EUROPEAN UNION FOR ARMENIA

CRRC ARMENIA

Baseline Study on **MULTIDIMENSIONAL POVERTY IN SYUNIK**

FINAL REPORT

Caucasus Research Resource Center (CRRC)-Armenia Foundation,
Yerevan 2024

Baseline Study on **MULTIDIMENSIONAL POVERTY IN SYUNIK**

FINAL REPORT

ԵՎՐՈՊԱԿԱՆ ՄԻՈՒԹՅՈՒՆ ՀԱՅԱՍՏԱՆԻ ՀԱՄԱՐ
EUROPEAN UNION FOR ARMENIA

CRC ARMENIA

"Baseline Study on Multidimensional Poverty in Syunik" research has been conducted by the Caucasus Research Resource Center (CRRC)-Armenia Foundation, as part of the Resilient Syunik Team Europe initiative, funded by the European Union under the contract NEAR/EVN/2023/EA-NP/0138.

This report outlines the findings of a study regarding multidimensional poverty in the Syunik marz (region) of Armenia. The contents of this report are based on original primary research, are the sole responsibility of the authors, and do not necessarily reflect the views of the European Union.

Citation example:

Caucasus Research Resource Center-Armenia Foundation. (2024). *Baseline Study on Multidimensional Poverty in Syunik. Yerevan: European Union.*

Authors

Srbuhi Michikyan

Ani Avetisyan

Sofia Zuieva

Vahe Movsisyan

Editors

Sona Balasanyan

Hayk Smbatyan

Seda Ananyan

CRRC-Armenia Foundation extends its deepest gratitude to all its current and former staff members, associated experts, and research fellows who contributed to the writing of this report. Moreover, neither this report, nor its underlying research, would be possible without the continuous efforts of the numerous data collection specialists, associated researchers and methodologists, as well as expert contributors and reviewers.

About CRRC-Armenia

CRRC-Armenia, established in 2013, is an independent research centre. It conducts high-quality research to address socio-economic and political challenges in the South Caucasus. With a focus on data-driven decision-making, it aims to promote democratic governance. CRRC-Armenia, with its 17 staff-members, volunteers and interns, envision becoming a leading research hub by 2025, fostering a vibrant research community and connecting local, regional, and global partners.

About the European Union

The Member States of the European Union have decided to link together their know-how, resources, and destinies. Together, they have built a zone of stability, democracy and sustainable development whilst maintaining cultural diversity, tolerance, and individual freedoms. The European Union is committed to sharing its achievements and its values with countries and peoples beyond its borders.

This publication was produced with the financial support of the European Union. Its contents are the sole responsibility of The Caucasus Research Resource Center-Armenia Foundation and do not necessarily reflect the views of the European Union.

Contact: crrc@crrc.am | crrc.am

TABLE OF CONTENTS

LIST OF ACRONYMS

ADA	Austrian Development Agency
AF	Alkire-Foster
AFD	Agence Française de Développement (French Development Agency)
AGBU	Armenian General Benevolent Union
AMD	Armenian dram
ArmStat	Statistical Committee Republic of Armenia
CAPI	Computer-Assisted Personal Interviewing
CRRC	Caucasus Research Resource Center
CSO	Civil Society Organisation
EU	European Union
GIZ	Gesellschaft für Internationale Zusammenarbeit (German Agency For International Cooperation)
ILCS	Integrated Living Conditions Survey
LSG	Local Self Government
MP	Multidimensional Poverty
MPI	Multidimensional Poverty Index
MSME	Micro, Small and Medium Enterprises
MTAI	The Ministry of Territorial Administration and Infrastructure of Republic of Armenia
OPHI	Oxford Poverty Human Development Initiative
RA	Republic of Armenia
UNDP	United Nations Development Programme
WB	World Bank
WFP	World Food Programme

1. INTRODUCTION

This report builds upon primary research conducted by the Caucasus Research Resource Center (CRRC)-Armenia Foundation. The study examines multidimensional poverty (MP) at the community-level in the Syunik marz to facilitate and contribute to the later assessment of the impact of the Resilient Syunik Team Europe initiative on non-monetary poverty and deprivation. This research was conducted through a household survey that measured the incidence and severity of multidimensional poverty among community residents. It is based on a framework developed by Sabina Alkire and James Foster at the Oxford Poverty and Human Development Initiative (OPHI) to create a multidimensional poverty index[1]. The predecessor of the current study is the similar pilot study measuring multidimensional poverty in Lori, Shirak, and Tavush marzes, conducted by CRRC-Armenia in 2021[2]. The methodology of the latter study, as well as the survey questionnaire have served as a basis for the current study, with some adjustments on the questionnaire and the calculation methodology, upon the recommendations of OPHI and lessons learnt from the mentioned previous study.

The approach that this study adopts alters the conventional approach of measuring poverty solely through monetary means. In contrast, it explores poverty through 5 dimensions, (1) basic needs, (2) housing, (3) education, (4) labour, and (5) health, which allows a more comprehensive and context-specific understanding of poverty. Therefore, rather than focusing solely on monetary or consumption-based poverty measurements as is often done in poverty research, this multidimensional approach explores poverty in various forms such as poor housing conditions, lack of access to social services, poor quality of services, issues in healthcare, labour-related deprivations, and more. Previous multidimensional poverty research using the Alkire-Foster (AF) method has already been conducted in Armenia by ArmStat and World bank[3], differentiating between marz centre, urban and rural communities.

This report starts from laying out the socio-economic landscape in the Syunik marz. We then describe the research design, drawing on the chosen methodology and study limitations. Before moving on to the analysis of MPI, the report addresses the robustness analysis, exploring redundancy, dominance, and pairwise comparisons to ensure the reliability of findings. The results section unveils the outcomes of the MPI analysis, offering insights into how different indicators contribute to overall deprivation. Finally, building on these findings, the report concludes with several evidence-based recommendations.

1. Alkire, Sabina, and James Foster. 2011. "Counting and Multidimensional Poverty Measurement." Journal of Public Economics 95 (7): 476–87. https://doi.org/10.1016/j.jpubeco.2010.11.006
2. Caucasus Research Resource Center-Armenia Foundation. 2023. "Community-Level Multidimensional Poverty in Armenia". Yerevan: European Union.
3. Armstat, and World Bank. 2022. "SOCIAL SNAPSHOT AND POVERTY IN ARMENIA - Statistical and Analytical Report." Yerevan. https://armstat.am/file/article/poverty_2019_english_2.pdf.

This research was conducted as part of the Resilient Syunik Team Europe initiative funded by the European Union.

The general aim of the initiative is to:

- enhance the business environment for micro, small, and medium-sized enterprises (MSMEs) and boost private sector competitiveness.
- improve access to high-quality, people-centric public services.
- prioritise green regional development and promote the protection, sustainable use, and restoration of biodiversity.

This report makes a number of useful findings and scholarly contributions. The analysis shows that the deprivation rate in rural communities is significantly higher than in urban communities other than Kapan, whereas in Kapan there are no households that fall above the deprivation cut-off (0.33). MPI in urban communities is accounted for by Goris to a greater extent than other cities (excluding Kapan). For urban communities mostly Basic Needs, Health and Labour dimensions signifying deprivation (with almost equal contribution to MPI for urban communities). For rural communities the most significant dimensions of deprivation are Health and Housing, followed by Basic Needs. At indicator level one of the main findings is that the vast majority of households in rural communities are deprived of healthy heating and almost half are deprived of hot running water. Another issue that is typical of the most rural households is the deprivation of access to transportation and health services.

These findings underscore the profound disparities in living conditions between urban and rural populations, highlighting critical areas that require targeted interventions to alleviate poverty and improve quality of life.

2. THE SYUNIK MARZ: SOCIOECONOMIC OUTLOOK

Syunik is the second largest marz of the Republic of Armenia, with its territory equal to 4,506 sq.m, which is more than 15% of the country's general territory[4]. Syunik Marz is a vital region for Armenia's economy with a significant potential for future development. Balancing industrial growth with environmental protection, improving infrastructure and public services, and fostering tourism are often deemed key areas for ongoing and future efforts.

The marz of Syunik is divided into 8 communities, with 7 towns (including Kapan, marz centre) and 132 villages. Being one of the largest marzes of the country, Syunik is underpopulated, as its population density is one of the lowest (second after Vayots Dzor marz): 29.9 people per sq. km, populated by 134,600 people[5]. Syunik contributes to Armenia's industrial production with 18.8% of output (second highest after Yerevan, where the share of industrial production in total is 34.8%)[6]. 85.4% of Syunik's industrial output comprises mining and quarrying; the remaining 14.6% is mostly distributed among manufacturing and electricity, gas, steam and air conditioning supply. The region is known for its mining industry, particularly the extraction of copper and molybdenum, with the Zangezur Copper-Molybdenum Combine being a major industrial player in the area.

According to national statistics[7] 26.4% of households in Syunik consist of two, 36.5% of three and 19% of four household members. The majority of the households (92%) live in buildings constructed between 1950-1970, with stone walls. Additionally, 85.5% of the households have cell phones, while only 4.5% have fixed land-line phones[8], which means that the majority population opts for and could afford mobile connection. From this perspective the absence of a fixed phone could not be considered as a matter of deprivation in Syunik.

4. See: https://armstat.am/file/article/marzer_2022_28.pdf
5. See: Data as of January, 2023, https://armstat.am/file/doc/99541043.pdf
6. See: https://armstat.am/file/doc/99546313.pdf
7. See: https://armstat.am/am/?nid=953
8. Ibid.

Regarding education, it is noteworthy that national statistics indicate among the population aged 15 and older only 6% of the urban residents and 12% of the rural residents have not completed secondary education[9].

Employment opportunities of the region are largely centred around agriculture, mining, and public services. Unemployment rate as of 2021 equals 9.8%, with the unemployment pattern being imbalanced across the marz. Employment and its diversification is among the priorities of marz development[10]. Income levels in Syunik are generally lower than the national average, contributing to economic disparity and emigration, even though Syunik sees a rather low level of migration, accounting for the 2.2% of the country rate of household members involved in migration processes[11]. Because of higher salaries in mining industry, the population is not among the poorest, being home to only 4.3% of the country's poor population[12].

Contribution of Syunik marz into the agricultural output of the country, as of 2023, equals to 6.1%[13], and agriculture is a significant part of the local economy, with farming and livestock being common occupations.

Syunik's location along the border with Iran and Azerbaijan makes it a region of geopolitical significance. It serves as a corridor for regional trade and strategic military positioning, and rising living standards in the marz are one of the priorities of the state policy[14]. Moreover, Syunik marz has become a major host region for forcibly displaced people from Artsakh. While the displacement has had significant socio-economic impacts on the region, a comprehensive assessment of these effects is still lacking. Consequently, public policy efforts aimed at reducing MP in the region will need to consider the implications of the displacement.

9. Ibid.
10. See: http://syunik.mtad.am/files/docs/29670.pdf
11. See: https://armstat.am/file/article/poverty_2023_en_2.pdf
12. Ibid.
13. See: https://armstat.am/file/article/sv_12_23a_122.pdf
14. See: http://syunik.mtad.am/files/docs/29670.pdf

3. RESEARCH DESIGN

This chapter outlines the methodology and scope of the research presented in this report. First, we describe the methodology. Second, we outline the relevant decisions regarding the creation of this community-level *Multidimensional Poverty Index* (MPI).

3.1 Method

This study uses the Alkire-Foster (AF) method[15] to calculate the indices developed in this study. The purpose of developing an MPI using the AF method is to measure acute multidimensional poverty. The term "acute multidimensional poverty" refers to two characteristics: (1) people living in conditions in which they do not attain the minimum internationally agreed standards in indicators of basic functionings, and (2) people living in conditions in which they do not reach the agreed upon standards in several aspects at the same time[16]. The notion is multidimensional as it rests on a number of indicators (subsequently clustered in dimensions), which capture different facets of poverty.

The identification of multidimensionally poor individuals follows a dual-cut-off approach. First, a *cut-off* is determined for all indicators used. It refers to the threshold beyond which one is considered deprived in a given indicator. For example, a household is considered deprived if adult food consumption is below the food poverty line. Second, the *poverty cut-off (K)* determines the ratio of (weighted) indicators above which someone is considered multidimensionally poor. For example, individuals who are deprived in more than a third of all indicators are considered multidimensionally poor in the global MPI.

The AF method then measures acute multidimensional poverty by combining two pieces of information closely related to the two characteristics of acute poverty: the *incidence* (also known as the headcount ratio) of poverty and the *intensity*. The incidence (H) implies the proportion of individuals identified as multidimensionally poor. The intensity (A) is the average proportion of weighted indicators in which individuals are deprived. To create the index, the incidence (H) is multiplied by the intensity (A): MPI = H x A, the value of which ranges from 0 to 1.

15. Alkire, Sabina, James E. (James Eric) Foster, Suman Seth, Maria Emma Santos, José Manuel Roche, and Paola Ballón. 2015. Multidimensional Poverty Measurement and Analysis. First. Book, Whole. New York, NY: Oxford University Press. https://doi.org/10.1093/acprof:oso/9780199689491.001.0001.
16. The AF method employs the term "functionings", which refer to the beings and doings that people value and have reason to value as understood in Amartya Sen's capability approach.

Combining the two in a single metric is a unique feature of the AF method. Two countries may have the same incidence rate, yet the intensity of the poverty and the specific deprivations experienced by the poor populations in each could be significantly different. While one country's poor population may be deprived in one-third of the dimensions included in an MPI, another country's poor population could be deprived in two-thirds of indicators, despite both countries having the same incidence. Similarly, MPI can show immediate reductions in poverty as it captures not only people moving out of poverty (a reduction in incidence), but a change in the deprivation load of poor people. Thus, when a poor person is considered non-deprived in an indicator, MPI decreases, even if the incidence of poverty remains. This provides powerful tools for governments and organisations to monitor the full extent of changes in poverty among the population.

