlights the importance of understanding the complex interplay between trust, social dilemmas, and collective memories in building and sustaining successful social relationships.

The article "Measuring Trust" by Edward L. Glaeser, David I. Laibson, Jose A. Scheinkman, and Christine L. Soutter (2000) explores the measurement and multidimensionality of trust. The authors investigate whether trust can be measured using survey questions and find that it is a reliable and valid measure. They also identify trust as a multidimensional concept, consisting of trust in honesty, competence, and benevolence. The study highlights the positive correlation between trust and economic growth, social capital, and well-being, and notes that trust can be influenced

by institutions, culture, and past experiences. This article provides valuable insights into the measurement and understanding of trust as a complex social phenomenon.

Thus it is evident that the current topic holds significant value and relevance for various countries and regions, both at an individual and state level.

3. Methodology

3.1 Data sources

The LiTS is a survey developed by the World Bank to measure the well-being of households in transition economies. It is designed to provide reliable and up-to-date information on the living conditions and well-being of households in these countries. The LiTS has three main goals:

1. To provide a comprehensive picture of the living conditions and well-being of households in transition economies. It collects data on a wide range of indicators, including income, employment, education, health, housing, and social trust, to understand the overall well-being of households.
2. To track changes in living conditions and well-being over time. This survey is conducted periodically, allowing researchers to track changes in living conditions and well-being in transition economies over time.
3. To inform policy decisions and development strategies. The LiTS provides policymakers and development practitioners with the data and insights they need to design and implement effective policies and programs to improve the well-being of households.

There have been three rounds of the LiTS: 2005-2006, 2010-2011, and 2015-2016, but only the last two ways are used in the current research, as the changes in the survey

questionnaire don't allow to match all variables of interest between the first and subsequent two waves. The variables of LiTS surveys, used in the current study, are provided in Appendix, table 2.

3.2 Research Questions

The main research questions investigated in the current study are:

1. How do social trust and life satisfaction vary across different transition economies, and what factors are associated with higher levels of social trust and life satisfaction?
2. How does social trust impact satisfaction with life in transition economies²?
3. How personal characteristics of people affect social trust and life satisfaction and whether they have any mediating effect for social trust and life satisfaction.

3.3 Statistical methodology

Current research implements the structural equation modelling (SEM) technique to investigate the research questions: SEM is a statistical technique that is commonly used to examine complex relationships between multiple variables, including latent constructs. In the current study, SEM is used to investigate the impact of social trust on life satisfaction, while taking into account the potential effects of personal traits.

One of the key advantages of using SEM is its ability to assess latent variables, such as social trust and life satisfaction, which

²Most of the investigated papers refer to the impact of social trust on life satisfaction, reverse causality could also occur if high life satisfaction leads to greater social trust. Individuals who are generally satisfied with their lives may be more likely to have positive perceptions of others and trust in their social networks. In this case, life satisfaction becomes the causal factor, and social trust is the outcome. Although such causal relationships can offer valuable insights into various social phenomena, they fall outside the scope of the present research and have not been examined in this study.

cannot be directly measured and can be inferred from observed variables. SEM allows for the simultaneous examination of multiple relationships between latent and observed variables, making it well-suited for examining complex, interrelated relationships.

3.4 Data Structure

Demographic structure of two surveys across countries

Compared to the 2010 survey, the sample size of the 2016 survey increased from 1000 to about 1500 for Armenia, Azerbaijan, and Georgia. For Russia, about 1500 households were surveyed in two studies.

To assess the representativeness level of the sample in both surveys, the demographic profiles of the samples were created by taking into account the gender, age, and type of settlement of the respondents in all four countries. The results revealed notable changes in Armenia's survey, with the percentage of female respondents increasing from 35% to 67%. In Russia, the proportion of female respondents increased from 48% in 2010 to 62% in 2016.

In contrast to Georgia, the average age of respondents relatively decreased in all other countries in the 2016 survey.

In Armenia, the share of urban respondents decreased from 72% in 2010 to 57% in 2016. In other countries, the proportions of urban and rural respondents were relatively stable in the two surveys.

The demographic shifts in the country's surveyed population may compromise the validity of the final results. A well-established area of research has demonstrated disparities in life satisfaction between genders across countries. Mallory Montgomery (2022) found that, on average, females reported lower life satisfaction compared to males, but that gap varied across nations. The cultural, institutional, and macroeconomic variables shape

differences in life satisfaction between males and females. To counteract the issue of imbalanced samples, data from the years 2010 and 2016 were utilized to attain a gender-balanced dataset for the Armenian and Russian surveys. After balancing, the new sample sizes for Armenia and Russia, which are used for the analysis reduced to 617/1160 and 1227/1507 in the 2010/2016 surveys.

3.5 Data Analysis

Attributes of life satisfaction

An improvement in the economy and political situation can lead to increased social trust, which can positively impact life satisfaction by making individuals feel more

secure about their future and having a positive outlook on their personal situation. The perception of both economic and political situations in Armenia has become very negative, with 56% (figure 1) and 53% (figure 2) of respondents strongly disagreeing with the statement that the situation has improved compared to the preceding four years. These proportions were only 17% and 16% in the 2010 survey respectively for economic and political situations. Similar negative trends were also observed in Russia and Georgia. Unlike these countries, the assessment of the economic and political situation in Azerbaijan remained stable and overall positive in both surveys.

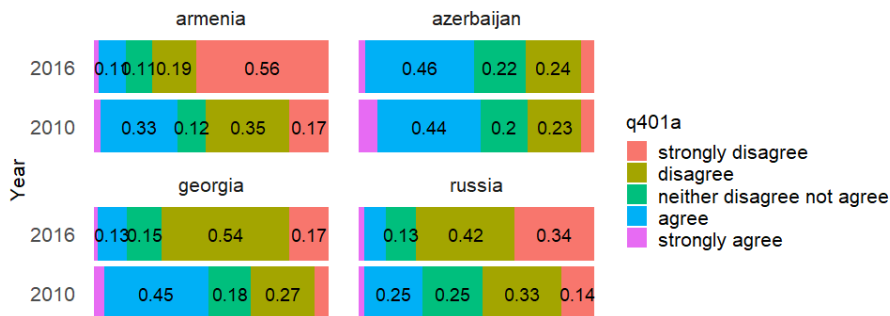


Figure 1.

The economic situation is better today than around 4 years ago

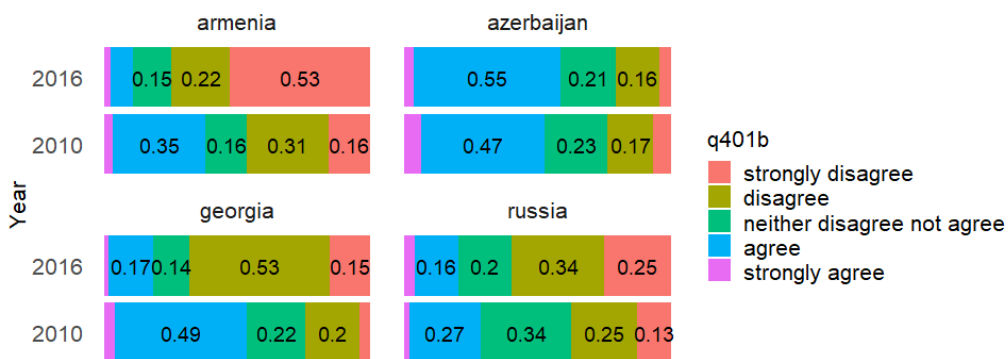


Figure 2. The political situation is better today than around 4 years ago

The statement “I have done better in life than my parents” is often seen as an indicator of upward social mobility, which can be

positively related to social trust and life satisfaction. Individuals who feel that they have improved their socio-economic status

compared to their parents may be more likely to trust others and feel a sense of satisfaction with their lives.

