

who have linkages to **bonding** and **bridging** sources of social capital should be more resilient than those who do not have linkages to these resources. In other words, for individuals to demonstrate resilience, they must be linked to other individuals or institutions that can be sources of bonding and bridging social capital. Bonding networks are horizontal in nature, in that they occur among those who are on the same level. These are people we perceive to be similar to ourselves, such as our friends and family. Bridging networks on the other hand are vertical and serve to link us with those who we perceive to be different, such as those who have resources that we do not have.

The research team surveyed 419 residents of Guatemala, in five neighborhoods in Guatemala City and four neighborhoods in Huehuetenango in October 2022. The purpose of the survey was to assess factors that are theoretically believed to impact individual resiliency and to test the validity and reliability of our measurement scales.

The research team tested the following hypotheses:

- When experiencing a shock or stress, an individual will consider their personal levels of social capital through bonding and bridging when making key life decisions.
- The type of social capital they have will influence personal decisions when deciding whether or not to relocate.
- An individual will consider the linking institutions within their community when making key personal decisions about relocating when experiencing a shock or stress.
- An individual will consider the resilience level of their community (comprised of government structures, institutions and households) when making personal decisions during a shock or stress.



Government-constructed homes of families displaced by natural disasters; Guatemala City, Guatemala

STUDY DESIGN

In developing our measurement scales, we began with our theoretical definition of each construct and then developed a series of questions that correspond to this definition. The purpose of the study was to evaluate the types of relationships and sources of social capital utilized in times of crisis, as such a series of questions based on different known shocks and resources a person might seek for help.

We developed measurement scales to determine the relationship between resiliency and access to the following resources:

- Bonding networks
- Emotional support
- Tangible support
- Satisfaction with current housing
- Confidence in finding new housing
- Financial resources
- Transportation resources
- Communication resources
- Healthcare resources – accessibility and availability