A multidimensional measure (of poverty) is conducted in seven steps:

1. Defining the data source;
2. Choosing the unit of identification and the unit of analysis;
3. Choosing the dimensions and indicators;
4. Choosing the deprivation cut-off's;
5. Choosing the weights of the indicators and dimensions;
6. Choosing the poverty cut-off;
7. Computing the MPI.

An additional step consists of breaking down the data by dimension, indicators, and relevant subgroups. Section 5 outlines these results. Ultimately, the results can be compared over time if one more time period is available. As this is the first time such a survey with this exact methodology is conducted in the marz of Syunik, no comparative analysis is possible across the temporal axis. Finally, a robustness analysis is conducted, *a posteriori*. This allows us to confirm the quality of our research design (and account for its flaws).

Case, Data Source, and Unit of Analysis

MP research has already been conducted in Armenia on a national level by ArmStat in collaboration with the World Bank[17]. This research was based on data collected by the Armenia Integrated Living Conditions Survey (ILCS) from 2010 to 2015 which examined education, labour market conditions, health behaviour, and living conditions of households and individuals. Using the data from the ILCS survey, the World Bank constructed a multidimensional poverty index for Armenia based on the AF method. The World Bank employed five dimensions for constructing the MPI: basic needs, housing, education, labour, and health.

The World Bank's MPI covered multidimensional poverty at the national level, disaggregating between urban communities, rural communities, and Yerevan. A previous study of multidimensional poverty conducted by the CRRC-Armenia explored, for the first time, multidimensional poverty at the community level in Lori, Shirak, and Tavush - three of the poorest marzes in Armenia at the time of the study, as of 2020 data from ArmStat.

The respective index for Syunik marz is built upon data collected through a standardised quantitative survey developed by CRRC-Armenia for an earlier study and modified following the recommendations from the OPHI. The fieldwork for the survey was conducted between April 29th and May 26th, 2024 with a stratified randomised cluster sample of targeted 800 households in the marz of Syunik. The actual sample size after

17. ArmStat, and World Bank. 2022. "SOCIAL SNAPSHOT AND POVERTY IN ARMENIA - Statistical and Analytical Report." Yerevan. https://armstat.am/file/article/poverty_2019_english_2.pdf.

fieldwork was 832. After fieldwork completion CRRC-Armenia meticulously filtered the data, after which, data from 663 households passed through the quality thresholds as to completeness, accuracy, validity, replicability, reliability, and were used for the index calculation. The questionnaire outlines households as the unit of identification, meaning multidimensional poverty is initially assessed at the household level. The interviews were conducted face-to-face with household members through computer-assisted personal interviewing (CAPI). More details regarding the sampling and fieldwork methods are provided in Annex A of this report.

MPI: Measuring Poverty

Dimensions and Indicators

Five dimensions were included in the MPI for Syunik: basic needs, housing, education, labour, and health. A total of 26 indicators of poverty were included under these dimensions (see table 1).

Deprivation Cut-offs

Each indicator had its own specified deprivation cut-off to determine the conditions under which a household would be considered deprived. Whether or not a particular household was deprived based on a certain indicator was determined by the data gathered through the survey. For some of the indicators, the data that informed a household's deprivation was determined through a single all-encompassing variable in the questionnaire. For other indicators, data from multiple variables or a series of subsequent variables was used. A complete list of cut-offs is displayed in Annex B.

Weights

After determining the dimensions and indicators to be used in the MPI calculation, weights were defined for each one. The five dimensions of the MPI were equally weighted at 1/5 each. Each indicator was also equally weighted within each dimension. This weighting method is known as equal nested weights. Table 1 displays the exact weights used for each indicator.

Table 1: MPI Operationalisation

Dimension (weights)	Indicators	Weights per Indicator
Basic Needs (1/5)	Extreme food poverty Life in Dignity Humanitarian aid Remittance dependency	1/20
Housing (1/5)	Subjective Housing Conditions Adequate Housing Overcrowding Healthy Heating Continuous Access to a Centralised Water System Centralised Sanitation and Garbage Disposal Hot Running Water Quality of Public Services Access to Transportation Household Assets	1/50
Education (1/5)	Secondary Education Compulsory Schooling Quality of Education Services Access to Education	1/20
Labour (1/5)	Labour Market Participation Long-Term Employment Decent jobs Underemployment	1/20
Health (1/5)	Affordability of Health Services Termination of Usual Activities Access to Health Services Quality of Health Services	1/20

Poverty Cut-Off

We outlined earlier that the MPI combines two pieces of information, the incidence (H) and the intensity (A). To calculate the incidence, which is the proportion of individuals considered multidimensionally poor, we need to determine a poverty cut-off (K). Perhaps, this is different from the deprivation cut-offs discussed earlier. The poverty cut-off refers to the proportion of indicators a household is deprived of after which one is considered multidimensionally poor.

For this research if the deprivation score of a household exceeded 0.33 (or 1/3 of indicators), it was considered multidimensionally poor. This means that a household deprived in more than 7 of the 26 MPI indicators was considered multidimensionally poor. This cut-off is the same as the one currently used by the OPHI to determine poverty in its global MPI[18].

18. Alkire, Sabina, Usha Kanagaratnam, and Nicolai Suppa. 2022. "A Methodological Note on the Global Multidimensional Poverty Index (MPI) 2022 Changes over Time Results for 84 Countries." Oxford. https://www.ophi.org.uk/wp-content/uploads/OPHI_MPI_MN_54_2022.pdf.

• 3.2 Limitations

Design-related

There are several limitations associated with the AF method that were relevant to this survey and the calculation of the MPI. Furthermore, some methodological challenges were also encountered throughout the implementation of this study. These challenges should be taken into consideration in any future MPI work in Armenia. Although the AF method measures intensity based on the average share of deprivations experienced by households, it does not consider the depth of poverty. In other words, the method does not consider how far away households may be from the deprivation cut-offs of each indicator.

The demographic structure of the household inherently decides the incidence of deprivation in some indicators. Whether the household was in an urban or rural area fundamentally determined the deprivation accessibility of transportation, health and education services, which did not consider urban households as deprived.

Concerning the indicator of Adequate Housing, the calculation combines vital conditions of housing that affect quality of life directly with general conditions related to the community environment. Moreover, some of them are not always relevant for rural communities (e.g., heavy traffic, elevator functioning, services for common areas and yards). Subsequently, households that have issues with more than a third of such conditions without specification across heating, leaking roof, lighting and issues with elevators, or heavy traffic are considered deprived.

The same issues occur with measuring the quality of public services, where banking or public transportation (not always essential for rural communities) are co-measured with water supply, garbage collection, or sanitation issues, which are vital for health and wellbeing. Moreover, the indicator does not consider those households that do not have access to public services at all as deprived. Hence, this was changed for the indicator calculation, including households with no access to more than a third of public services for this study.

Additionally, for the labour dimension calculation, methodology suggests to consider the households deprived in Decent Jobs and Underemployment indicators if they were already deprived in Long-term Unemployment or Labour Market Participation. This can potentially overrepresent the deprived households in the dimension and affect collinearity between labour indicators. Hence, for this study the deprivation per indicator was calculated only based on the variables related to that specific indicator.

Finally, the methodology considers households deprived in the Underemployment indicator only based on the number of hours the household member worked and the nature of work (seasonal or permanent). However, the term underemployment is used as utilisation of the labour force, its skills, experience, and engagement[19]. Consequently, after adjustment, this indicator includes the measurement of the extent of realisation of an individual's skills (those whose qualifications do not match their respective employment are also considered deprived).

Fieldwork-related

Fieldwork encountered several challenges that should be considered when interpreting the data. Firstly, the lengthy and complex questionnaire created respondent fatigue, making it difficult for them to recall details or perform lengthy calculations, leading to approximated responses in specific numeric entries and

19. See: https://corporatefinanceinstitute.com/resources/economics/underemployment/

essentially a recall bias.

Additionally, relying on one person (i.e., the most informed respondent themself) for information about the entire household resulted in approximation of answers to questions related to the entire household. Although interviewers were instructed to verify uncertain information by contacting other household members, often those were unavailable for contact.

Another limitation occurred as respondents were hesitant to provide personal information about their family composition and household details because of the political situation around Syunik[20] and the tense atmosphere in the border areas at the time of the fieldwork.

The issue of hesitancy to provide consumption information about households was also evident in Kapan; households in Kapan tend to hide the information about the amounts of their actual consumption. Our interviewers at times observed the presence and influence of other household members during the interviews, specifically throughout consumption-related questions. Furthermore, cross-checking across other relevant variables from the database also hints that households may have underreported their consumption deliberately. This could be the reason for a higher percentage of deprived in Kapan within the indicator of Extreme Food Poverty (see 5.3 Results by Indicators: Basic Needs: Extreme Food Poverty).

Diary-related

To measure consumption of the households, CRRC-Armenia piloted the food consumption diary method in this study, to obtain more precise data, specifically testing the 7-day recall method through single-visit to households. The diary was constructed based on ArmStat consumption diary questions and items. Several approaches were applied to gather comprehensive data:

- The diary was piloted via daily phone calls following an interview during the 7 consecutive days,
- The diary items were asked during face-to-face interviews in the frame of 7-day recall method through single-visit to households, in an open-ended manner (for the first 6 days of the survey),
- Then, close-ended diary questions were asked with options standardised as per the ArmStat consumption diary.

All mentioned approaches largely did not prove very effective, as the respondents experienced significant difficulties answering questions on average weekly costs and consumption of specific products. These questions introduced a cognitive burden and resulted in high rates of "do not know" responses and approximations.

In response, following the completion of fieldwork, CRRC-Armenia decided to address these issues by back calls. To ease the process for the respondents, we used the extended list of the minimum food basket for Armenia[21] and conducted follow-up calls to fill in missing or incomplete data. Out of those 230 cases, 135 were successfully back-called, while other respondents either were not available via call or rejected to share the information. During the calls, only the information regarding the quantity of consumed products was collected from respondents[22]; next it was combined with the respective information gathered with the help of the diaries. This data was then used to calculate the share of households falling under the minimum food basket line.

20. See: https://evnreport.com/politics/the-meghri-corridor-a-viable-transport-link-or-geopolitical-noose/
21. See: https://armstat.am/file/article/sv_12_23a_6200.pdf
22. Note that during the back-calls respondents were asked about specific units of fruit and vegetable (those that are in the minimum basket), while in the diary these groups were asked without specification.

Another limitation refers to the measurement of consumed goods. In some cases, e.g., when asked about the consumption of fish, bread, and certain types of vegetables (cabbage or onions), the respondents were able to indicate only units of the products they consumed while the calculation of consumption is based on the weight (kg). As a result, we converted the number of units into kilograms, hence the value of consumption per household may deviate from the real one.

Calculation-related

Out of 832 observations CRRC-Armenia filtered the data, by filtering out 169 submissions that did not pass through the quality thresholds as to completeness, accuracy, validity, replicability, reliability. As a result, to ensure the accuracy of analysis, data from 663 observations was used for the index calculation. This implied some challenge in calculating the MPI for Kapan, with 158 cases left to represent this community. Readers should consider this limitation, and view Kapan-related deprivation calculations along with its margin of error, which is +/-8%.

All valid observations with some missing values in the consumption module were completed by extrapolation using the generalised linear regression model. This model was selected to allow for a flexible extrapolation of continuous data where all variables are predicted based on their respective distributions.

Another challenge appeared in relation to two indicators of access to education and health facilities. The access measure reflects the actual time it takes one to reach the desired facility. Some respondents were struggling to identify this exactly, as seen in the "don't know" answers. The approach we employed to elaborate on these uncertain cases was to extrapolate them using the average (rather than actual) time to reach a certain facility extracted from the available data by settlements. The resulting extrapolation remained within each corresponding group's range since existing data was sufficient to use for extrapolation to avoid rough approximations.

Nonetheless, not all "don't know" and "refused to answer" options were possible to extrapolate or back call for replacement. During the data cleaning, the rate of these values in all variables needed for indicator calculations decreased to 20 (which is no more than 3% of the variance). Consequently, all the remaining cases were treated as "not deprived".

4. ROBUSTNESS ANALYSIS

To ensure the accuracy of our analysis, a number of robustness tests are conducted following methods suggested by Alkire et al[23]. For the MPI computation, we tested for the redundancy of indicators, and the sensitivity to change in the poverty cut-off, using a dominance analysis and pairwise comparison. We conclude that the index is adequately designed after methodological improvements in the calculations.

4.1 Redundancy

To ensure the validity of MPI the quality of individual indicators must be assessed. Indicators should aim to capture relevant (and different) facets of poverty, and as such are the building blocks of any MPI[24]. To ensure that there is no overlap (e.g., two indicators capture the same facet of poverty[25]) there is a need to check for redundancy. To do so we calculated Cramer's V association coefficients for each pair of indicators. Figure 1 displays the coefficients of this calculation; the stronger the correlation between two indicators (i.e., the closer to value 1), the more the likelihood that two indicators are measuring the same phenomenon. However, two indicators with high collinearity may still be retained for normative reasons (i.e., if they are important for policy reasons or vary over time)[26].