Based on survey data, it was found that social mobility was lower in Armenia in 2010, and the situation worsened by 2016. In Armenia, 38% of survey participants strongly disagreed that they had achieved more success in life than their parents, compared to 11%, 8%, and 5% in Georgia, Russia, and Azerbaijan, respectively (figure 3).

The outlined concept of interaction of different elements of the system of corporate management is based on empirical theoretical provisions. However, it requires deeper substantiation from the position of description of directions and effects that are achieved due to quality management through sustainable HRM and based on digital competencies. Main methods that can be used here include analysis and synthesis, observation and generalisation, cognitive modelling, grouping, and structural and functional analysis.

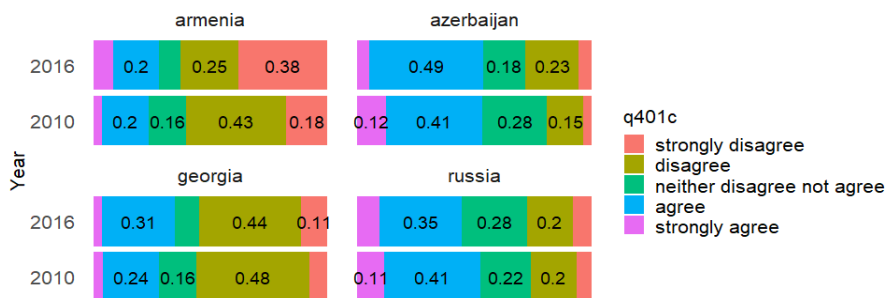


Figure 3. I have done better in life than my parents

The perception of personal well-being and financial stability can significantly impact the overall contentment and happiness of a household, as well as their level of trust in their community. If individuals perceive that their household is thriving, they are more likely to have a positive outlook on life and feel satisfied with their circumstances. Additionally, a positive perception of personal well-being may lead to increased trust in others and a belief that the wider community is also doing well.

Survey data shows that in 2016, Armenian households had a negative perception of the change in their well-being, with 49% of participants strongly disagreeing that their household was better off compared to four years prior. This is in contrast to the responses from Russia, Georgia, and Azerbaijan, where only 24%, 12%, and 6% respectively strongly disagreed with the same statement (figure 4).

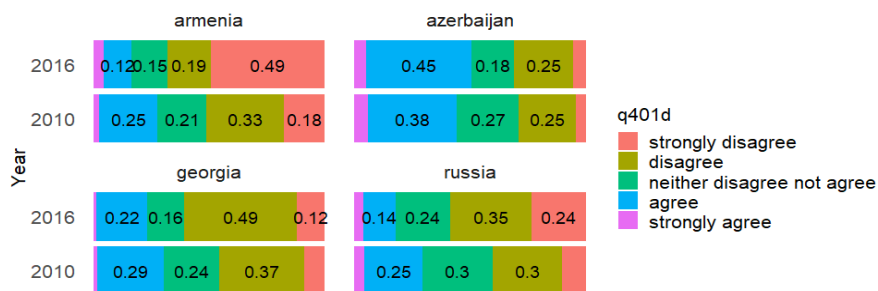


Figure 4. My household lives better nowadays than around 4 years ago

The findings of the research indicate that similar trends were observed in terms of overall life satisfaction. The respondents from Armenia were found to be the most pessimistic in 2010 compared to respondents from other countries. In 2016, the proportion

of people with the lowest level of life satisfaction in Armenia had doubled, reaching 39%. Conversely, the perception of life satisfaction remained stable in the other three countries across both surveys (figure 5).

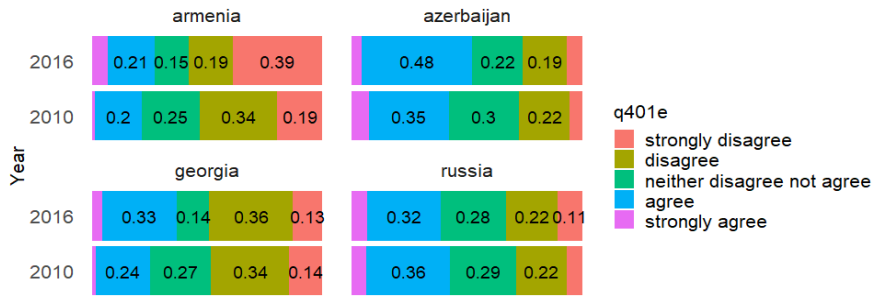


Figure 5. All things considered, I am satisfied with my life now

If people believe that the future will be better for the next generation, it can reflect their level of optimism and trust in society and its institutions. If a person has a high level of trust in the future, they may also have a higher level of life satisfaction. The below statement can also reflect a person's perception of the changes and improvements in their society.

The statement “Children who are born now will have a better life than my generation” can be used as an indicator of an individual's social trust and life satisfaction, as it represents their beliefs and perceptions about their society's future. Based on this perspective, the situation in Armenia worsened in 2016 compared to 2010, with 38% of respondents in 2016 expressing pessimism about the future of the next generation (figure 6).

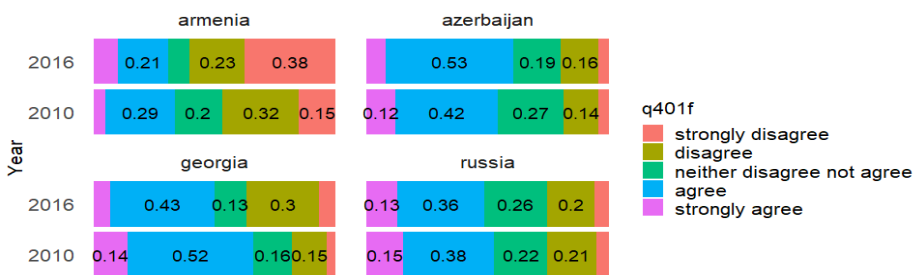


Figure 6. Children who are born now will have a better life than my generation

In the LiTS survey, there is a focus on evaluating overall satisfaction with the current state of the economy in addition to specific questions on satisfaction levels. The findings show that the ranking of the four observed countries aligns with previously

discussed questions. Armenian respondents rated the current state of the economy very poorly, whereas Azerbaijani respondents gave a relatively stable and higher assessment of the economy compared to the other countries (figure 7).

