Piloting Social Network Analysis for the Measurement of Social Cohesion in Impact Evaluation

Background note

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“ **Social cohesion has become a key concept to capture when measuring project effectiveness.** ”

Introduction

WFP was awarded the 2020 Nobel Peace Prize for its efforts to improve prospects for peace in conflict-affected areas. The role that food can play in peacebuilding is two-fold: food insecurity has been cited by WFP beneficiaries as a main source of social cohesion, as it minimizes conflicts over limited common resources[i]. More cohesive communities are theoretically better able to mitigate conflict and resulting forced displacement, known drivers of food insecurity[ii]. However, evidence is mixed on the exact relationship that social cohesion interventions have had on peacebuilding efforts[iii]. Still, the concept of "social cohesion" is often championed by practitioners as one important factor that mediates peace-building work at both a community and larger societal level. There is clear need for more causal evidence on the impact that food security and humanitarian interventions may have on social cohesion and longer-term peace.

Despite its emerged global relevance, a key remaining challenge is the measurement of a complex and relational concept such as social cohesion. The purpose of this note is to describe an innovative approach aimed at advancing WFP's ability to evaluate the impact of social cohesion interventions in crisis scenarios, which can in turn inform the optimization of peace-related programming[iv].

The primary audience for this note is WFP colleagues, partners, and donors who are considering piloting new ways of measuring social cohesion to assess the impact of their humanitarian programming. Strengthening our understanding of social cohesion is an increasingly important focus for both humanitarian practitioners and donors, as more efforts are spent on improving interventions in the 'triple nexus' that bridges humanitarian, development, and peace outcomes.

For example, BMZ provided funding to WFP's Emergencies and Transitions Unit (PRO-P) to explore how social cohesion can be measured, including the capacity to respond to shocks and stressors at the household, community, and institutional levels, with the establishment of the Peace and Risk Indicator Monitoring and Engagement (PRIME) pilot initiative. PRIME worked with country offices in the Philippines, South Sudan, and Bangladesh (Cox's Bazaar) as case studies, which examined how WFP can work with local partners to track its contributions to improve the prospects for peace at corporate and country levels. Further, through a knowledge partnership between WFP and the Stockholm International Peace Research Institute (SIPRI), much groundwork has been laid to strengthen understanding of the linkages between conflict and food insecurity, and to identify how WFP can most effectively contribute to peace through its programming. This includes improving prospects for peace through:

- creating activities that bring together divided communities;
- bolstering social cohesion;
- addressing inequity and marginalization through livelihood support to increase agricultural productivity or rehabilitation and improving access to natural resources;
- programming aimed at reducing food price volatility; and
- providing support to national social protection systems, enabling them to be more resilient to shocks.

In addition, in response to this global focus on peacebuilding, WFP has increased its efforts in the area, conducting analyses of social cohesion in refugee-host contexts such as Turkey[v] and Bangladesh[vi].

Country offices have already begun adapting their programming to address conflict drivers and strengthen social cohesion, by supporting asset management, providing livelihood programmes to ex-combatants, or ensuring training programmes have 'mixed' participants across ethnic or host/displaced divisions when appropriate[vii].

However, assessing the impact of these programmes implies having a measure of social cohesion which is suitable for humanitarian settings.

Starting in 2020, USAID's Bureau of Humanitarian Assistance granted WFP's Office of Evaluation (OEV) funding to support the optimization of humanitarian interventions through the use of impact evaluation, which includes piloting new tools and measurement techniques. As a first step, OEV conducted a series of consultations with internal and external stakeholders and programme-facing colleagues to identify common evaluation questions and areas in need of greater evidence.

"Peace & Social Cohesion" has been identified as one of these initial focus areas.

This note first introduces the current measurement approaches for social cohesion and identifies gaps where new tools could add value. It then proposes a social network module as one such tool to expand understandings of social cohesion, specifically in the context of household-level quantitative surveys. The note concludes with an overview of the next steps for use within WFP's impact evaluation activities.

1. Current approaches and gaps

Having reliable approaches for measuring social cohesion is important for evaluating and improving peacebuilding efforts in crisis-affected communities. However, measurement approaches still vary significantly.

UNHCR recently commissioned a set of 26 background studies on social cohesion jointly with the World Bank and funded by the United Kingdom's Foreign, Commonwealth & Development Office (FCDO) to start assessing 'what works' in building social cohesion[viii]. It is notable that the outcome variables used across the background papers varied widely, indicating a wide spectrum in terms of understanding and operationalising the concept of social cohesion.

Indeed, existing studies on social cohesion span different fields and to date have taken very diverse approaches to both conceptualization and measurement. However, two recent literature reviews have attempted to identify commonalities in how social cohesion has been defined and operationalized across the literature, which include:

Social cohesion is *multidimensional*, often measured as an index of several indicators[ix]. Essential dimensions of social cohesion are the quality of social relations (including social networks, trust, acceptance of diversity, social participation), *identification with the community, and orientation towards the common good[x]*.