23. Alkire, Sabina, James E. (James Eric) Foster, Suman Seth, Maria Emma Santos, José Manuel Roche, and Paola Ballón. 2015. Multidimensional Poverty Measurement and Analysis. First. Book, Whole. New York, NY: Oxford University Press. https://doi.org/10.1093/acprof:oso/9780199689491.001.0001., p. 234
24. Ibid., p. 197
25. This would be an issue as it would artificially increase the weight given to that facet of poverty in the MPI.
26. Ibid., p. 229

Figure 1. Cramer's V correlations

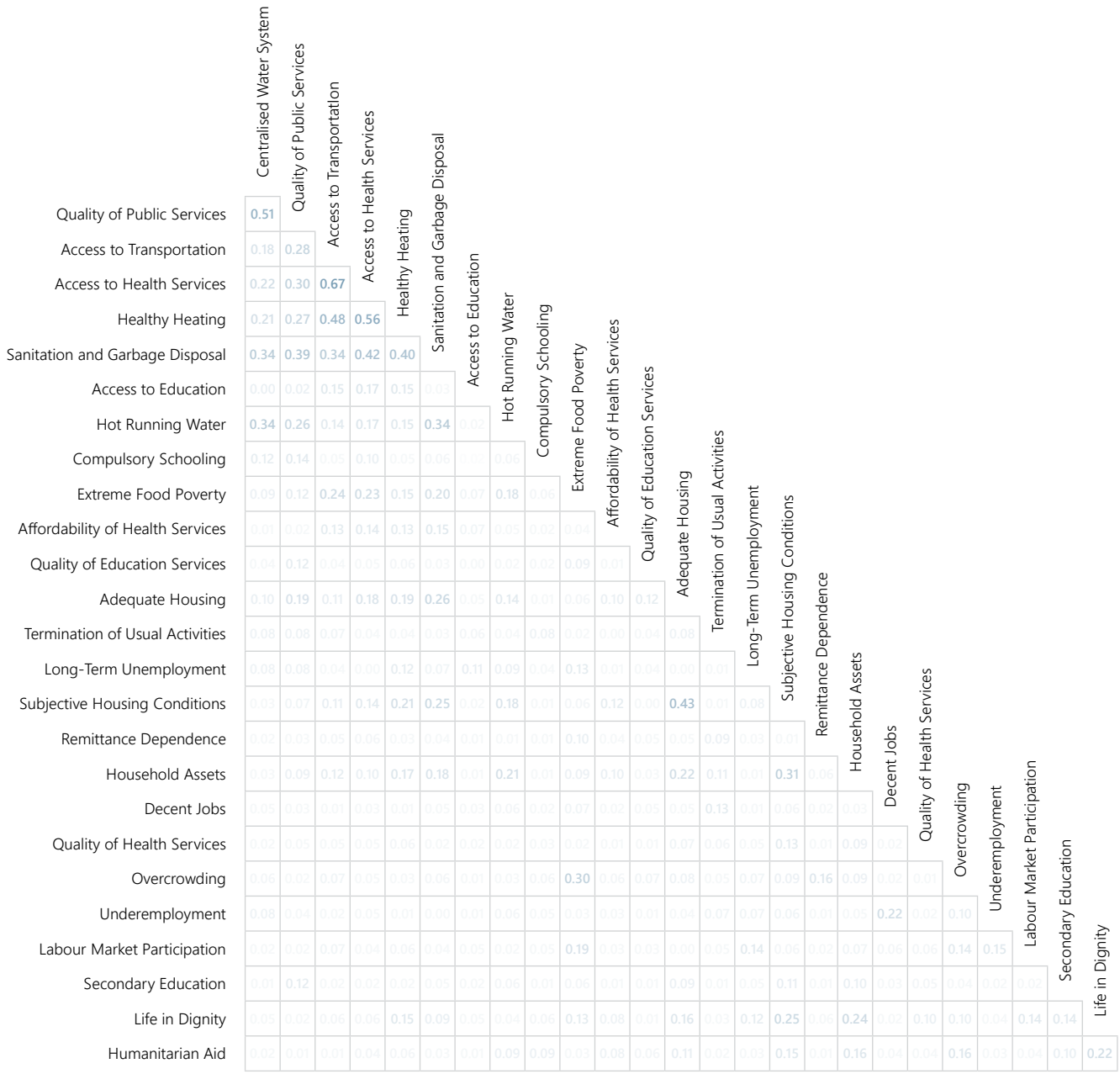


Figure 1 shows that the large majority of indicators are uncorrelated. This means that an individual deprived under an indicator X is not likely to be deprived in a different indicator Y. However, some exceptions can be identified, in most cases, the correlation can be explained by different facets of poverty.

For example, Subjective housing conditions and Adequate housing indicators are relatively correlated. It is expected that objective and subjective housing conditions would covary. However, we argue that these are distinct concepts that are worth keeping separate.

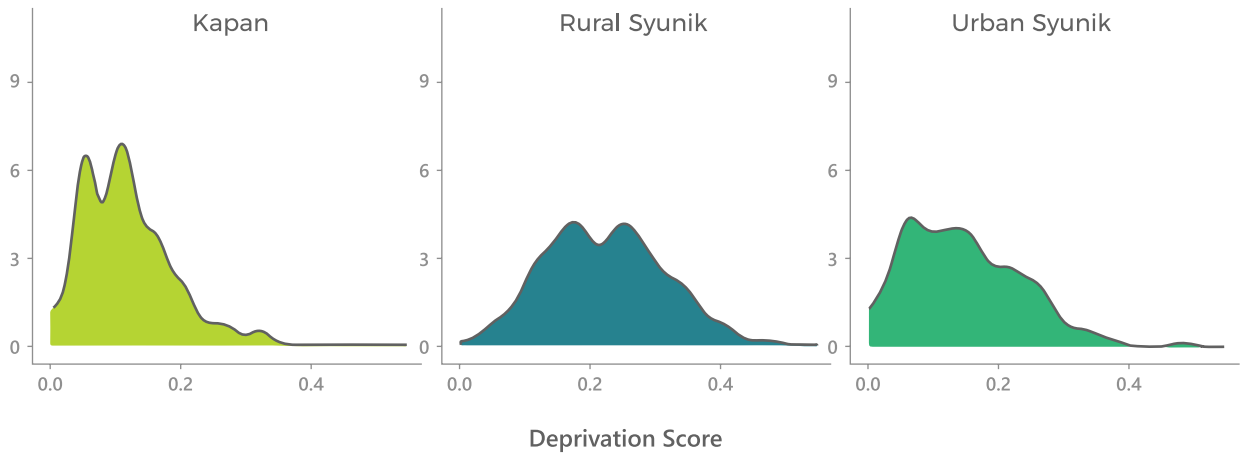
Other indicators are related but the collinearity can be traced back to the definition and cut-offs chosen for these indicators. A good example is access to health services and access to transportation. A person is considered deprived of access to health services if they are more than 20 minutes away from health facilities. It is then possible that a household deprived of access to transportation and located far from those facilities is likely to be deprived of access to health as well, as these services are commonly located in urban areas. Quality of public services and centralised water systems can also be linked as variables calculating public service-related indicators include drainage and water supply.

However, it is worth mentioning that none of the indicators constructing one dimension are interrelated with a coefficient of more than 0.51. Thus, we are confident that the used indicators capture the differences and uniqueness of dimensions.

• 4.2 Dominance Analysis

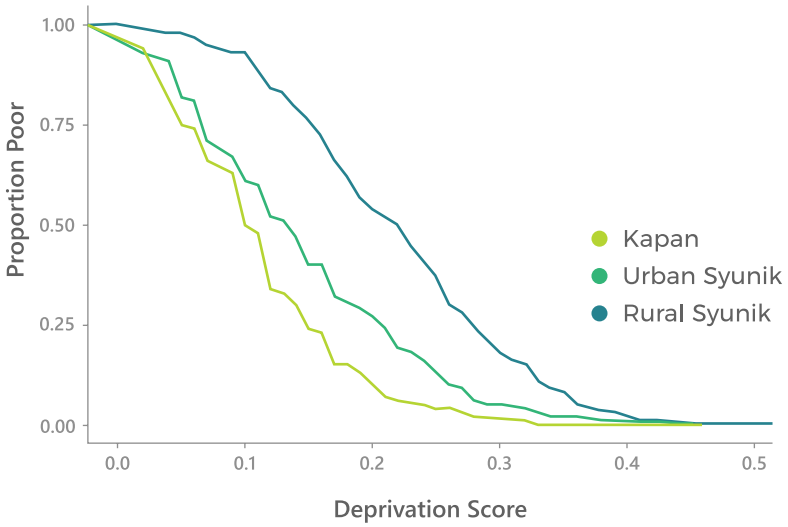
Before analysing the sensitivity of deprivation rate to changes in the cut-off value (K), we start by plotting the distribution of deprivation scores across communities to check for skewness and disparities. The distribution of deprivation scores across communities was checked for skewness and disparities. Figure 2 shows that the deprivation scores are close to a normal distribution across rural communities. The distribution is slightly skewed in urban communities and especially skewed in Kapan where a higher share of households has low deprivation scores (0-0.1).

Figure 2. "Intensity of poverty" distribution by community



Moving on to the analysis of the cumulative distribution of deprivation scores we notice that in general rural communities in Syunik showcase a higher proportion of the deprived compared to urban communities. Figure 3 visualises this difference where the y-axis stands for the proportion of households considered poor and the x-axis shows the deprivation score. Consequently, any point on the curves displayed in Figure 3 gives the proportion of households considered poor for a given deprivation cut-off in each community.

Figure 3. Cumulative distribution of deprivation scores per community



• 4.3 Pairwise Comparisons

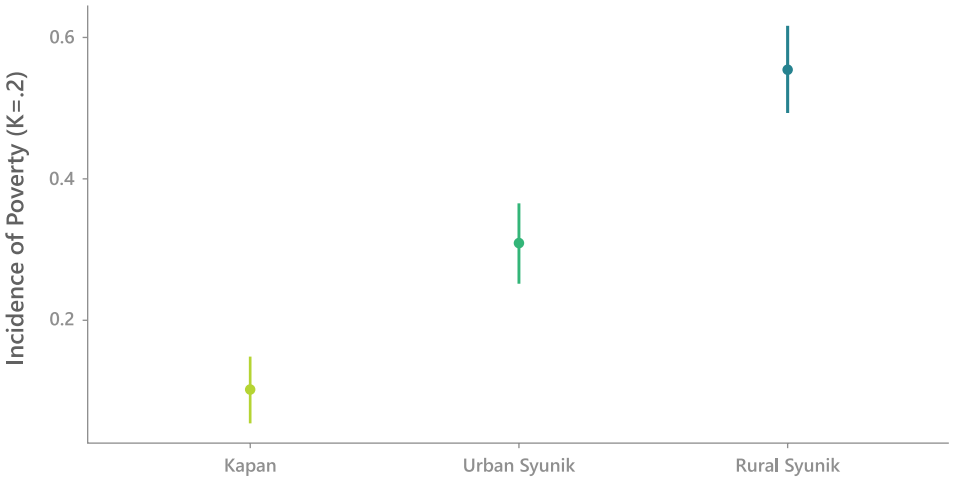
Pairwise comparisons between different cut-off levels were made to sum up the robustness analysis with a clearer understanding of the ranking of communities. The comparisons are constructed by calculating the mean deprivation score for each community and showcasing the scores' associated confidence interval for a given poverty cut-off.

We computed pairwise comparisons for several cut-offs, we only present three cut-offs: 0.2, 0.33 (our chosen MPI which is considered as baseline for this study), and 0.4. The reasoning for choosing these cut-offs specifically is the following. Firstly, these values are in the neighbourhood of the MPI we have set. Therefore, it is plausible for the justification of the robustness of the results to observe if significant differences appear when interchanging among these cut-offs.

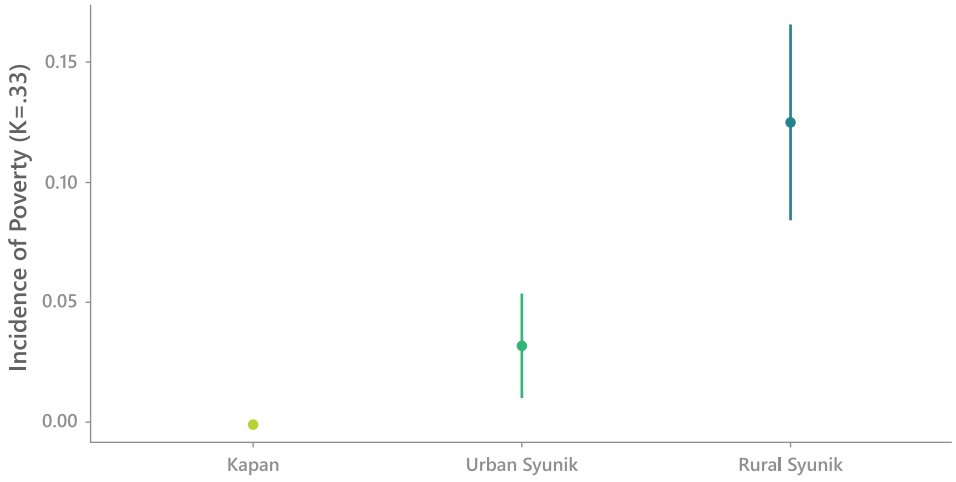
Second, in the dominance analysis, we can consistently distinguish the differences between the three communities: urban communities, Kapan, and rural communities. Therefore, pairwise comparisons will allow us to identify the communities that can indeed be ranked with a certain level of confidence. Finally, when selecting cut-offs outside the range {0.2:0.4}, in those starting from 0.5, we notice that none of the households are deprived, as the highest deprivation score for Syunik is 0.49. On the other hand, for cases with a deprivation score of less than 0.2, we can have over-representativeness as we consider households deprived within very few indicators (3 or less).

Figure 4 provides a visual representation of the robustness of the results to changes in the poverty cut-offs. It shows that the incidence of multidimensional poverty in Kapan cannot be distinguished from one another for cut-offs 0.33 and more. Other urban areas appear close to the results of Kapan, however, still showcase comparably higher levels of deprivation. The highest level of deprivation appears in rural areas (see Figure 3).