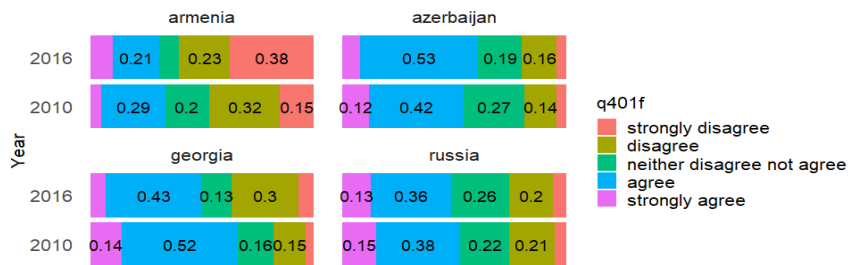


Figure 7. On the whole, I am satisfied with the present state of the economy

3.6 Past, present and future financial positions of people on a ten-step financial ladder

An individual's perception of their financial situation can offer valuable insights into their overall level of life satisfaction, including their current, past, and future financial standing. People who perceive themselves as financially stable, and secure, and anticipate a secure future are more likely to report higher levels of life satisfaction. Stevenson and Wolfers (2008) have suggested that an individual's financial perception is closely linked to their overall life satisfaction. Feeling financially secure in the present, having experienced financial stability in the past, and anticipating financial security in the future are key factors that contribute to an individual's life satisfaction. This paper provides important insights into the relationship between income and subjective well-being, contributing to a

greater understanding of the factors that influence life satisfaction.

The current study shows that people's attitudes and perceptions about their past, present, and future financial situation can provide insights into societal attitudes towards the future of a country. For example, in Armenia, individuals reported low subjective rankings of their financial situation in the past, present, and future in 2010, with negative attitudes towards future financial positions in society becoming more apparent by 2016. In contrast, Azerbaijani people became more optimistic about the future in 2016 compared to 2010. Georgian respondents reported low past and present financial positions in both 2010 and 2016 but remained positive about the future. Russian people reported higher relative financial positions for all past, present, and future periods in 2016 compared to 2010 (figure 8).

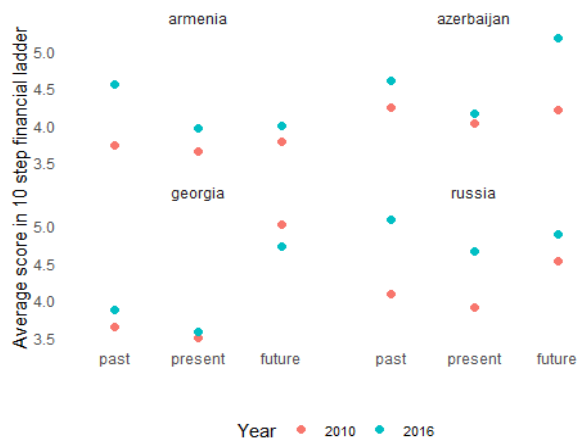


Figure 8. Past, present, and future financial position

3.7 Social Trust

The LiTS survey collects data on social trust, which refers to an individual's confidence in others and the expectation that others will behave in a trustworthy manner. This information is useful for analyzing the factors that contribute to social trust and can inform public policies aimed at promoting social trust and social cohesion.

The results of the survey indicate (figure 9) that, in general, more people in Russia and Georgia report trusting others compared to Armenia and Azerbaijan. In 2016, only 15% and 19% of Russian and Georgian respondents, respectively, reported that people cannot be trusted at all, while this figure was 40% and 45% in Armenia and Azerbaijan.

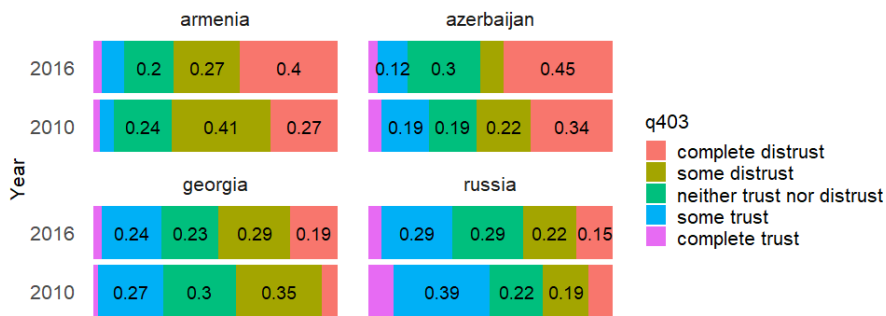


Figure 9. Generally speaking, would you say that most people can be trusted?

In addition to the general trust of people, LiTS also assess the extent how which respondents trust people from the following groups: Family living with you; The neighborhood; People you meet for the first time; and Foreigners.

Figure 10 demonstrates that the degree of trust in families differs among countries. In Armenia and Azerbaijan, the majority of

individuals (96% and 93%, respectively) fully trust their families in both the 2010 and 2016 surveys. In contrast, the percentage of Russian respondents who have complete trust in their families decreased from 92% in 2010 to 87% in 2016. Georgia exhibits a distinct pattern, with a lower rate of complete trust in 2010 (72%), which decreased further to 64% in 2016.

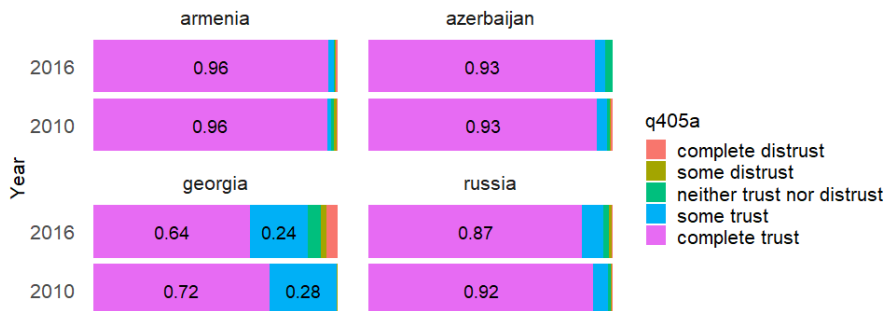


Figure 10. Trust - family living with you

The degree of trust in neighbourhoods is fairly consistent among the four countries (figure 11). However, there is one noteworthy trend: the percentage of

individuals in Azerbaijan who have no trust in their neighbourhoods has increased significantly. In 2016, this figure rose to 16%, up from just 5% in 2010.

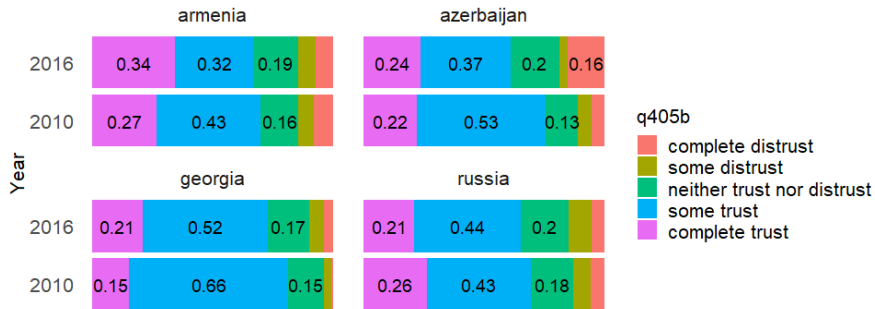


Figure 11. Trust - your neighborhood

In terms of trust towards strangers, Azerbaijan has a high proportion of respondents who reported not trusting people they met for the first time, and this percentage increased by 10 points between

2010 and 2016, reaching 57% (figure 12). Armenia was the second country with a high level of distrust towards strangers, while Georgia was the most tolerant country in this regard.