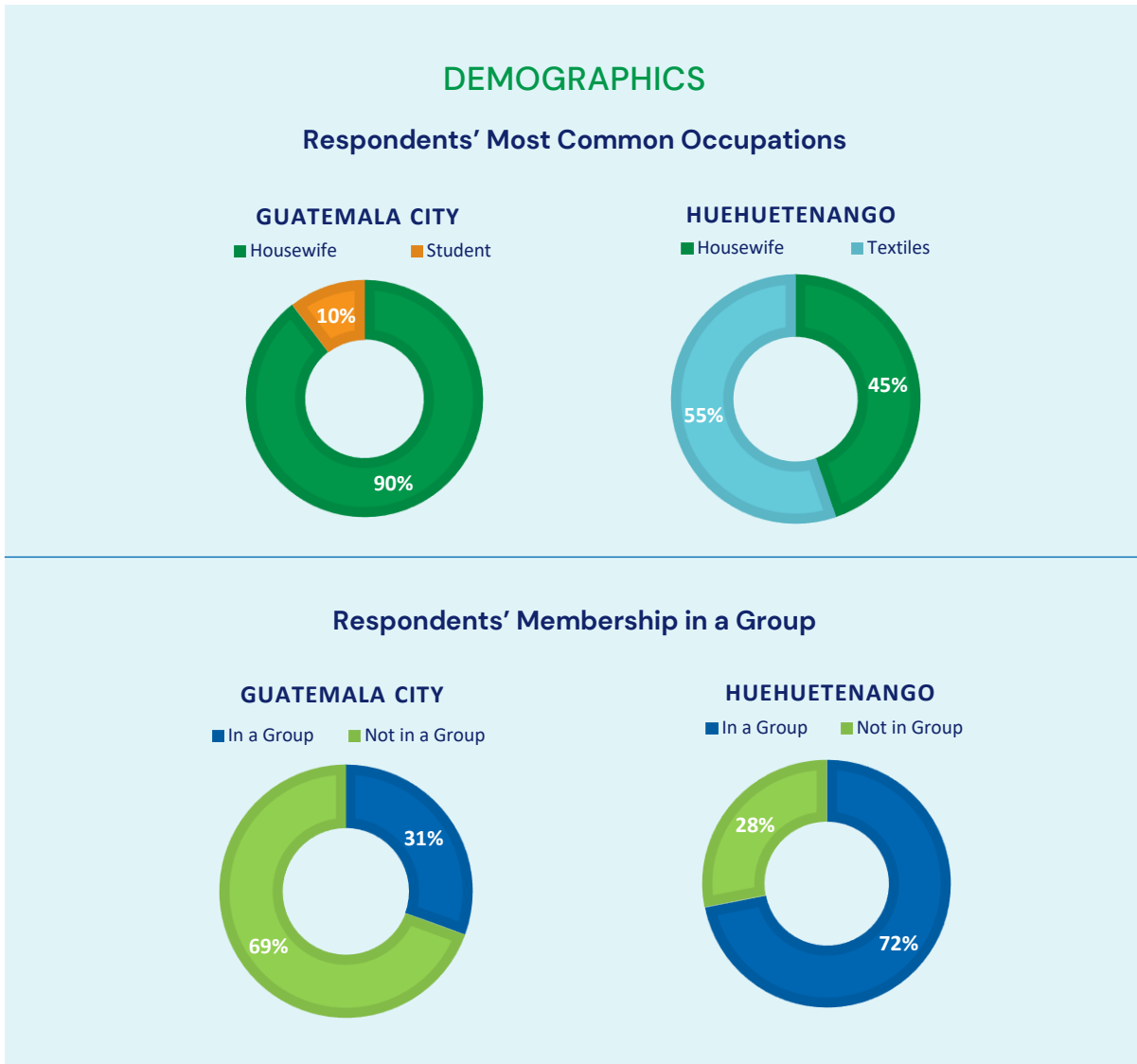


SAMPLE & DEMOGRAPHICS

Two locations were selected for this initial data collection activity to represent an urban center, Guatemala City, and a more rural area, Huehuetenango. These locations were also selected due to the known presence of savings and economic groups that had previously been supported by Global Communities programs. This allowed the research team to reasonably expect that some of the participants would be members of a group while others would be from the same community but “non-members.” While the nine neighborhoods were a convenience sample based on Global Communities’ access, the participants self-selected. Invitation to participate was shared broadly through community leaders.

| Variable | Guatemala City | | Huehuetenango | |
|----------------------|----------------|------------|---------------|---------|
| | #of people | % of total | #of people | % total |
| Men | 50 | 23% | 13 | 6% |
| Women | 167 | 77% | 189 | 94% |
| Married | 121 | 56% | 126 | 62% |
| Single | 77 | 35% | 58 | 29% |
| In a Group | 66 | 30% | 87 | 43% |
| Not in a Group | 150 | 69% | 109 | 54% |
| Young (18 – 35) | 99 | 46% | 69 | 34% |
| Middle Age (36 – 54) | 68 | 31% | 84 | 42% |
| Old (55 – 74) | 44 | 20% | 39 | 19% |
| Very Old (> 74) | 5 | 2% | 8 | 4% |
| | <i>n</i> = 217 | | 202 | |

One of the greatest sampling challenges was capturing the voices of men. Almost no men showed up independently for data collection and when the survey team went “door to door” around the neighborhood only a few men were willing to participate. The majority of the men who were included were unemployed. One reason for this challenge may have been the time of day of data collection which was predominantly weekday mornings. In Huehuetenango, respondents were identified and surveyed due to their participation in Women’s Empowered savings and lending groups, resulting in the majority of respondents being women.



Occupation raised many questions in the data collection and analysis because while most women identified as housewives, many, especially in Huehuetenango, also utilized income generating activities such as raising chickens for eggs. In Guatemala City, many of the respondents lived in government housing without any land to plant or raise animals and reported they didn’t have access to income generating activities. These responses raise the question of how people identify a “job” and what do they consider as their main work. It also demonstrates an opportunity to support identification and incubation of small income generating activities. The research team intends to alter this question in the future to ask someone if and how they earn money.