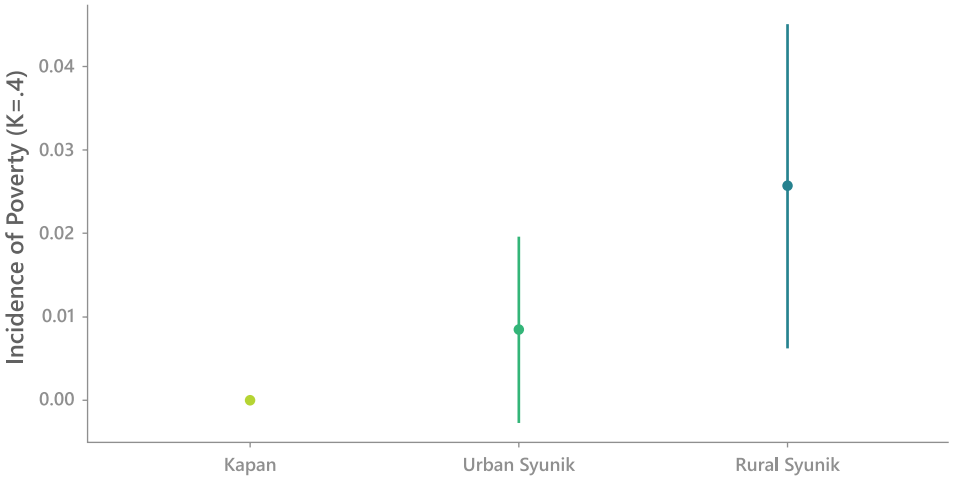
Figure 4. Incidence of poverty: mean and 95% confidence interval for three cut-offs (K) by community



(a) K = .2



(b) K = .33 (baseline)



(c) K = .4

From Figure 4 we can observe that the set baseline cut-off of 0.33 is a reasonable measure for the analysis. The main reason for this phenomenon is that under the following condition, the community levels are easily differentiable. In the meantime, non-overlapping confidence intervals suggest potential statistical significance of the results which supports the robustness of future conclusions. In this context, statistical significance implies non-randomness of the outcomes of the analysis. The difference in variance among the community levels stands out as an indicator of relative uncertainty (or relative error) about the actual number of multidimensionally poor individuals in rural areas when compared to Kapan. This is the effect of the increased number of instances of poverty in the said areas which is an anticipated outcome.

Importantly, it is impossible to rank with certainty between rural communities or between urban communities. In fact, if one were to rank them based on the mean for each cut-off displayed above, one would obtain entirely different rankings between the communities. Thus, readers should refrain from ranking communities unless the confidence intervals between the two communities do not overlap.

5. RESULTS

This section presents the MPI for Syunik marz of Armenia, as well as the contribution of each dimension and indicator to the final MPI. For each indicator, the measure presented is known as the censored headcount ratio, which, put simply, is the proportion of multidimensionally poor people deprived in a given indicator. For all figures, the results are traced back to the community level.

The deprivation analysis for Syunik marz includes the calculation for both dimensions and censored score using the weighted data (the data was weighted by household size and settlement type, see the procedure of weighing in Annex A: Weighting), due to which the weighted dataset consists of **38,039 households in Syunik**, out of which **66.7% (25,369 households)** live in urban communities **(9,814 in Kapan and 15,555 in other urban settlements)** and **33.3% (12,670 households)** live in rural communities. The reader should consider that all the calculations from now on are made based on this weighting and all percentages should be dragged from the numbers mentioned above[27].

5.1 MPI Results

The total MPI for the region is determined using the coefficient of deprived households that have been censored. This means that only households with a deprivation rate exceeding the specified cut-off (0.33) are classified as deprived (censored deprivation score).

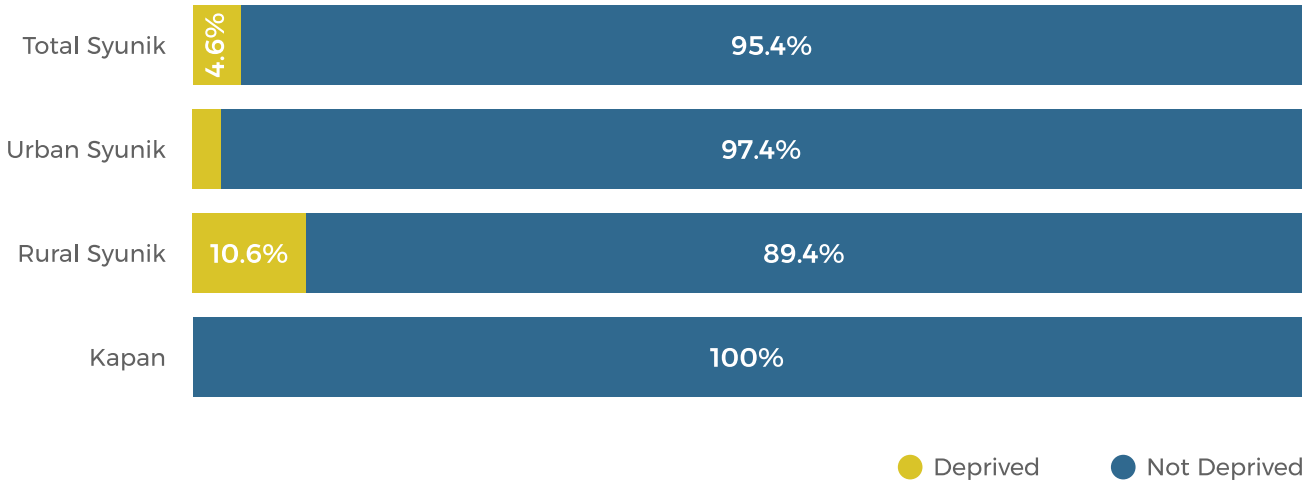
The censored deprivation rate for Syunik marz hence is 4.6%. Compared to urban areas other than Kapan, the deprivation rate in rural areas is significantly higher (10.6%), while the urban communities of Syunik contain only 2.6% deprived households. However, there are no cases of deprivation in Kapan[28] (see Figure 5), which means that none of the households fall under the deprivation threshold (one-third of the dimensions included in an MPI).

Notably, data shows that Goris case has a greater contribution to the deprivation rate of urban communities than other cities (excluding Kapan). The deprivation rate within Goris is 5.2%, and, if Goris is removed from the calculation in urban communities of Syunik, the rate drops twice. As the research aimed to sample

27. Note that percentages less than 3% are not visualised across the report.
28. Please note, that after data cleaning procedures, some cases were excluded from the calculation due to their insufficient quality. As the most responses were coming from Kapan, naturally, the eliminated responses were also mainly from this region, which leaves the margin of error for Kapan +/- 8%.

the communities of Syunik representative of community type, Goris is represented within other urban communities. Readers should consider that the deprivation rate of urban communities of Syunik relies mainly on the deprived households of Goris.

Figure 5. Censored deprivation rate per community

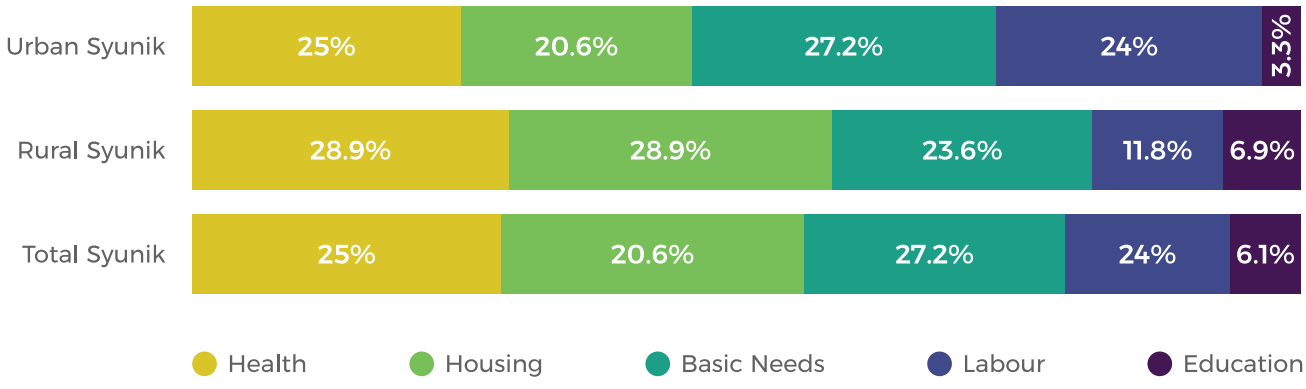


• 5.2 Contribution

An interesting feature of the AF method is the ability to distinguish the contribution of each dimension and indicator to the MPI. By contribution we mean the extent (i.e., proportional size) of the MPI rate which the indicators or dimensions are accounting for. In this subsection the contribution is analysed across the censored households, which construct the total MPI in marz.

However, there are differences in the extent of the dimension's contribution at community level. In urban Syunik, the overall MPI is mostly affected by Basic Needs (share of contribution 27.2%), followed by Health (25%) and Labour (24%). In rural areas, the MPI is equally affected by Housing and Health dimensions (with a share of 28.9% each), followed by Basic Needs (23.6%), (see Figure 6). Hence, the share of deprivation in the labour dimension in rural communities is twice as less compared to urban communities. Furthermore, dimensions of housing and health contribute more than the labour dimension does in rural communities, whereas in urban areas these three dimensions contribute almost equally.

Figure 6. Contribution by Dimension, by community



Further examination posits three indicators to have the most contribution in urban communities of Syunik, namely, life in dignity, extreme food poverty, and labour market participation (see Figure 7). For rural communities in Syunik, the contribution of access to health services, life in dignity, and termination of usual activities because of health issues should be considered (see Figure 7). Importantly, as the total MPI is mainly affected by the deprivation rate of rural communities (those represent the most deprived in the Marz, see Figure 5), this creates a similar picture in contributions for Syunik in total.

Figure 7. Contribution by Indicator, by community (%)

Indicators	Out of Urban Syunik	Out of Rural Syunik	Out of Total Syunik
Extreme Food Poverty	12.7	6.1	7.6
Life in Dignity	12.7	9.5	10.2
Humanitarian Aid	1.8	8.0	6.6
Remittance Dependence	0.0	0.0	0.0
Subjective Housing Conditions	3.0	2.2	2.4
Adequate Housing	2.9	2.3	2.4
Overcrowding	2.3	3.1	2.9
Healthy Heating	4.4	5.3	5.1
Centralised Water System	0.0	1.2	0.9
Sanitation and Garbage Disposal	1.2	2.9	2.6
Hot Running Water	1.9	3.1	2.8
Quality of Public Services	0.6	2.1	1.7
Access to Transportation	0.0	3.3	2.6
Household Assets	4.3	3.3	3.5
Secondary Education	0.0	0.7	0.5
Compulsory Schooling	0.0	1.9	1.5
Quality of Education Services	3.3	3.1	3.2
Access to Education	0.0	1.5	1.1
Labour Market Participation	10.7	5.8	6.9
Long-Term Unemployment	7.5	3.0	4.0
Decent Jobs	2.0	0.3	0.7
Underemployment	3.8	2.4	2.7
Affordability of Health Services	8.7	3.7	4.8
Termination of Usual Activities	6.8	8.3	7.9
Access to Health Services	0.0	12.8	10.0
Quality of Health Services	9.5	4.1	5.3

5.3 Results by Indicators

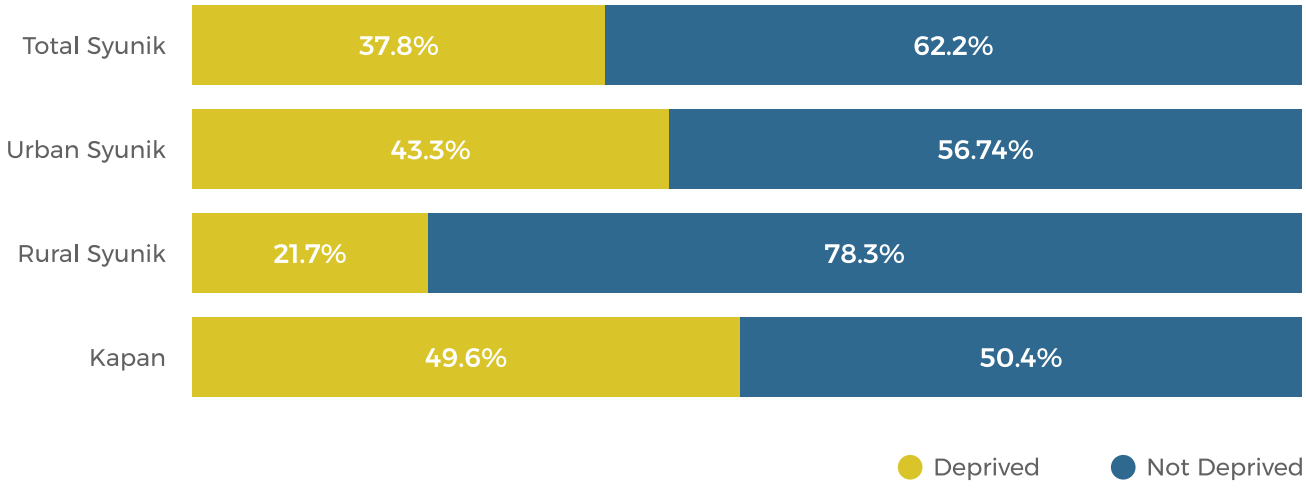
After analysing the total MPI and contributions of dimensions and indicators to the community deprivation rate, it is essential to look closely at indicator scores. This approach is necessary because, despite Syunik's overall low deprivation rate, examining each indicator can reveal particular areas where Syunik faces significant challenges. This rather detailed analysis may provide valuable insights towards developing targeted policy recommendations and interventions that may directly improve the wellbeing of the population in Syunik.

To present the actual results per indicator for this analysis, results are considered before censoring. This approach ensures transparency in depicting the outcomes without excluding any data due to censoring procedure.

Basic Needs: Extreme Food Poverty

This analysis considers a household deprived if adult[29] food consumption is below the food poverty line (40,042[30] AMD). The share of those households, whose monthly consumption of food listed in the minimum food basket falls under the minimum both in urban areas and Kapan is twice higher than in rural areas. About half of the households in Kapan are deprived in terms of extreme food poverty, and in urban communities of Syunik, the deprivation rate is equal to 43.3%. In rural communities of Syunik 21.7% of the households are deprived[31] (see Figure 8).