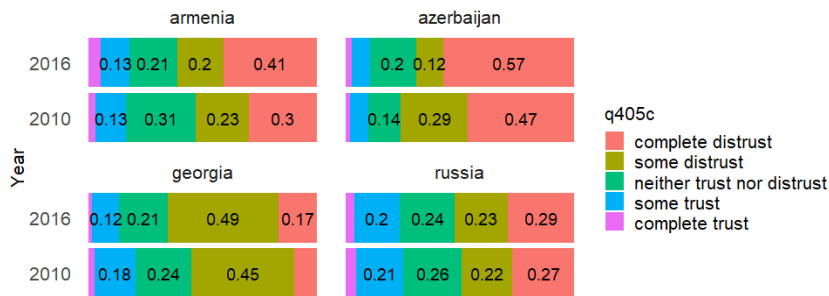


Figure 12. Trust - people you meet for the first time

From 2010 to 2016, there was a general decline in trust towards foreigners in all observed countries. Notably, in 2016, 70% of people in Azerbaijan completely distrusted foreigners, compared to 33% in

2010. Armenia is in second place by the level of distrust, demonstrating 42% of complete distrust. Georgia is again the most tolerant country by this indicator (figure 13).

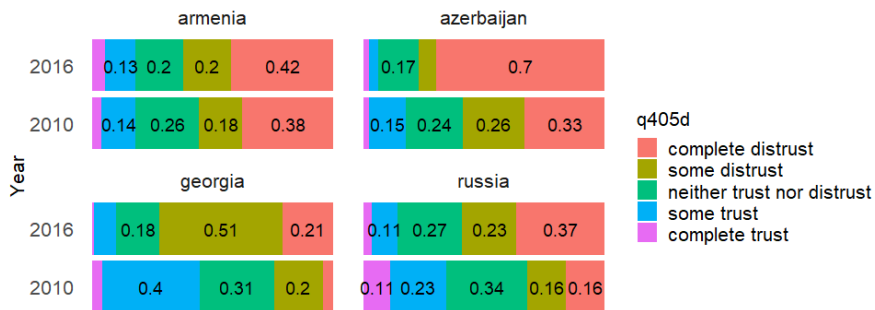


Figure 13. Trust - foreigners

3.8 Structural Equation Modeling

Before conducting a structural equation modelling analysis, it is crucial to examine the interrelationships among the study's observed variables for all countries in both surveys (see Appendix, table 4). Also to assess the reliability of two latent constructs: social trust and life satisfaction a reliability analysis is conducted by computing Cronbach's Alpha coefficients for all countries across two surveys. Cronbach's Alpha is a measure of the internal consistency or reliability of a scale or questionnaire. It ranges from 0 to 1, with a value of 0.6-0.7 considered acceptable and values above 0.8 indicating good reliability. The coefficient alpha is the average correlation between items in the scale and higher values indicate greater internal consistency. However, it is important to keep in mind that the number of items and underlying construct also play a role in its interpretation. According to Kline (2011), a high alpha value means the items measure a single underlying construct, while a low value indicates the items are not related to each other.

Based on Table 3 of the Appendix, it seems that the internal reliability of the satisfaction construct is satisfactory for all countries and surveys, as indicated by Cronbach's alpha value. However, for social trust, Cronbach's alpha value falls below the acceptable threshold for Armenia and Azerbaijan in the 2010 survey (0.546 and 0.507 respectively) but meets the minimum acceptable level of 0.6 in the 2016 survey. Overall, even taking into account some violations from a minimal threshold of internal reliability, the observed items (questions of the survey) accurately measure the underlying constructs of satisfaction and social trust, and can be utilized in further Structural Equation Modeling (SEM).

A SEM is used in the current study to examine the relationships between satisfaction, social trust, and demographic

factors such as age, gender, and health perception. SEM provides an ability to examine both direct and indirect relationships between variables, which is important in understanding the underlying mechanisms that contribute to satisfaction and social trust. Additionally, SEM allows for the estimation of latent variables such as satisfaction and social trust, which are constructed from multiple indicators. The latent variables are measured by 7 items for Satisfaction (q401a to q401g) and 4 items for Social Trust (q403, q405b, q405c, and q405d)³. The interdependence of the observed items within both latent variables is not investigated to not complicate the model outputs and to make the comparison of estimates of the models across countries and surveys more reasonable.

Age, gender, and health factors are used as moderating factors for a relationship between social trust and satisfaction. These demographics are assumed to be not correlated in SEM specification.

Before discussing the details of SEM models for observed countries, in this section we discuss the statistical indicators, which are used to measure the quality of SEM results. There are many indicators to measure the quality of SEM. Some of the noticeable research in this field is done by Kline, R. B. (2011), *Principles and practice of structural equation modelling* (3rd ed.); Bentler, P. M., & Bonett, D. G. (1980), *Significance tests and goodness of fit in the analysis of covariance structures*. Some of the popular measures include the Chi-square Test, RMSEA, SRMR, CFI, TLI, GFI, NFI, RMR, SRMR, and RMSEA. It is important to note that no single measure can provide a definitive answer about the fit of the model. Therefore, it is recommended to use multiple measures and interpret them in the context of the specific model and research questions.

One of the widely used measures, the Chi-square Test, is sensitive to sample size,

³ The description of observed variables is provided in Appendix, table 2

making it unreliable in large sample sizes. A low p-value (typically, $p < 0.05$) is considered to indicate a good fit for the model. However, it's important to keep in mind that the chi-square test may lead to significant results even when the model is not a good fit due to the influence of sample size. On the other hand, measures like RMSEA and SRMR are better indicators of fit as they take into account the magnitude of residuals and are not influenced by sample size. A RMSEA value close to 0 and SRMR value close to 0 indicate a good fit, while values close to 1 indicate a poor fit. RMSEA values between 0.05 and 0.08 and SRMR values below 0.05 are generally considered to indicate a reasonable fit.

CFI and TLI are measures of improvement in fit relative to a baseline model, providing a more comprehensive assessment of the fit of the model. A CFI value close to 1 and a TLI value greater than 0.95 indicate a good fit, while values close to 0 indicate a poor fit. GFI and NFI, on the other hand, evaluate the

fit of the observed covariance matrix with the predicted covariance matrix. A GFI value greater than 0.9 and an NFI value closer to 1 indicate a good fit. It's important to keep in mind that no single goodness of fit measure provides a definitive answer about the fit of your model. You should always consider multiple measures and interpret them in the context of your specific model and research questions.

The goodness of fit measures of SEM models performed in the current study show that they are close to acceptable thresholds but for some countries and years, they are below these limits. The deviations of hypothetical reasonable SEM models are not big, so the results can be used to test the research hypotheses. Table 1 presents the goodness of fit measures for all four countries for both surveys (ARM, AZE, GEO, and RUS are abbreviations for Armenia, Azerbaijan, Georgia, and Russia. The suffixes “_10” and “_16” refers to 2010 and 2016 surveys).