ANALYSIS

Tests of Validity and Reliability for the Measurement Scales

We set a minimum requirement of identifying at least a three-item scale and evaluated the psychometric properties of each scale using exploratory factor analysis to assess construct validity, and where appropriate, discriminant validity. Factor analysis is a data analytic technique used to determine which questions in a survey are associated with a single construct, known as a factor (Bagozzi et al., 1991). For questionnaire data, factor analysis is used to determine the construct validity of the survey instrument with the resulting factors expected to correspond to the underlying constructs (Shmueli, 2010). In other words, if a group of questions that were written to measure a single construct all load together on a single factor, this provides evidence that we appear to be measuring what we expected to measure, which validates our measurement scales. Generally, factor loadings are expected to be at least .60, with higher loading scores indicating a stronger association with the underlying construct. Once a scale has been validated, the scores from each item in the scale are averaged to yield the measure for that construct.

Discriminant validity is used to assess whether survey respondents appear to be differentiating between two distinct but similar constructs and provides evidence that we successfully identified valid and unique measures for each construct (Bagozzi et al., 1991). Finally, Cronbach's alpha was used to determine the reliability of each scale by assessing the internal consistency or average correlation of the items within each scale (Shrout and Fleiss, 1979). Alpha greater than .70 is generally accepted as evidence of validity, with a higher number providing stronger evidence. In short, validity answers the question "are we measuring what we think we're measuring" while reliability is a measure of consistency among respondents to each of the questions within a scale.

Unfortunately, the questions asked to measure individuals' access to communication resources proved to be unreliable and were removed from the analysis.

Summary of Results

Predicting Individual Resiliency / Ordinary Least Squares Regression

| Independent Variables | G.C. β Estimate | Huehue β Estimate |
|-----------------------------------|-----------------------|-------------------------|
| Constant | 0.649 | -0.183 |
| Emotional Support | 0.124† | 0.212* |
| Tangible Support | 0.073 | -0.040 |
| Satisfaction with Housing | 0.219* | 0.027 |
| Confidence in Finding New Housing | 0.025 | 0.501*** |
| Financial Resources | 0.127 | 0.162 |
| Adequate Transportation | -0.051 | -0.084 |
| Healthcare – Access | 0.038 | 0.043 |
| Healthcare – Availability | 0.115* | 0.014 |
| Young | 1.673** | 0.446 |
| Middle Age | 1.463** | 0.558 |
| Old | 0.924† | 0.293 |
| Gender | -0.004 | 0.430 |
| Married | -0.148 | 0.244 |
| Member of a Group | -0.208 | -0.451* |
| Household Size | -0.055 | 0.047 |
| F | 6.126*** | 6.207*** |
| SEE | 0.944 | 1.296 |
| R ² | .42 | .49 |

†p<.10 *p<.05. **p<.01. ***p<.001

Among the independent variables tested in Guatemala City, emotional support, satisfaction with housing and the availability of healthcare were all statistically significant and had positive effects on individual resiliency. These findings are consistent with expectations. However, the size of the effect varies with the size of the beta coefficients. The control variables (age, gender, marital status and group membership) were dummy coded 1, 0 (present or absent). In Guatemala City, being young or middle age both had positive effects on individual resiliency while being old or very old had no effect. This suggests that younger people are more resilient than older people, which seems intuitive. Being married or not was not statistically significant.

Among the independent variables in Huehuetenango, only emotional support and confidence in finding new housing were statistically significant and both had positive effects on individual resiliency. Finally, being a member of a group (yes or no) had a negative effect on resiliency, which for now seems counter-intuitive. Based on our sampling methods, this may reveal that those with less coping mechanisms or less overall economic resilience were drawn to a group for support, such as a savings group. However further analysis is needed to better understand this reverse causality.

When comparing responses from those in Guatemala City to those in Huehuetenango, living in Guatemala City added 0.86 points to resiliency. Perhaps demonstrating that those in urban settings have greater access to services and resources making them more resilient. The model for Huehuetenango explained 49% of the variation in individual resiliency compared to 42% in the Guatemala City model. The standard error of the estimate (SEE) is a measure of error in the model. This means that when using the beta coefficients to predict individual resiliency, the predictions will be off by the value of SEE (+ or -). There was less error in the Guatemala City model compared to Huehuetenango.

BONDING NETWORKS

- Bonding networks are horizontal and typically between peers, neighbors, friends or groups. Many respondents in this study did not report having “someone” they could turn to for help outside of their family members.