Figure 8. Deprivation rate in Extreme Food Poverty indicator



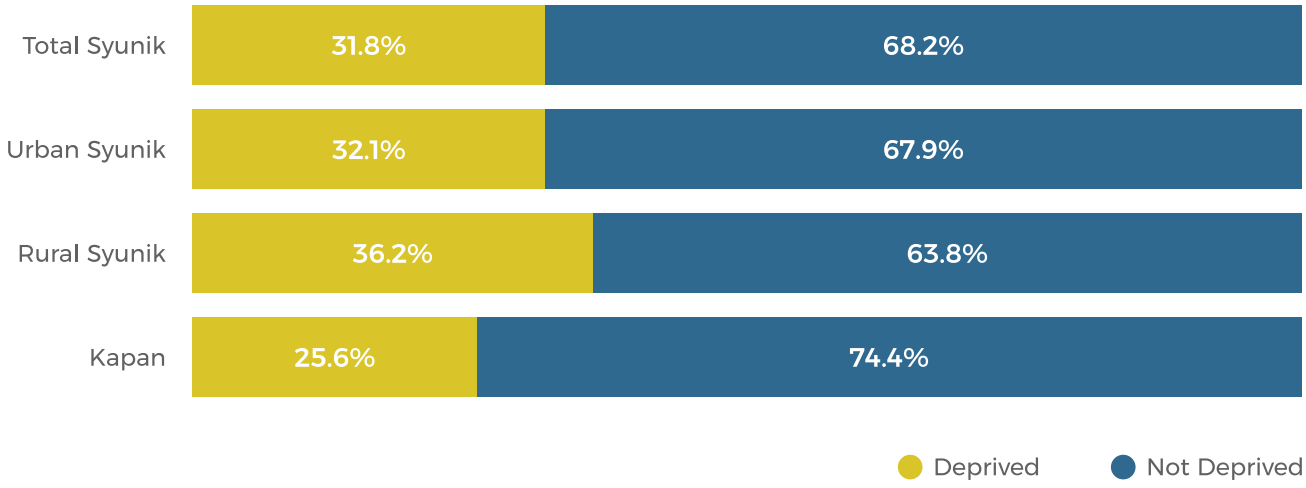
29. To count the number of adults per household each child up to 6 years was considered as 0.35 adults and each teenager from 6 to 17 were considered as 0.65 adults.
30. The initial price for the minimum food consumption basket is **41,026 AMD** per person per month, however, as the consumption of legumes was absent from the questionnaire, it was excluded from the basket calculation, leaving us with the consumption basket of **40,042 AMD** per person per month.
31. It should be taken into account that for measuring extreme food poverty only minimal basket products are included in the calculation, which implies that the respondents could also consume other products (such as bird meat instead of red meat, etc.), but consumption of such products was not included in the calculation.

Basic Needs: Life in Dignity

The household is considered deprived if the respondent states that there is not enough money for everyday meals or clothes. Data from four survey questions are used to determine deprivation under this indicator including one question that (1) one question that explored issues related to worrying about not having enough food to eat, and going hungry due to a lack food in household, (2) a question related to the ability to eat meat every second day, and questions related to the ability to own (3) clothes and (4) shoes for each season.

The analysis shows that the issue is relevant for a third of Syunik's households in urban (32.1%) and rural (36.2%) areas and 25.6% in Kapan (see Figure 9).

Figure 9. Deprivation rate in Life in Dignity indicator



Basic Needs: Humanitarian Aid

Under this indicator the household is considered deprived if it had received humanitarian aid during the preceding 12 months. Analysis shows that there is no essential difference between deprivation rates of communities: it is 16.7% for urban communities of Syunik, 18.7% for rural communities, and 12.3% for Kapan.

Basic Needs: Remittance dependence

Even though the basic needs dimension has a significant contribution to households' deprivation rate in the communities (see Figure 8), a closer look at the contribution analysis per indicator shows that remittance dependency has the least influence on households' deprivation as only 0.7% of Syunik's households are deprived in this indicator. This is expected as Syunik is considered to be one of the marzes having the lowest level of involvement in migration processes[32].

Housing: Subjective Housing Conditions

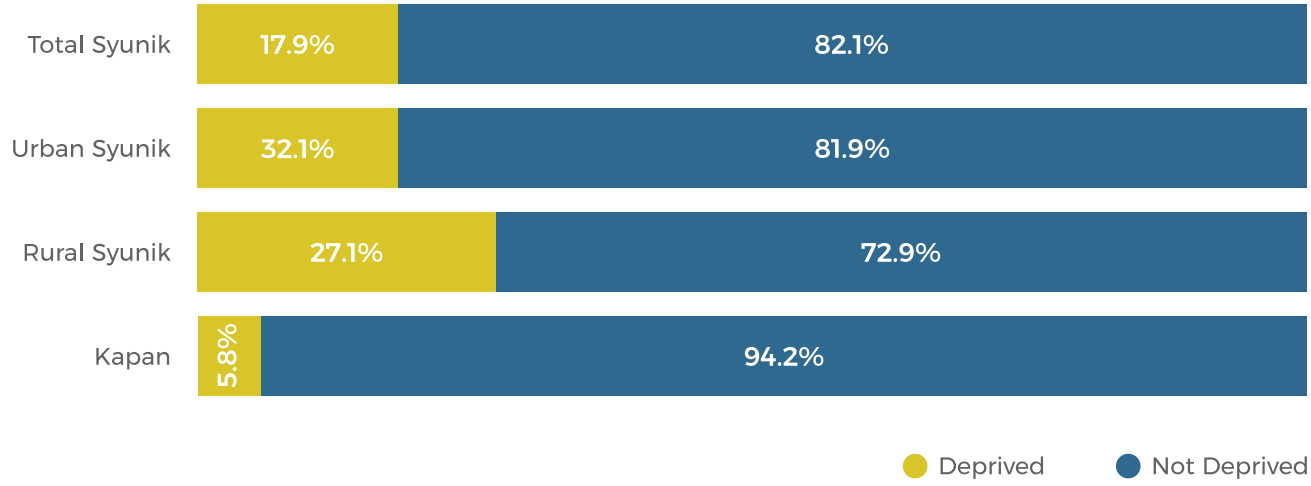
Under this indicator, households are considered deprived if they describe their housing conditions as "bad" or "very bad". The share of households deprived in terms of Subjective Housing Conditions in urban areas other than Kapan (15.1%) is almost twice as high as in Kapan (8.1%), while in the rural communities of Syunik, every fifth household is deprived (20.8%).

32. See: https://armstat.am/file/article/demog_2023_7.pdf, p. 132

Housing: Adequate Housing

More than a quarter of the households living in rural communities (27.1%) are deprived under this indicator, e.g., they are not satisfied with at least a third of the following issues regarding their housing and the immediate environment: floor area, noise from neighbours or the outside, lighting, heating, humidity, leaking roof, dilapidated walls and floors, dilapidated window frames and doors, heavy traffic, industrial pollution, water quality, garbage removal, and services for common areas and yards. The share of deprived households in Kapan is about 5.8%, while it is 18.1% among households in urban areas other than Kapan (see Figure 10).

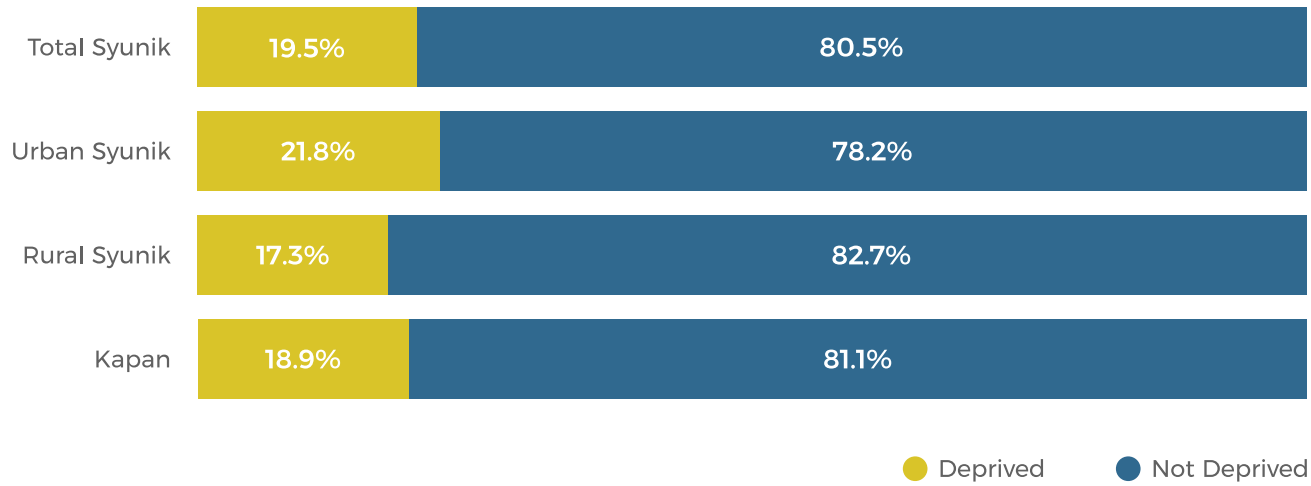
Figure 10. Deprivation rate in Adequate Housing indicator



Housing: Overcrowding

As the analysis shows overcrowding is almost equally important for all communities, however the deprivation rate is usually less than 20% only exceeding it for urban communities excluding Kapan (21.8%). Share of the deprived for rural communities within this indicator is 17.3%, and 18.9% for Kapan (see Figure 11).

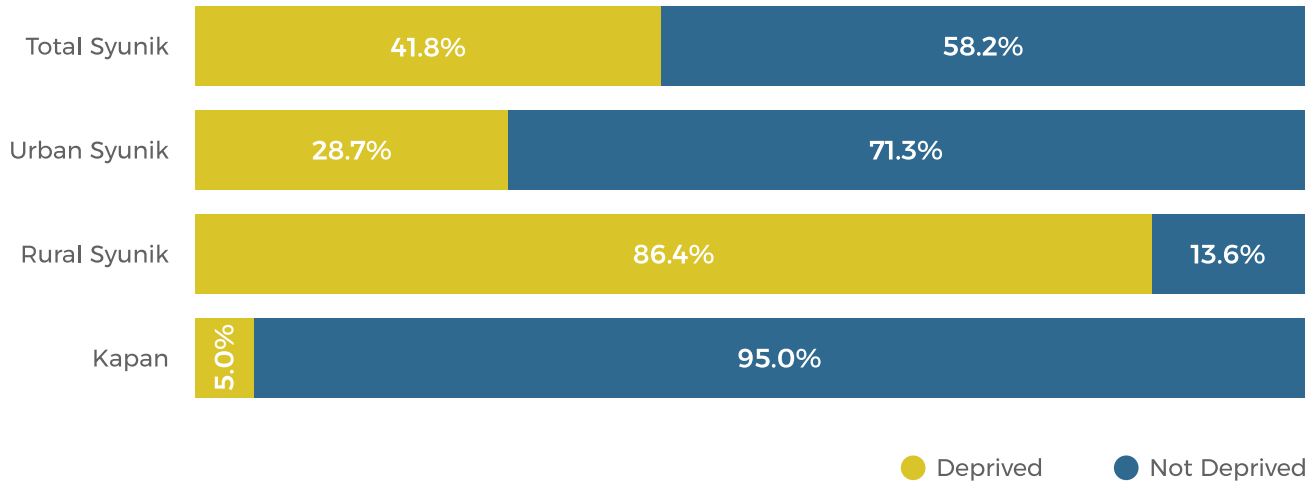
Figure 11. Deprivation rate in Overcrowding indicator



Housing: Healthy Heating

The healthy heating indicator reflects high polarisation, with 86.4% of rural households being deprived, e.g., using oil and diesel, wood, or any source other than central heating, electricity, natural gas, or liquefied gas as main source for heating (see Figure 12).

Figure 12. Deprivation rate in Healthy Heating indicator



Even though rural communities stand out with one of the highest rates of deprived within not only this but all other indicators, the share of the deprived in urban communities is also relatively high (28.7%), especially when comparing with Kapan (5% of deprived households).

Housing: Centralised Water System

Centralised water system is accessible for the majority of households in Syunik: the deprivation rate in the marz is 7%, with 3% in urban communities and 1.4% in Kapan. However, here as well the trend continues with rural communities having the issue of a centralised water system more frequently (16.3%) compared with other communities in Syunik.

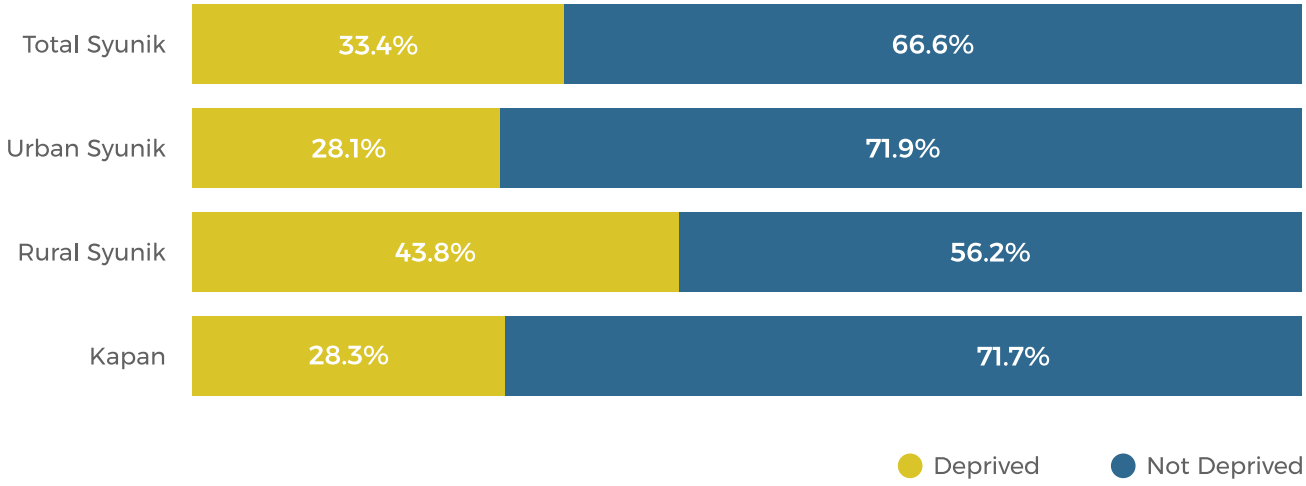
Housing: Sanitation and Garbage Disposal

The issue of access to a centralised sanitation compound or disposal of household garbage (either a rubbish evacuation system or dust-cart collection) is highly relevant for rural households: 35.8% of households are deprived, while in Kapan there is no such issue and in other urban communities only 3.9% are deprived.