Table 1. The goodness of fit measures of SEM for all countries in two surveys

	ARM_10	ARM_16	AZE_10	AZE_16	GEO_10	GEO_16	RUS_10	RUS_16
Chi-Square	264.333	678.576	313.408	413.368	424.842	863.838	465.708	1,048.410
df	73.000	73.000	73.000	73.000	73.000	73.000	73.000	73.000
p-value	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NFI	0.832	0.750	0.862	0.928	0.781	0.782	0.775	0.755
CFI	0.871	0.769	0.890	0.940	0.809	0.795	0.802	0.767
tli	0.839	0.712	0.863	0.925	0.762	0.745	0.753	0.709
gfi	0.893	0.907	0.927	0.939	0.904	0.900	0.887	0.877
rmr	0.344	0.987	0.434	0.330	0.551	0.922	0.723	0.866
srmr	0.072	0.072	0.054	0.062	0.064	0.072	0.079	0.084
rmsea	0.084	0.093	0.073	0.070	0.090	0.097	0.097	0.112

SEM: Armenia

The model output (figure 14) includes standardized factor loadings of observed items for two latent constructs: social trust and life satisfaction. The standardized loadings of all observed factors within each of the two latent variables are statistically

significant. However, satisfaction extracts more information from its components⁴ compared to social trust, and this holds true for both the 2010 and 2016 surveys.

⁴ All 7 items of satisfaction describe this latent construct better than the four items describe social trust

We found that the effects of independent demographic factors on the two latent variables have changed over the observed period. In 2010, the effect of age on social trust and satisfaction was not statistically significant. Gender had a significant effect only on social trust: the level of social trust of males is significantly lower compared to females. Health conditions had a significant negative effect on the level of satisfaction, indicating that people with good health perceptions are more satisfied.

In 2016, age became a significant factor for both latent variables. While older people are overall less satisfied with their lives, their

social trust levels are higher compared to younger people. Additionally, males were significantly less satisfied with their lives compared to females in 2016. Healthier people are more satisfied with their lives and also demonstrate a high level of social trust. Importantly, the effect of social trust on overall life satisfaction is significantly positive in the 2016 survey, with a standardized loading of 0.10. This significant effect was not observed in the 2010 survey, which implies that the relationship between social trust and overall life satisfaction may have changed over time in Armenia.

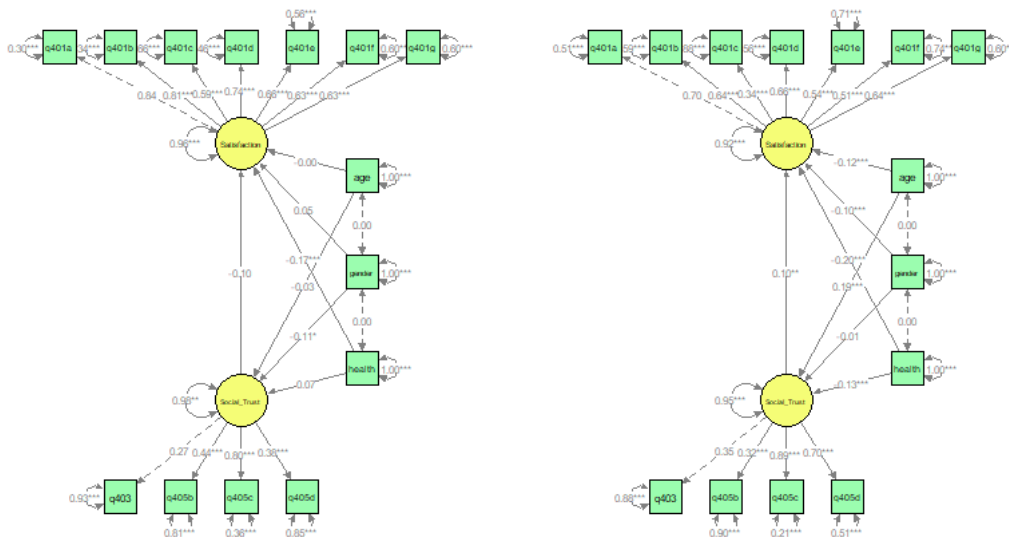


Figure 14. SEM plots for Armenia, 2010 (left plot), 2016 (right plot) (The variance of a particular variable is presented on the corresponding double-sided arrow)

SEM: Georgia

The relationship between latent constructs and independent variables is statistically significant in both the 2010 and 2016 surveys, meaning that the chosen measurable items can be used to describe the underlying latent constructs. The analysis indicates that in Georgia gender is not a significant factor for overall life satisfaction and social trust at a 0.05 level of significance (figure 15). Furthermore, older people trust others more

compared to younger people. The effect of age on life satisfaction is not significant at a 0.05 level of significance. In 2016, people with poor health conditions trusted others less and were significantly less satisfied with life (this effect was observed also in a 2010 survey). The effect of social trust on the level of satisfaction is positive and statistically significant for both the 2010 and 2016 surveys, with 0.18 and 0.28 standardized coefficients, respectively.

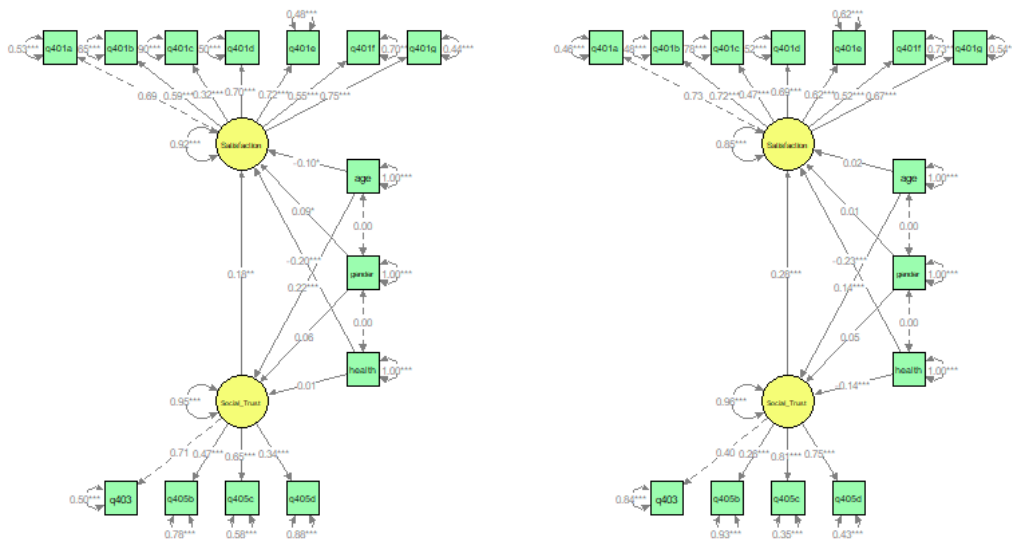


Figure 15. SEM plots for Georgia, 2010 (left plot), 2016 (right plot)

SEM: Azerbaijan

The SEM model for Azerbaijan shows that a significant effect of health conditions is observed for life satisfaction in Azerbaijan in both surveys: healthier people were more satisfied with life. In 2016, males showed a very high level of social trust compared to

females, with a standardized coefficient of 0.56 (figure 16). Furthermore, the effect of social trust on life satisfaction became statistically significant in 2016 compared to 2010, with 0.18 and 0.09 standardized coefficients, respectively.