EMOTIONAL SUPPORT

- Individuals with greater access to emotional support were more likely to have a higher resilience score.
- Many respondents in Guatemala City who shared that they did have access to emotional support said that they would turn to a family member, often a mother or spouse, for emotional support, but very few affirmed that they had friends and contacts with whom they could discuss their problems. Individuals shared feelings of distrust of their neighbors with personal matters, which may have been heightened during the time of the survey as municipal election campaigns were ongoing.

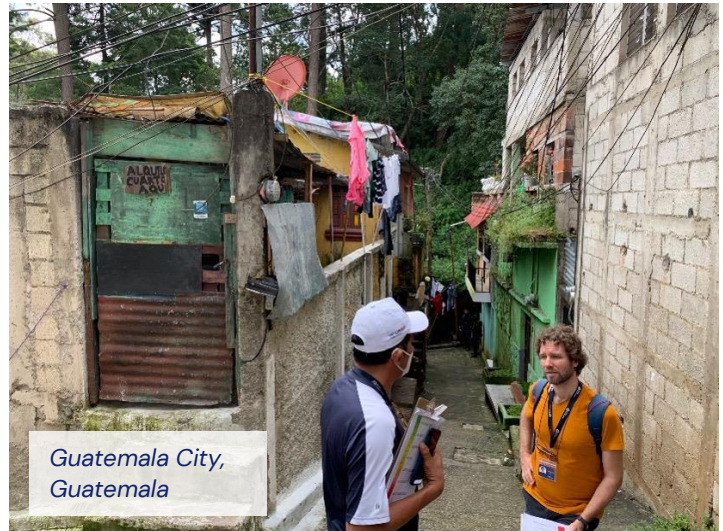
TANGIBLE SUPPORT

- There was not a significant difference in individuals’ access to tangible support between communities. While the average person had some ability to access tangible support, tangible support was not significant in predicting individual resiliency.



SATISFACTION WITH CURRENT HOUSING

- In Guatemala City, individual satisfaction with their current housing had a significant positive effect on resiliency.
- Respondents in Guatemala City had either relocated to their current housing after natural disasters (volcanic eruptions, landslides, and flooding) destroyed their previous homes, or lived in informal homes situated on cliffside that were at risk of being destroyed by landslides. Respondents that were relocated were provided newly constructed homes by the Government of Guatemala with access to water and electricity, but were often dissatisfied with how far they lived from markets and job opportunities.
- Respondents that lived in informal or less secure homes in both areas on cliffside preferred to stay in their community instead of relocating despite the risks, accepting the frequency of natural disasters and their need to rebuild their homes as the status quo.
- Access to water and electricity and construction materials was often raised as key aspects of satisfaction in one's house.



CONFIDENCE IN FINDING NEW HOUSING

- Participants were asked whether they felt they would be able to find new housing in case of an emergency. In Huehuetenango, individuals with greater confidence in their ability to find new housing, should they have to move, were strongly significantly and positively associated with resiliency.

FINANCIAL RESOURCES

- In Guatemala City and Huehuetenango, access to financial resources was not significantly correlated with resilience.
- Questions regarding access to financial resources included the ability to receive an emergency loan, from a bank or from someone in their social networks, the ability to earn money quickly in an emergency, and the ability to liquidate assets to raise money.
- Respondents in Guatemala City very infrequently affirmed that they would be able to obtain a loan from a bank or microfinance institution, as opposed to obtaining an emergency loan from a family member or spouse. Similarly in Huehuetenango, many participants mentioned that loans were available but they would not be able to meet the criteria to be approved for a loan, many also mentioned that they could get a small quick loan from a "loan shark" but interest rates are high.



Respondent neighborhood with significant risk of landslides; Guatemala City, Guatemala

TRANSPORTATION RESOURCES

- Access to transportation was not statistically significant in determining an individual's resiliency.

HEALTHCARE RESOURCES

- Having access to healthcare in their communities was not statistically related to resiliency, while the availability of healthcare services has a significant positive effect on resiliency in Guatemala City.
- In Guatemala City, respondents were more likely to state that they would turn to a family member or pharmacy worker if they had a health-related question. In Huehuetenango many people rely on community health workers and community clinics for health care however both have limited availability and often times are not doctors.

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