Housing: Hot Running Water

One third of households in Syunik are deprived of hot running water, which means that they do not have access to functioning hot running water: 43.8% of households in rural communities and about 28% of both households from urban communities and Kapan are deprived (see Figure 13).

Figure 13. Deprivation rate in Hot Running Water indicator



Considering the high deprivation level in healthy heating (41.8% across the whole marz), the deprivation of hot running water could be an outcome of centralised water supply absence and scarcity of energy sources necessary for heating water, such as electricity or gas.

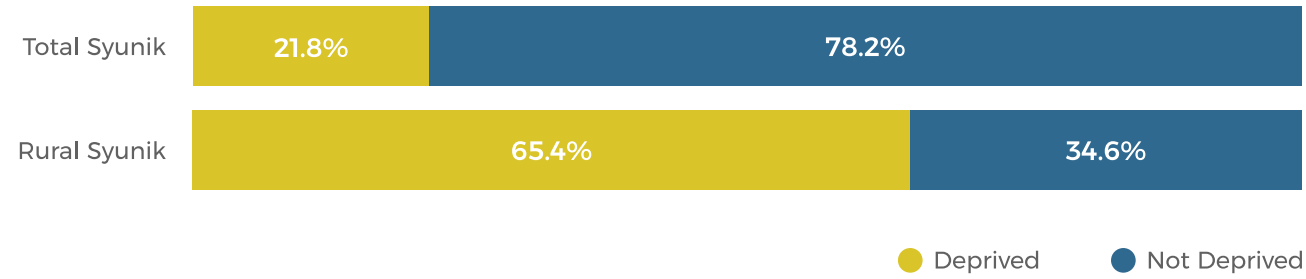
Housing: Quality of Public Services

This indicator measures the satisfaction of households with eight different public services: water supply, sanitation, garbage collection, telephone, electricity supply, post, banking and public transportation. Households that are not satisfied with more than a third of the public services or do not have access to those are considered deprived. This issue was relevant for about a fifth of rural households (22%) and less common both for urban communities of Syunik (3.9%) and Kapan (1.4%).

Housing: Access to Transportation

Under this indicator, only households from rural communities are examined[33]. The households from urban communities are considered as not deprived. Consequently, two-thirds of households, represented by rural communities (65.4%), are deprived (see Figure 14).

Figure 14. Deprivation rate in Access to Transportation indicator

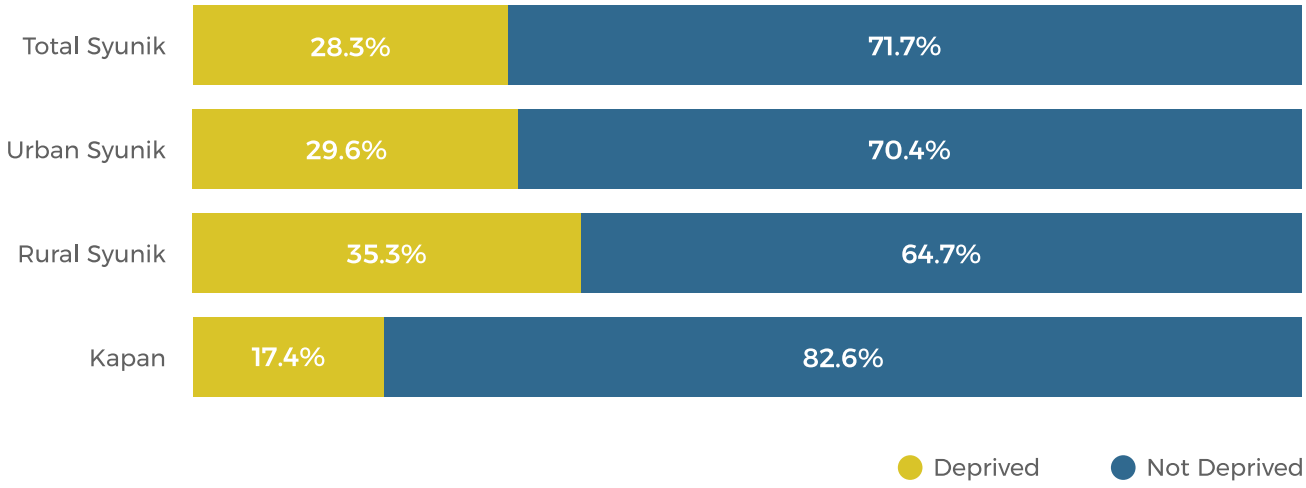


33. See Annex B. for justification

Housing: Household Assets

This indicator identifies households that do not have any means of media consumption (radio, TV, computer, any kind of telephone, tablet), means of food preparation (stove, gas stove, oven), fridge or furniture. The household that does not have at least one of each group of assets is considered deprived. The analysis shows that households from rural communities are deprived to a relatively greater extent, having 35.3% of deprivation, while households from urban communities score 29.6% of deprivation, and those from Kapan score 17.4% of deprivation (see Figure 15).

Figure 15. Deprivation rate in Household Assets indicator



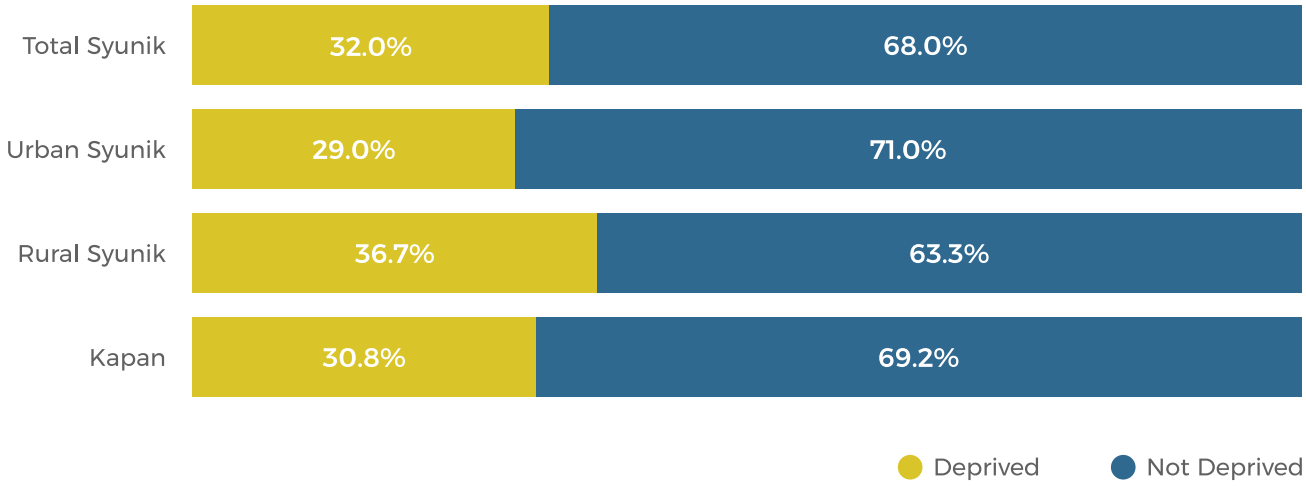
Education

As contribution analysis per dimension already showed (see Figure 8), the education dimension has the least influence on the overall deprivation rate. The investigation into influences per indicator on household deprivation also confirms this, as from the households across the whole Syunik only 2.1% are deprived of Access to Education, 1.1% of Compulsory Schooling, 1.8% of Secondary Education and 6.3% of Quality of Education Services being the only indicator where the number of households is comparatively higher across this dimension.

Labour: Labour Market Participation

The labour market participation indicator refers to households in which more than half of working age (16-74) individuals are not in the labour force (except for households that do not have any members of working age). Nearly a third of the households in Syunik are deprived of labour market participation: with a 29% ratio of deprived in urban, 36.7% in rural communities and 30.8% in Kapan (see Figure 16).

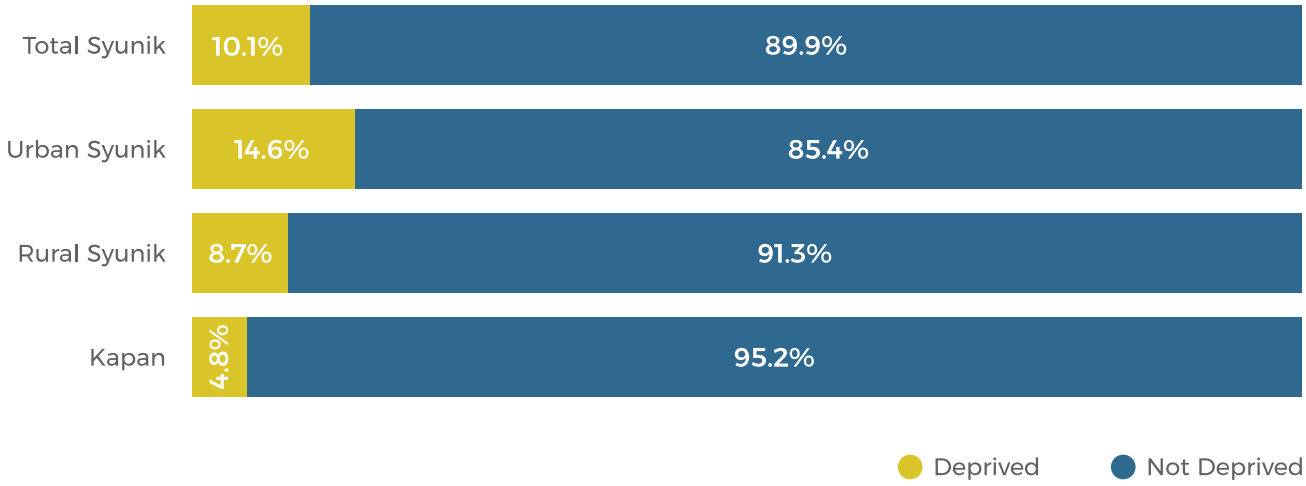
Figure 16. Deprivation rate in Labour Market Participation indicator



Labour: Long-Term Unemployment

With one-third of the households in Syunik deprived of labour market participation, only 10.1% are deprived in terms of long-term unemployment. The household here is considered deprived if any working-age member has been unemployed and is actively looking for a job for one or more years. As per this indicator, the deprivation rate in urban communities (14.6%) is higher than in rural communities (8.7%), while in Kapan the issue is relevant for only 4.8% of the households (see Figure 17).

Figure 17. Deprivation rate in Long-Term Unemployment indicator



Labour: Decent Jobs

Under this indicator, the households are considered deprived if all employed members are either self-employed or contribute to a family business. Here, both the main and second jobs of individuals are taken into consideration. As the data shows, a very small share of households is deprived within this indicator which means that the vast majority of households in Syunik have at least one member of working age involved in employment rather than family business or self-employment. However, the deprivation rate in urban communities (5.2%) is more than twice as high compared with rural communities (2.2%) and Kapan (2.4%), which can be explained with the same trend in previous indicator.

Labour: Underemployment

The households are considered deprived if all employed individuals either work less than 30 hours a week (both main and second jobs cumulatively if applicable), are considered seasonal workers or are employed with a position requiring lower qualification than they have. This issue is among those having comparatively less contribution to the deprivation rate, as the deprivation rate in all communities is less than 20%, with almost equal share both in Kapan (11.5%) and rural communities (11.4%), and 17.8% in urban communities.

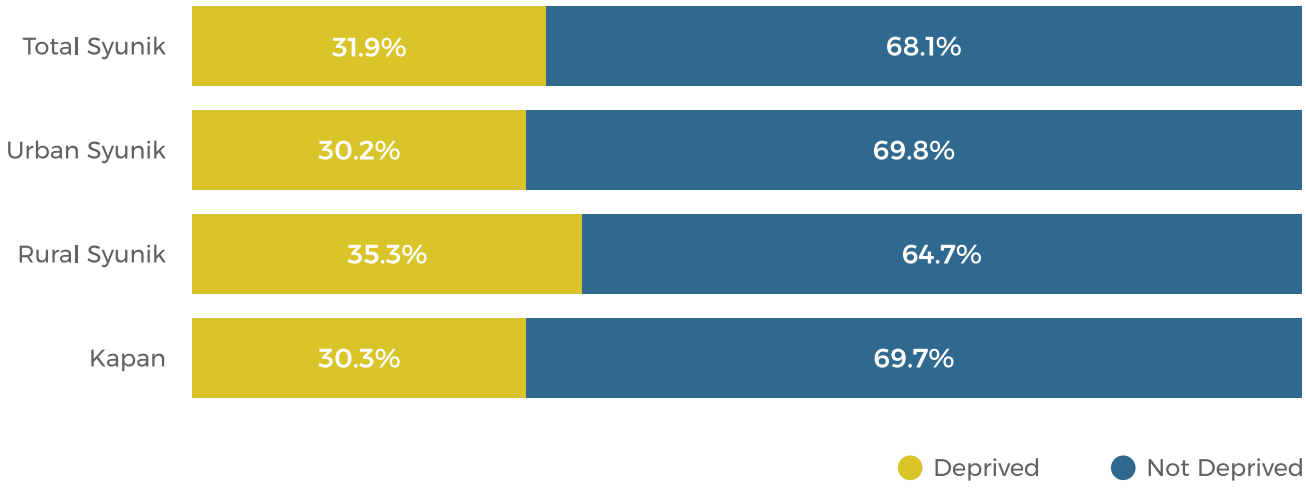
Health: Affordability of Health Services

The analysis reveals affordability of health services being not a principal issue in Syunik as only 7.1% of the households are deprived within this indicator, with 5.6% rate in urban, 11% in rural communities, and 4.4% in Kapan.