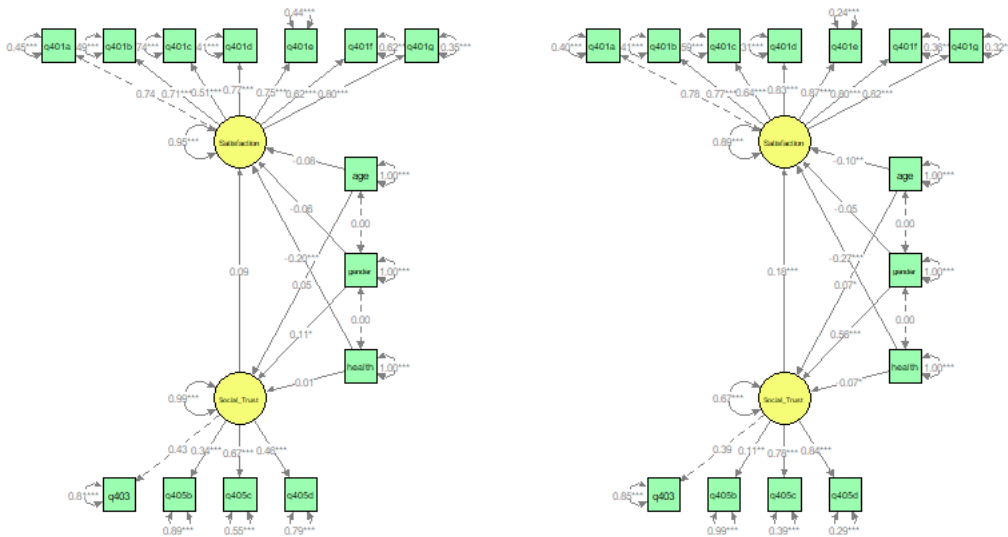


Figure 16. SEM plots for Azerbaijan, 2010 (left plot), 2016 (right plot)

SEM: Russia

One of the most noticeable differences in the results of Russia’s study is that there is no gender gap in terms of social trust and life satisfaction. Older people have a significantly high level of social trust and significantly lower life satisfaction. This effect is observed in both the 2010 and 2016 surveys. Additionally, healthier people trust

others more (in 2016) and are more satisfied with their lives (in 2010 and 2016). Another noticeable difference between Russia and the three Caucasus countries is that the effect of social trust on life satisfaction is very high, with standardized coefficients of 0.31 and 0.38 in the 2010 and 2016 surveys, respectively (figure 17).

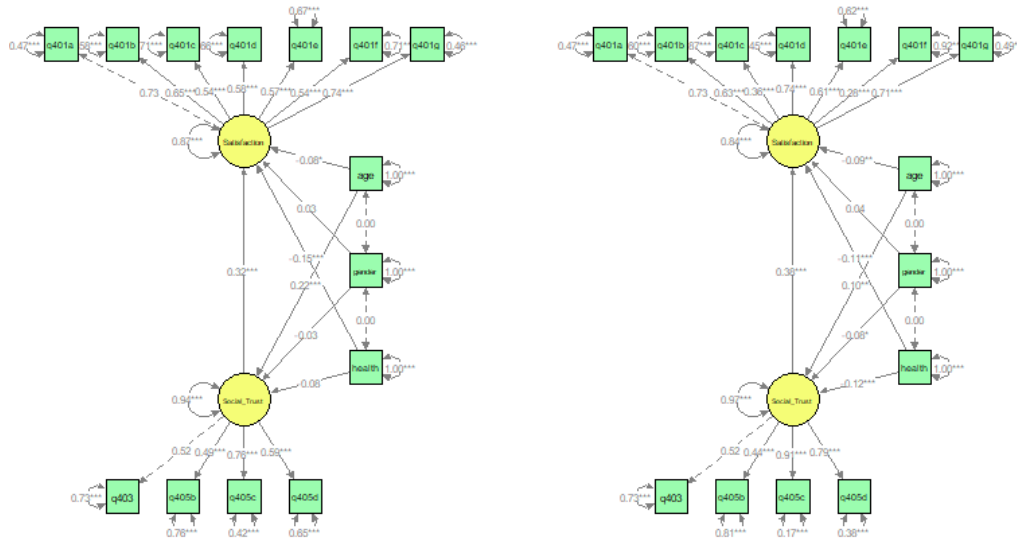


Figure 17. SEM plots for Russia, 2010 (left plot), 2016 (right plot)

4. Conclusion

This study aimed to investigate the relationship between social trust and life satisfaction in the South Caucasus region, specifically in Armenia, Georgia, and Azerbaijan and also in Russia, using the SEM technique. LiTS developed by the World Bank was used to collect data for the analysis.

The analysis shows that there are notable differences in the perception of economic and political situations, and social mobility across the four countries over time.

Regarding the perception of economic and political situations, Azerbaijan had a stable and overall positive assessment in both surveys, while Armenia, Georgia, and Russia showed negative trends. In Armenia, the

perception of both economic and political situations became very negative by 2016, with a significant increase in the proportion of respondents strongly disagreeing with the statement that the situation had improved compared to the preceding four years. In terms of social mobility, Armenia had lower levels in 2010, which worsened by 2016. In contrast, Georgia, Russia, and Azerbaijan had higher levels of social mobility, with a significantly smaller proportion of respondents strongly disagreeing that they had achieved more success in life than their parents.

Armenian households had the most negative perception of their change in well-being in 2016 compared to four years prior, while Russia, Georgia, and Azerbaijan had more positive perceptions. Similarly, the analysis

shows that the perception of life satisfaction in Armenia was the lowest in 2010 compared to other countries, and the proportion of people with the lowest level of life satisfaction doubled in 2016 in Armenia. This is a concerning trend that suggests there may be underlying social and economic issues in the country that need to be addressed.

The data shows that in Armenia, the proportion of respondents who expressed pessimism about the future of the next generation increased in 2016 compared to 2010. This suggests that there may be a lack of trust in societal institutions or that people have become increasingly pessimistic about the future of their country.

The survey data reveals interesting differences in social trust levels among the countries, as well as changes in social trust over time. In terms of general trust, the survey shows that more people in Russia and Georgia reported trusting others compared to Armenia and Azerbaijan. It is interesting to note that trust levels have declined across all countries from 2010 to 2016, which could reflect broader social and economic changes in these societies.

When it comes to trust in specific groups, the survey shows that the degree of trust in families differs among countries. Armenia and Azerbaijan have the highest rates of complete trust in their families, while Russia and Georgia have lower rates, with Georgia showing a decline over time. This could be attributed to changes in family dynamics and social norms in these countries. The degree of trust in neighbourhoods is fairly consistent among the four countries, but there is a significant increase in the percentage of individuals in Azerbaijan who have no trust in their neighbourhoods. Regarding trust towards strangers, Azerbaijan has a high proportion of respondents who reported not trusting people they meet for the first time, and this percentage increased significantly from 2010 to 2016. Armenia also showed a high level

of distrust towards strangers, while Georgia was the most tolerant country in this regard. Finally, the survey shows a general decline in trust towards foreigners across all countries, with Azerbaijan showing the highest level of complete distrust.