Health: Termination of Usual Activities

Nearly third (~32%) of the households in Syunik are deprived when looking into the termination of the usual activities because of any health issues[34]. Even though rural communities have a slightly higher number of deprived households here (35.3%), the picture is relatively identical with urban communities (30.2%) and Kapan (30.3%) (see Figure 18).

Figure 18. Deprivation rate in Termination of Usual Activities indicator



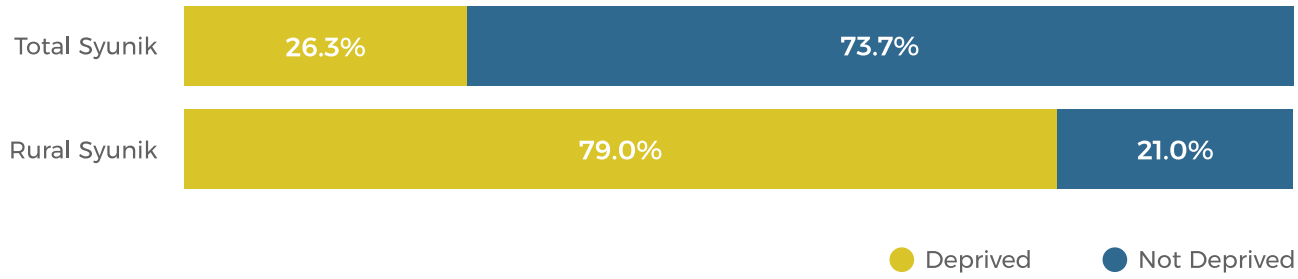
Health: Access to Health Services

Access to health services has the highest contribution (12.8%) to the deprivation rate of rural communities (See Figure 7). Notably, more than a quarter of households in Syunik are deprived (26.3%). Importantly, among households in rural communities 79% are deprived of access to health services (see Figure 19), while only 11% of households in the same communities are deprived of health affordability.

34. The reader should consider that the households were asked if any of their household members were absent from their usual activities during the past 12 months. As the period in questioning is long, this could potentially affect the higher rates of deprivation within the indicator.

As the access to health services is counted only within rural communities[35], several factors could contribute to this phenomenon. For example, the relatively high correlation between the access to health services and access to transportation (see Figure 1) can prompt that even though households have monetary sources or state support to attend to health institutions, the access of transportation (in which 65.4% of households in rural communities are deprived) combined with the distance between rural communities and the health institutions[36] can significantly contribute to the deprivation in this indicator.

Figure 19. Deprivation rate in Access to Health Services indicator



Health: Quality of Health Services

The quality of health services is measured by the households that are not satisfied with health services or mentioned not having access to those. Consequently, only 14.9% of households in Syunik, 18% of households from urban, 16.3% of rural communities, and only 8.3% from Kapan are deprived within this indicator.

35. See Annex B. for justification
36. According to the collected data, the average distance from rural communities to nearest hospital is 28 minutes, to the nearest pharmacy is 26 minutes (the max for both variances is 90 minutes, and every household scoring more than 20 minutes is deprived) and only to the nearest ambulance service is 11 minutes, which is usually allocated to each rural community for first aid issues.

6. CONCLUSION

This study presents a detailed analysis of the multidimensional poverty index for Syunik marz, Armenia, revealing significant disparities in deprivation across urban and rural communities. The study on MPI in Syunik marz conducted by the CRRC-Armenia provides a comprehensive analysis of multidimensional poverty in Syunik marz, focusing on non-monetary aspects of poverty. Analysing survey data from 663 households through the Alkire-Foster method, the research examines five dimensions of poverty: basic needs, housing, education, labour, and health. By using a community-level approach and incorporating weighted data, the research provides a nuanced understanding of poverty's unique manifestations in Syunik. The data from this research and future multidimensional poverty studies can inform targeted poverty mitigation policies and programs that address the unique deprivations of individual communities. Analysing the specific context of each community allows for more relevant interventions. Along with the analogous study in Shirak, Lori, and Tavush, conducted as part of the "Community Poverty Reduction Know-How" project, these findings are to support future collaborative efforts between local CSOs, LSGs, and community members to combat multidimensional poverty and vulnerability in Syunik. This research, as well as future community-level studies can thus provide a strong foundation for efforts aimed at reducing poverty in Armenia.

The findings specifically highlight the multidimensional nature of poverty in Syunik, emphasising that poverty extends beyond income and includes factors such as poor housing conditions, lack of access to quality social services, healthcare issues, and labour market deprivations.

The overall MPI score for Syunik marz is only 4.6%. Still, the deprivation is significantly higher in rural areas compared to urban areas, with Goris contributing significantly to the urban deprivation score, whereas Kapan has no households falling under the deprivation threshold. In urban areas, the MPI is mainly shaped by Basic Needs, Health, and Labour, while in rural areas Housing and Health are the most significant contributors, followed by Basic Needs.

Extreme food poverty is prevalent, affecting nearly half of Kapan's households and 43.3% of urban households, while only 21.7% in rural areas. Life in dignity is a significant issue, with around a third of households across Syunik experiencing deprivation. Remittance dependence has a rather insignificant impact, with only 0.7% of households affected.

Housing deprivation is more pronounced in rural areas, with 20.8% of households facing poor subjective housing conditions and 27.1% lacking adequate housing. Healthy heating is a critical deprivation in rural areas, with 86.4% of households needing better heating solutions. The education dimension has the least

impact on overall deprivation, with the most significant indicator being the quality of education services, affecting 6.3% of households.

Labour market participation shows a high deprivation rate, particularly in rural areas (36.7%), while long-term unemployment is a more significant issue in urban areas (14.6%). Although the deprivation rates for decent jobs and underemployment are lower, they are notable, with urban areas experiencing higher rates.

In terms of health, the affordability of health services is not a major issue, however access to health services appears to be a significant challenge in rural areas, where 79% of households are deprived in this indicator.

In summary, the study reveals that rural areas in Syunik marz face greater multidimensional poverty, necessitating targeted interventions to address specific local needs. However, the report offers valuable inputs into development areas for other communities of Syunik as well, which, despite lower MP rates, still face significant challenges in essential aspects of wellbeing.

7. RECOMMENDATIONS

Before delving into the recommendations outlined in this report, a caution note should be considered. The intention of this report is not to establish a narrative of poverty in the Syunik marz. We do not assert that any dimension is inherently less significant than others. Instead, this section aims to suggest potential areas where concentrated efforts may lead the most effective strategies for combating poverty.

With this in mind, we present the directions where more targeted policy interventions might be necessary, guided solely by the primary findings highlighted by our evidence.

Basic Needs

The difficulties of households to cover basic needs were widespread. Around 38% of households in Syunik are deprived of the Extreme food poverty indicator. Notably, 53.8% of households report not being able to eat meat, chicken or fish (or vegetarian substitutes) every second day, and some households have difficulties accessing properly fitting shoes (23.9%) and clothes (26.4%) necessary for each season. Despite these issues the majority of the population is not registered in the poverty benefit system (only 11.6% of households are registered) or have any other means of support (only 8.3% has).

As for the accessibility to shoes and clothes, an awareness campaign for circular economy can be recommended, which can promote the notion of sharing, reusing, repairing, and recycling of existing materials, becoming a sustainable way of affording clothes and shoes. Promotion of the food bank system in Syunik could make food affordable for deprived people. This can be accomplished by creating a food voucher system for food banks.

These issues can possibly be addressed by the "Resilient Syunik" EU project's social services branch. An example of a project promoting such developments is "Resilience and economic recovery of border communities in Armenia (REBCA)" implemented by WFP, where one of the main objectives is to eradicate food insecurity and malnutrition[37]. Potential collaboration between such initiatives by different partners could further benefit the work for this cause.

37. See: https://armenia.un.org/sites/default/files/2023-04/2023%2002%20Armenia%20Country%20Brief.pdf#:~:text=WFP%2C%20in%20partnership%20with%20UNICEF,resistance%20and%20resilience%20to%20adversity

Housing

Healthy heating (86.4% deprived in rural communities), Access to transportation (65.4% deprived in rural communities) and Hot running water (40.8% deprived in rural communities) are three of the most integral housing-related issues that should be prioritised across Syunik, especially in the rural communities. Figures show Healthy heating to particularly spike in rates of deprivation in the marz.

One of the possible ways of addressing the healthy heating and hot running water issues is to provide subsidy programs or finance (through group purchasing, green financing or crowdfunding) long-term loans for citizens to attain solar panels.

Importantly the issue can also be addressed by the "Resilient Syunik" EU project's Sustainable and green public infrastructure branch. Other examples of projects that could cover the main issue of healthy heating, which can also promote hot running water issues are:

- "EU4Energy Efficiency and Renewable Energy in Armenian Communities" project implemented by GIZ, one of the expected outcomes of which is *"the use of locally produced energy-efficient stoves based on solid biomass fuel is promoted in vulnerable, low-income households"*[38].
- "Jerm Ojakh" energy-efficiency project implemented by the National Mortgage Company and AFD, which is to *"enable low and middle-income households to renovate their apartments and private houses, create comfortable life, reduce residential energy expenses, as well as promote the development of energy-efficient housing stock in towns and villages of Armenia"*[39].

Education

The indicators under the dimension of education had some of the lowest rates of deprivation among all indicators in the MPI. However, readers should be cautious to underestimate the importance of addressing this issue as it is likely to have profound impacts on other aspects of poverty. Thus, our recommendation would be to focus on potential interventions towards other dimensions of MP, while still keeping in mind the background role that education may play in the poverty landscape.

Labour

Labour market participation issue in urban communities is approximately 30% and in rural communities is 36.7%. Meanwhile, Long-term unemployment (10% of deprived in Syunik) and Decent job (3.5% of deprived in Syunik) rates are quite low. This study does not uncover the causes of such deprivation rates. However, considering the need for investments to ensure an adequate labour market, this issue might deserve special attention.

Some recommended ways of tackling this aspect of MP may include:

- Understand/analyse the needs of the labour market for the community and provide appropriate training for people to satisfy the demand.
- Improve skills and competencies entrepreneurship, production, quality management, agricultural, and food processing technologies.

38. See: https://caritas.am/eu4energy-efficiency-and-renewable-energy-in-armenian-communities/
39. See: https://banks.am/en/news/newsfeed/10850

Additionally, this can be addressed by "Resilient Syunik" EU project's MSME development branch, for example the "R2D Syunik: Recovery, resilience, development for Syunik" project implemented by ADA, which aims to *"enhance recovery and resilience of micro, small and medium enterprises (MSMEs) and sustainable small-scale communal infrastructure in Syunik"*[40].

Health

In the Health dimension the deprivation rates are relatively high when considering the Access to health (79% deprived in rural communities) specifically. Notably, the Affordability of health services indicator has one of the lowest rates of deprivation, which may suggest that the issue lies beyond monetary needs. We may notice that the main issue is the distance between health facilities (especially hospitals and pharmacies) and rural communities combined with a high rate of deprivation in transportation accessibility.

A relevant recommendation would be introducing a system of mobile clinics in rural areas to deliver services in geographically isolated and rather remote areas or small towns that may lack access to healthcare providers. This initiative has already been successfully piloted by UNDP also in the Sisian community ("Trial of laboratory instrumented diagnostic mobile services in Berd, Sisian and Amasia communities" together with the Swiss Agency for Development and Cooperation and MTAI of RA). We recommend expanding the geographic coverage of the initiative to other communities of Syunik.

Additionally, this can be addressed by "Resilient Syunik" EU project's social services branch, for example the "Strengthening healthcare provision for the populations of Syunik" project implemented by Santé Arménie, Action Santé Femmes Arménie and AGBU[41].

40. See: https://r2dsyunik.am/en/
41. See: https://eu4armenia.eu/team-europe-initiative/

BIBLIOGRAPHY

Alkire, Sabina, and James Foster. Counting and Multidimensional Poverty Measurement. Journal of Public Economics 95 (7): 2011. https://doi.org/10.1016/j.jpubeco.2010.11.006

Alkire, Sabina, James E. (James Eric) Foster, Suman Seth, Maria Emma Santos, José Manuel Roche, and Paola Ballón. Multidimensional Poverty Measurement and Analysis. First. Book, Whole. New York, NY: Oxford University Press. 2015, https://doi.org/10.1093/acprof:oso/9780199689491.001.0001.

Alkire, Sabina, Usha Kanagaratnam, and Nicolai Suppa. A Methodological Note on the Global Multidimensional Poverty Index (MPI) 2022 Changes over Time Results for 84 Countries. Oxford. 2022. https://www.ophi.org.uk/wp-content/uploads/OPHI_MPI_MN_54_2022.pdf.

ArmStat, Demographic Database, 2022, https://armstat.am/am/?nid=209

———. Household's Integrated Living Conditions Survey anonymised microdata database, https://armstat.am/en/?nid=205

———. Statistical Yearbook of Armenia: Industry", Data as of January, 2023, https://armstat.am/file/doc/99546313.pdf

———. Statistical Yearbook of Armenia", Data as of January, 2023, https://armstat.am/file/doc/99541043.pdf

———. ARMENIA – POVERTY SNAPSHOT OVER 2019-2022, 2023. https://armstat.am/file/article/poverty_2023_en_2.pdf

———. Figures of marz of Syunik, 2022, https://armstat.am/am/?nid=953

———. SOCIO-ECONOMIC CHARACTERISTICS OF MARZES AND YEREVAN CITY OF THE RA, 2022 https://armstat.am/file/article/marzer_2022_28.pdf

———. SOCIO-ECONOMIC SITUATION OF THE REPUBLIC OF ARMENIA in 2023. JANUARY-DECEMBER, https://armstat.am/file/article/sv_12_23a_122.pdf

———. SOCIO-ECONOMIC SITUATION OF THE REPUBLIC OF ARMENIA in 2023. JANUARY-DECEMBER, https://armstat.am/file/article/sv_12_23a_6200.pdf

———. The Demographic Handbook of Armenia: Migration, 2023 https://armstat.am/file/article/demog_2023_7.pdf

ArmStat, and World Bank. "SOCIAL SNAPSHOT AND POVERTY IN ARMENIA - Statistical and Analytical Report.", 2022. Yerevan. https://armstat.am/file/article/poverty_2019_english_2.pdf.