The SEM analyses conducted in four countries provide insights into the relationships between satisfaction, social trust, and demographic factors such as age, gender, and health perception. Comparing the results across these countries, we can observe several similarities and differences. One notable similarity is the positive effect of social trust on life satisfaction, which is statistically significant in all surveys except for Armenia and Azerbaijan in 2010. Another finding is that the relationship between social trust and life satisfaction is higher in Russia. The second country in this regard is Georgia. This suggests that social trust is an important factor in predicting life satisfaction in these countries.

Regarding demographic factors, the results indicate that age is a significant factor for both social trust and life satisfaction, with older people generally showing higher levels of social trust but lower levels of life satisfaction. However, the effect of age on these variables is not consistent across all countries and surveys. For example, in Armenia, age was not a significant factor in 2010, while in Azerbaijan, the effect of age on social trust was not significant in either survey. Gender is another demographic factor that shows variation across countries. In Armenia, gender had a significant effect only on social trust in 2010, while in Azerbaijan, males showed a significantly higher level of social trust in 2016. Interestingly, gender was not a significant factor for either social trust or life satisfaction in Georgia. Health perception is consistently shown to be a significant factor for life satisfaction across all countries and surveys, with healthier people generally reporting higher levels of life satisfaction. However, the effect of health perception on social trust varies across countries and

surveys. For example, in Azerbaijan, health perception did not have a significant effect on social trust in either survey, while in Russia, healthier people tended to trust others more in 2016.

This study has several limitations. First, this study focused only on the South Caucasus region, which limits the generalizability of the findings to other regions. Future studies should investigate the relationship between social trust and life satisfaction in other regions to provide a more comprehensive understanding of the phenomenon. Second, this study did not investigate the role of cultural and social factors in shaping social trust and life satisfaction. Future studies should investigate these factors to provide a

more nuanced understanding of the relationship between social trust and life satisfaction. Based on these limitations, we recommend that future studies use more up-to-date longitudinal data, and investigate the relationship between social trust and life satisfaction in other regions. Moreover, policymakers and development practitioners should focus on improving the economy and political situation to increase social trust, which can positively impact life satisfaction. Furthermore, programs aimed at improving personal well-being and financial stability should be implemented to increase the overall contentment and happiness of households in transition economies.

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APPENDIX

Table 2. Description of variables used to measure latent variables of Social trust and Life satisfaction. Demographic factors

Dimension	Variable	Label
Satisfaction	q401a	The economic situation in our country is better today than around 4 years ago
Satisfaction	q401b	The political situation in our country is better today than around 4 years ago
Satisfaction	q401c	I have done better in life than my parents
Satisfaction	q401d	My household lives better nowadays than around 4 years ago
Satisfaction	q401e	All things considered, I am satisfied with my life now
Satisfaction	q401f	Children who are born now will have a better life than my generation
Satisfaction	q401g	On the whole, I am satisfied with the present state of the economy
Social Trust	q403	Generally speaking, would you say that most people can be trusted, or that you can't be too careful in dealing with people?
Social Trust	q405b	Trust - your neighbourhood
Social Trust	q405c	Trust - people you meet for the first time
Social Trust	q405d	Trust - foreigners
Demographics	age	Age of respondent
Demographics	gender	Gender of respondent (in SEM "female = 0" and "male = 1")
Demographics	health	How would you assess your health? (in SEM "very good = 1"; "good = 2"; "medium = 3"; "bad = 4"; "very bad = 5")

Table 3. Descriptive summary of variables across countries and surveys. Cronbach's alpha coefficients

Dimension	Country	Variable	mean_10	SD_10	mean_16	SD_16	Cronbach_10	Cronbach_16
Satisfaction	ARM	q401a	2.696	1.174	1.842	1.143		
Satisfaction	ARM	q401b	2.797	1.175	1.863	1.102		
Satisfaction	ARM	q401c	2.496	1.109	2.359	1.379		
Satisfaction	ARM	q401d	2.617	1.120	2.042	1.244	0.889	0.747
Satisfaction	ARM	q401e	2.504	1.064	2.374	1.354		
Satisfaction	ARM	q401f	2.767	1.161	2.433	1.420		
Satisfaction	ARM	q401g	2.377	1.014	1.872	1.172		
Social Trust	ARM	q403	2.154	0.969	2.090	1.130		
Social Trust	ARM	q405b	3.742	1.158	3.795	1.194		
Social Trust	ARM	q405c	2.368	1.133	2.211	1.248	0.546	0.636
Social Trust	ARM	q405d	2.284	1.213	2.189	1.254		
Satisfaction	AZE	q401a	3.262	1.061	3.169	1.002		
Satisfaction	AZE	q401b	3.283	1.033	3.370	0.945		
Satisfaction	AZE	q401c	3.428	1.006	3.249	1.031		
Satisfaction	AZE	q401d	3.170	1.004	3.190	1.051	0.892	0.872
Satisfaction	AZE	q401e	3.166	1.028	3.244	1.023		
Satisfaction	AZE	q401f	3.431	1.016	3.444	0.984		
Satisfaction	AZE	q401g	3.072	0.952	3.096	1.046		
Social Trust	AZE	q403	2.400	1.273	2.205	1.235		
Social Trust	AZE	q405b	3.814	1.014	3.501	1.312		
Social Trust	AZE	q405c	1.887	1.032	1.863	1.143	0.507	0.608
Social Trust	AZE	q405d	2.272	1.141	1.609	1.027		
Satisfaction	GEO	q401a	3.145	1.051	2.280	0.942		
Satisfaction	GEO	q401b	3.294	0.967	2.370	0.984		
Satisfaction	GEO	q401c	2.684	1.044	2.725	1.129		
Satisfaction	GEO	q401d	2.779	1.012	2.523	1.008	0.797	0.819
Satisfaction	GEO	q401e	2.642	1.043	2.796	1.156		
Satisfaction	GEO	q401f	3.584	1.013	3.136	1.121		
Satisfaction	GEO	q401g	2.430	1.001	2.235	0.974		
Social Trust	GEO	q403	2.829	0.961	2.631	1.147		
Social Trust	GEO	q405b	3.920	0.696	3.797	0.969		
Social Trust	GEO	q405c	2.582	0.980	2.328	0.938	0.603	0.6
Social Trust	GEO	q405d	3.200	0.953	2.175	0.887		
Satisfaction	RUS	q401a	2.680	1.063	2.042	1.019		
Satisfaction	RUS	q401b	2.805	1.029	2.390	1.137		

Dimension	Country	Variable	mean_10	SD_10	mean_16	SD_16	Cronbach_10	Cronbach_16
Satisfaction	RUS	q401c	3.316	1.103	3.183	1.104		
Satisfaction	RUS	q401d	2.834	1.049	2.393	1.106	0.828	0.788
Satisfaction	RUS	q401e	3.134	1.045	3.013	1.116		
Satisfaction	RUS	q401f	3.371	1.116	3.298	1.097		
Satisfaction	RUS	q401g	2.582	1.011	2.240	1.044		
Social Trust	RUS	q403	3.213	1.159	2.874	1.143		
Social Trust	RUS	q405b	3.766	1.091	3.657	1.079		
Social Trust	RUS	q405c	2.531	1.211	2.457	1.208	0.741	0.761
Social Trust	RUS	q405d	2.967	1.214	2.213	1.146		

Table 4. Correlation between variables of social trust and life satisfaction for 2010 and 2016

Armenia

Year	Variable	q401a	q401b	q401c	q401d	q401e	q401f	q401g	q403	q405b	q405c	q405d
10	q401b	0.815***										
10	q401c	0.401***	0.418***									
10	q401d	0.587***	0.592***	0.444***								
10	q401e	0.418***	0.436***	0.435***	0.470***							
10	q401f	0.498***	0.521***	0.440***	0.493***	0.546***						
10	q401g	0.447***	0.452***	0.363***	0.445***	0.563***	0.460***					
10	q403	0.081	0.109*	0.115**	0.133**	0.188***	0.099*	0.109**				
10	q405b	-0.009	0.009	0.070	0.022	0.077	-0.007	0.083	0.193***			
10	q405c	-0.143***	-0.152***	-0.096*	-0.133**	-0.056	-0.123**	-0.031	0.188***	0.303***		
10	q405d	-0.090*	-0.006	0.063	0.022	0.066	-0.031	0.066	0.150***	0.227***	0.295***	
16	q401b	0.597***										
16	q401c	0.192***	0.145***									
16	q401d	0.444***	0.320***	0.263***								
16	q401e	0.246***	0.219***	0.228***	0.362***							
16	q401f	0.332***	0.293***	0.190***	0.296***	0.312***						
16	q401g	0.368***	0.294***	0.266***	0.411***	0.421***	0.354***					
16	q403	0.043	0.058	0.020	0.027	0.086**	0.089**	-0.006				
16	q405b	0.019	0.081**	0.063*	0.040	0.037	0.022	0.059*	0.264***			
16	q405c	0.040	0.051	0.024	0.012	0.050	0.116***	0.063*	0.277***	0.254***		
16	q405d	0.009	0.049	0.066*	0.010	0.037	0.094**	0.039	0.213***	0.193***	0.626***	

Azerbaijan

Year	Variable	q401a	q401b	q401c	q401d	q401e	q401f	q401g	q403	q405b	q405c	q405d
10	q401b	0.700***										
10	q401c	0.332***	0.230***									
10	q401d	0.481***	0.448***	0.366***								
10	q401e	0.444***	0.449***	0.397***	0.588***							
10	q401f	0.382***	0.391***	0.394***	0.500***	0.512***						
10	q401g	0.593***	0.552***	0.391***	0.546***	0.573***	0.457***					
10	q403	0.076*	0.122***	-0.141***	0.037	0.020	0.028	0.019				
10	q405b	0.054	0.029	0.002	0.048	0.027	0.043	0.037	0.223***			
10	q405c	-0.035	-0.003	-0.062	0.031	0.010	0.018	-0.024	0.318***	0.169***		
10	q405d	-0.022	0.053	0.080*	0.050	0.136***	0.105**	0.059	0.096**	0.121***	0.309***	
16	q401b	0.710***										
16	q401c	0.508***	0.538***									
16	q401d	0.648***	0.630***	0.575***								
16	q401e	0.660***	0.654***	0.583***	0.780***							
16	q401f	0.564***	0.578***	0.533***	0.643***	0.729***						
16	q401g	0.676***	0.630***	0.546***	0.719***	0.744***	0.684***					
16	q403	0.239***	0.285***	0.187***	0.284***	0.277***	0.219***	0.275***				
16	q405b	0.144***	0.166***	0.061*	0.083**	0.099***	0.075*	0.108***	0.241***			
16	q405c	0.155***	0.173***	0.094***	0.140***	0.146***	0.033	0.168***	0.362***	0.191***		
16	q405d	0.153***	0.125***	0.109***	0.151***	0.161***	0.028	0.180***	0.342***	0.103***	0.659***	

Georgia

Year	Variable	q401a	q401b	q401c	q401d	q401e	q401f	q401g	q403	q405b	q405c	q405d
10	q401b	0.706***										
10	q401c	0.218***	0.204***									
10	q401d	0.505***	0.391***	0.209***								
10	q401e	0.422***	0.364***	0.271***	0.576***							
10	q401f	0.415***	0.390***	0.197***	0.326***	0.335***						
10	q401g	0.515***	0.451***	0.295***	0.524***	0.635***	0.365***					
10	q403	0.137***	0.149***	0.102**	0.087**	0.104**	0.158***	0.202***				
10	q405b	-0.003	-0.032	-0.019	0.003	-0.053	0.132***	-0.006	0.305***			
10	q405c	0.110***	0.083*	0.059	0.121***	0.126***	0.173***	0.149***	0.432***	0.260***		
10	q405d	0.016	0.127***	-0.001	-0.006	0.033	0.091*	0.030	0.224***	0.156***	0.292***	
16	q401b	0.704***										
16	q401c	0.278***	0.290***									
16	q401d	0.485***	0.448***	0.328***								
16	q401e	0.329***	0.338***	0.313***	0.434***							
16	q401f	0.305***	0.349***	0.337***	0.358***	0.424***						
16	q401g	0.386***	0.404***	0.297***	0.483***	0.504***	0.313***					
16	q403	0.120***	0.173***	0.103***	0.091***	0.169***	0.147***	0.163***				
16	q405b	0.070**	0.099***	0.115***	0.089***	0.099***	0.119***	0.081**	0.184***			
16	q405c	0.172***	0.187***	0.146***	0.128***	0.127***	0.089**	0.196***	0.300***	0.218***		
16	q405d	0.140***	0.188***	0.108***	0.093***	0.078**	0.090**	0.128***	0.250***	0.180***	0.598***	

Russia

Year	Variable	q401a	q401b	q401c	q401d	q401e	q401f	q401g	q403	q405b	q405c	q405d
10	q401b	0.673***										
10	q401c	0.322***	0.289***									
10	q401d	0.439***	0.382***	0.339***								
10	q401e	0.351***	0.306***	0.391***	0.434***							
10	q401f	0.344***	0.321***	0.404***	0.287***	0.419***						
10	q401g	0.566***	0.506***	0.316***	0.414***	0.408***	0.397***					
10	q403	0.108***	0.082**	0.213***	0.039	0.172***	0.157***	0.167***				
10	q405b	0.065*	0.048	0.095**	0.033	0.099***	0.033	0.079**	0.307***			
10	q405c	0.089**	0.119***	0.143***	0.009	0.115***	0.106**	0.146***	0.416***	0.414***		
10	q405d	0.129***	0.191***	0.163***	0.013	0.110***	0.168***	0.164***	0.317***	0.298***	0.476***	
16	q401b	0.534***										
16	q401c	0.203***	0.188***									
16	q401d	0.511***	0.449***	0.267***								
16	q401e	0.335***	0.369***	0.419***	0.513***							
16	q401f	0.104***	0.152***	0.325***	0.192***	0.299***						
16	q401g	0.602***	0.382***	0.174***	0.496***	0.345***	0.234***					
16	q403	0.183***	0.184***	0.098***	0.180***	0.148***	0.105***	0.221***				
16	q405b	0.113***	0.111***	0.095***	0.071**	0.035	0.083**	0.170***	0.325***			
16	q405c	0.215***	0.161***	0.091***	0.183***	0.126***	0.086**	0.305***	0.479***	0.401***		
16	q405d	0.203***	0.175***	0.084**	0.212***	0.195***	0.133***	0.303***	0.380***	0.306***	0.718***	