Caucasus Research Resource Center-Armenia Foundation. Community-Level Multidimensional Poverty in Armenia. Yerevan, 2023: European Union.

Development strategy of Syunik region of RA for 2017-2025, http://syunik.mtad.am/files/docs/29670.pdf

EU4Energy Efficiency and Renewable Energy in Armenian Communities, https://caritas.am/eu4energy-efficiency-and-renewable-energy-in-armenian-communities/

Jerm Ojakh project presented in Syunik region, 2015, https://banks.am/en/news/newsfeed/10850

Nazarian G. "The Meghri Corridor: A Viable Transport Link or Geopolitical Noose?", 2021, https://evnreport.com/politics/the-meghri-corridor-a-viable-transport-link-or-geopolitical-noose/

R2D Syunik, https://r2dsyunik.am/en/

RESILIENT SYUNIK TEAM EUROPE INITIATIVE, https://eu4armenia.eu/team-europe-initiative/

WFP Armenia Country Brief, February 2023, https://armenia.un.org/sites/default/files/2023-04/2023%2002%20Armenia%20Country%20Brief.pdf#:~:text=WFP%2C%20in%20partnership%20with%20UNICEF,resistance%20and%20resilience%20to%20adversity

What is Underemployment? https://corporatefinanceinstitute.com/resources/economics/underemployment/

ANNEX A: FIELDWORK

Public opinion data presented in this report was obtained through a representative CAPI survey of Syunik marz of Armenia. This method was designed to obtain the most accurate information possible about multidimensional poverty and its causes in that region. The actual sample size for this study was 832. After fieldwork completion CRRC-Armenia meticulously filtered the data, after which, data from 663 households passed through the quality thresholds as to completeness, accuracy, validity, replicability, reliability. Therefore, the data of those 663 observations was used to calculate the index.

Technical Overview of the Survey

Poll Quick Facts	Data	Remarks
Name of fieldwork firm	CRRC-Armenia Foundation	
Fieldwork Dates	29 April 2024 – 26 May 2024	
Sampling Frame Data	List of electoral precincts of RA	
Sample size	n = 663	
Target population	Residents of the Republic of Armenia Syunik Marz	
Total target population	106,425 (people aged 18+)[42]	
Survey type	Regional	
Sampling Method	Stratified randomised cluster sample	
Margin of error	+/- 4%	95% confidence interval
Interview method (mode)	CAPI	
Response Rate[43]	NA	
Interview language(s)	Armenian	
Weight factors	Household level weights calculated	

I. Sampling

A representative sample of 663 residents in Syunik marz was achieved through household visits. During the first stage of smapling, electoral precincts (primary sampling units - PSUs) were sampled randomly in each substratum with a probability proportional to the number of registered voters stratified by settlement type. During the second stage, households (secondary sampling units) were selected within the sampled precincts, using the random walk procedure. During the third stage, the household`s most informed member was selected as a respondent. The distributions of respondents across the given demographic groups versus the distributions[44] of citizens of the marz across those groups is presented in the tables below;

42. ArmStat demographic database https://armstat.am/am/?nid=209
43. Because of the complexity of fieldwork, not all non-responses were collected into the database, which makes it problematic to count response rate.
44. De facto population distributions across demographic groups are based on data from the Statistical Committee of RA as of 2022 and are calculated using scientifically grounded methodology.

Gender distribution (actual and predicted sample)

Gender	Actual survey distribution (%)	Predicted distribution (ArmStat 2022 census) (%)
Male	47. 3	48. 6
Female	52. 7	51. 4

Age distribution (predicted vs. actual sample)

Age	Actual survey distribution (%)	Predicted distribution (ArmStat 2022 census) (%)
0-4	6.2	6.4
5-9	5.1	7.1
10-14	7.6	7.2
15-19	5.4	5.4
20-24	4.9	4.2
25-29	4.7	5.2
30-34	6.1	7.6
35-39	7.0	7.5
40-44	6.4	6.7
45-49	5.9	6.0
50-54	5.6	5.6
55-59	5.4	6.4
60-64	8.4	8.3
65-69	7.4	6.4
70-74	5.7	4.4
75-79	2.4	1.9
80+	5.9	3.7

Community (predicted vs. actual sample)

Community	Actual survey distribution (%)	Predicted distribution (ArmStat 2022 census) (%)
Kapan	21.6	32.4
Urban	36.8	34.5
Rural	41.7	33.1

II. Weighting

The data is weighted to ensure representation Syunik marz household distribution to correct for distortions in demographics due to non-responses. The dataset contains household weight (hhweights), The weight was calculated by settlement type (urban/rural) and household size. The last wave (2022) of the Integrated Living Conditions Survey provided by the Statistical Committee of the Republic of Armenia was used as a reference for the correction.

III. Questionnaire

The initial questionnaire in Armenian and English was developed by the CRRC-Armenia research team based on the Integrated Living Conditions Survey (ILCS) questionnaire[45] and was improved considering OPHI experts' recommendations relating to the questionnaire of the previous study[46]. Simultaneously, all the changes were transferred into the English version of the questionnaire.

IV. Pre-test

A total of 20 valid interviews were conducted for pre-test between April 2 and April 5, 2024, and diaries were completed between April 2 and April 12, 2024. 80% of respondents were female and 20% were male. The youngest respondent was 18, the oldest was 70. The average interview duration was 42.4 minutes, with the shortest interview lasting 24.8 minutes and the longest lasting 83.3 minutes. All 20 interviews were conducted in urban areas.

V. Fieldwork

The fieldwork was conducted from April 29 to May 26, 2024. The fieldwork personnel consisted of 12 individuals. The youngest respondent was 18, the oldest was 94. The average interview duration was 43.3 minutes, with the shortest interview lasting 14 minutes and the longest lasting 2 hours.

The one-day field training was organised for all interviewers in the Syunik region. During the training, interviewers practised the questionnaire, and sampling instructions and discussed possible issues that might arise during the fieldwork.

VI. Organization of the fieldwork

The Fieldwork Coordinator was responsible for the overall management and quality control of the fieldwork in Syunik regions. Overall managerial and technical oversight was exercised by the Field Supervisor, Fieldwork Coordinator, and Program Managers from CRRC-Armenia. The interviewers were in daily contact with the coordinator to be given updates about the fieldwork process and appropriate instructions as necessary.

During fieldwork, the diary format was revised. Initially, open-ended questions were asked to reveal respondents' consumption and food costs, but CRRC-Armenia later standardised the format to close questions.

45. See: https://armstat.am/en/?nid=205
46. Caucasus Research Resource Center-Armenia Foundation. 2023. "Community-Level Multidimensional Poverty in Armenia". Yerevan: European Union.

During frames of the data cleaning process, back-check calls were made to correct the discrepancies in the dataset. The overall planning and logistics of the fieldwork were stipulated in the fieldwork plan. The enumerators were based in Syunik and the data collection was organised locally, with direct involvement of Fieldwork Coordinator Supervisor.

VII. Data Processing

Initial Interview data was captured in CAPI mode through SurveyCTO software. The software automated all skip patterns and prevented moving on without completing a question. The software allows for a direct download of the SPSS database, therefore eliminating data entry errors. Frequencies and crosstabs were used to identify outliers, duplicates, and data that were inconsistent with the instrument's logic. One coder coded all open-ended questions and responses for "Other" options to avoid bias code interpretations.

VIII. Quality control

To ensure the quality of the data we implemented several quality checks. 30% of audio recordings of the interviews were used to check for interviewer bias (leading questions, misread questions and/or answers, etc.). Back calls were also conducted for the same purpose. In addition, the following metrics were reviewed for each interviewer:

- Average duration and start/end time of interviews;
- Number of "Don't know" and "Refuse to answer" options;
- Frequency and quality of answers filled in the "other" option and open questions;
- Outliers;
- Skip logic;
- Number of interviews done per day.

35% of interviews were back-called for additional quality checks and data clarification. When the option "other" was selected, the responses were standardised, where possible.

ANNEX B. MPI DEPRIVATION CUT-OFFS

Basic Needs	
Extreme (Food) Poverty	A household was considered deprived if adult food consumption was below the food poverty line (40042 Armenian drams[47]).
Life in Dignity	The household was considered deprived if respondents stated that there was not enough money for everyday meals or clothes. Data from four survey questions were used to determine deprivation under this indicator including (1) one question that explored issues related to worrying about not having enough food to eat, and going hungry due to a lack food in household, (2) a question related to the ability to eat meat every second day, and questions related to the ability to own (3) clothes and (4) shoes for each season. If a household was determined to be deprived based on the criteria of half of the questions, they were considered deprived under the indicator.
Humanitarian Aid	The household was considered deprived if it had received humanitarian aid during the preceding 12 months. Under the humanitarian aid indicator, respondents were asked if (1) their families were registered in the System of Family Poverty Benefits, and if (2) their families received humanitarian benefits in the preceding 12 months other than those provided by the System of Family Poverty Benefits.
Remittance Dependency	The remittance dependency indicator referred to households that had food consumption levels lower than the food poverty line after discounting for any remittances received. To eliminate the bias of potential remittance spending, respondents were asked about the purpose of receiving remittance. Households receiving remittance for daily spending and having a consumption lower than the food poverty line were considered deprived.
Housing	
Subjective Housing Conditions	Households were considered deprived if they described their housing conditions as "bad" or "very bad".
Adequate Housing	Households were considered deprived if they expressed complaints about at least a third of the following issues regarding their housing and the immediate environment: floor area, noise from neighbours or outside, lighting, heating, humidity, leaking roof, dilapidated walls, and floors, dilapidated window frames and doors, heavy traffic, industrial pollution, water quality, garbage removal, and services for common areas and yards.

47. The initial price for the minimum consumption basket is 41026 per person per month, however, as the consumption of legumes was absent from the questionnaire, it was excluded from the basket calculation.

Overcrowding	The household was considered to be overcrowded if any of the following conditions were not met: - One room for the household; - One room per couple in the household; - One room for every single person aged 18 or more; - One room per pair of single people of the same gender between 12 and 17 years of age; - One room for every single person between 12 and 17 not included in the previous category; - One room per pair of children under 12. Households that had any individuals living in overcrowded conditions were considered to be deprived. The rooms did not include bathrooms, toilets, or kitchens.
Healthy Heating	Households that were heated with oil, diesel, wood, or any source other than central heating, electricity, natural/liquefied gas were considered deprived.
Continuous Access to a Centralised Water System	Households that did not have access to centralised water at all or for every day of the month and each hour of the day were considered deprived.
Centralised Sanitation and Garbage Disposal	The indicator referred to households that did not have access to a centralised sanitation compound or disposal of household garbage using either a rubbish evacuation system or dust-cart collection. Households that used other means of garbage disposal or did not have a functioning centralised sanitation compound were considered deprived.
Hot Running Water	The hot running water indicator identified households that did not have access to functioning hot running water.
Quality of Public Services	The indicator measured how satisfied households were with eight different public services: water supply, sanitation, garbage collection, telephone, electricity supply, post, banking and public transportation. Households that were not satisfied with more than a third of the public services they rated or didn't have access to were considered deprived.
Access to Transportation	The indicator identified households that described the roads within their settlements or to regional towns or markets as poor. Households in urban areas were not asked this question and were not considered deprived.
Household Assets	The indicator identified households that do not have any means of media consumption (radio, TV, computer, any kind of telephone, tablet), means of food preparation (stove, gas stove, oven), fridge, or furniture. A household that does not have at least one of these categories is considered deprived.

Education	
Secondary Education	The secondary education indicator identified households in which no member aged between 15-74 had completed secondary education.
Compulsory Schooling	The compulsory schooling indicator identified households that had at least one child of compulsory schooling age (6–17 years) who had not been attending school. Households with no children of that age were not considered deprived.
Quality of Education Services	The indicator identified households that were not satisfied with education services or mentioned, they didn't have access to the services.
Access to Education	If any household spent more than 20 minutes walking or riding a bicycle to attend kindergarten, primary, or secondary school, the household was considered deprived. Households in which any member spent over an hour using other means of transportation in commuting to school were also considered deprived. Urban households were not asked this question and were not considered deprived.
Labour	
Labour Market Participation	The labour market participation indicator refers to households in which more than half of working-age (16-74) individuals were not in the labour market. Households that did not have any person of working age were not considered deprived.
Long-term Unemployment	The household was considered deprived if any working-age member had been unemployed and was actively looking for a job for one year or more. Households that had no members of working age were not considered deprived.
Decent jobs	Households were considered deprived if all employed members were either self-employed or contributed to a family business. Here both the main and second jobs of individuals were taken into consideration, by which those who were not self-employed or contributed to family business at least to one of their jobs were not considered deprived. Households with no members of working age were not considered deprived.
Underemployment	Households were considered deprived if all employed individuals either work less than 30 hours a week (both main and second jobs cumulatively if applicable), are seasonal workers or are employed in a position requiring lower qualifications than they have. Households with no members of working age are considered not deprived.

Health	
Affordability of Health Services	The indicator identified households that lacked funds to pay for required health services in the preceding 12 months (excluding dental work) in a healthcare facility, such as tests, examinations, and procedures prescribed by a doctor. Those with no member who sought medical attention were not considered deprived.
Termination of Usual Activities	The indicator referred to households with at least one member who terminated their usual activities due to illness, injury, or bad health within the last 12 months.
Access to Health Services	The indicator referred to households in rural areas that had no access to health care facilities, emergency ambulance services, or pharmacies. Households that could not reach the closest of these within 20 minutes or less by any available means of transportation were considered deprived. Urban households were not considered deprived.
Quality of Health Services	The indicator measured households that were not satisfied with health services or mentioned not having access to those.

ԵՎՐՈՊԱԿԱՆ ՄԻՈՒԹՅՈՒՆԸ ՀԱՅԱՍՏԱՆԻ ՀԱՄԱՐ
EUROPEAN UNION FOR ARMENIA

CRRC
ARMENIA