Currently, impact evaluations in WFP, such as those in the Climate and Resilience Window, use a set of survey questions to measure dimensions related to cohesion, asking respondents to report on their perception of their available support, as well as tensions and levels of trust in their community. Options are given on a Likert scale to elicit the respondent's own opinions and perceptions on a range of different aspects of social cohesion such as trust and closeness. The questionnaire module also includes a set of indicators asking about the respondent's participation in community activities.

Other studies to date have employed a range of approaches to measure these dimensions. Some dimensions are well-captured with direct statements made at the individual level, such as the social participation dimension, where a respondent can simply report on how often they participate in public gatherings or local government[xi].

Capturing other dimensions call for creative approaches for measurement, such as using "lab-in-the-field" games (e.g., the dictator game) to measure dimensions of altruism and trust[xii].

Social cohesion has become a key concept to capture when measuring project effectiveness. While it is widely understood that 'social connectedness' is one important dimension of social cohesion, current measurement approaches often fall short of capturing more complex nuances of the quality of social networks[xiii].

Many studies measuring social cohesion currently ask respondents to, for example, report on 'how close they feel to their community' on a Likert scale, resulting in a quantitative measure of closeness. While this indicator can provide important information, social network theory argues that the qualities of structure and arrangement of the relationships also matter for key life outcomes such as economic resilience or cultural integration[xiv].

Social Network Analysis (SNA) can be used to measure these structures and relationships, and therefore may make a valuable contribution in research on social cohesion, where its application to date has been more limited[xv].

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2. Proposed tool and pilot

This document proposes a pilot strategy that aims to address the lack of quantitative tools for capturing social 'connectedness' as part of an integrated strategy of measuring social cohesion. Below we propose an SNA approach which can be included as part of an individual-level survey and piloted for use in future impact evaluations. OEV intends to pilot this approach to improve mapping the quality and structure of social networks within fragile or conflict-affected settings.

The advantage of collecting social network data is that it can provide a more granular understanding of how WFP interventions might change interpersonal relationships (even those not explicitly aimed at improving social cohesion). Secondly, the data will provide information on how this correlates with existing social cohesion measures and other outcomes of interest such as food security, coping mechanisms, or experience of violence, and may deliver more detailed insights on which specific aspects of peace programming can focus on.

While the exact definition of social cohesion varies across the literature, one key dimension is the quality of individuals' relationships to others in their community or beyond. However, as described previously, measurement in this area can still be advanced.

Several recent qualitative studies have emphasized the importance of social networks across the timeline of humanitarian responses and call for practitioners to pay greater attention to impacts that humanitarian programming may have on these important systems[xvi]. Social connections are a key consideration when addressing the unique burdens faced by women or those internally displaced. When productive ties between internally displaced people (IDPs) and host community members exist, for example, they expand the livelihood options for all. Notably, these findings appear to hold across contexts. In a study of refugees in Turkey, Kenya, and Pakistan, researchers found that the factor most consistently correlated with economic resilience was the existence of diverse connections (i.e. outside of the immediate ethnic group)[xvii].

Alternatively, conflict and crises can often result in feelings of distrust between groups and thus restrict the diversity of social networks. In addition, women are vulnerable to a breakdown of social networks which compound their existing care burdens and lack of access to social and leisure opportunities[xviii]. Network qualities of communities involved in crisis can thus be an important facet of social cohesion. Better understanding these social connections is an important pre-requisite for sustainable, post-crisis solutions.

A purely qualitative approach to SNA has limitations for its applicability to impact evaluations in the humanitarian space. First, qualitative SNA requires enumerators with a specific skillset: resources which can be difficult to come by given the constraints of humanitarian contexts. Secondly, qualitative SNA is not easily implemented across a large or representative sample size, and is thus not well-suited for use as an output or outcome indicator in large impact evaluations.

On the other hand, key challenges of quantitative approaches to network data collection include soliciting all relevant connections from an individual and accurately operationalizing the quality of these ties.

Nevertheless, a few recent quantitative studies have established important links between the quality of social networks and outcomes related to social cohesion, such as resource sharing and integration. For example, networks which are made up of several "cliques" are more likely to facilitate the sharing of resources such as jobs or housing[xix]. Networks with an optimal mix of tightly knit groups and 'weak' ties can facilitate better social and economic integration[xx].

In sum, social network data has the potential to elucidate important aspects of the multidimensional concept of social cohesion.

Qualitative literature has emphasized the particular relevance of social networks in the humanitarian sector; still, collecting household-level data for a quantitative impact evaluation of humanitarian interventions would require the formulation of a tool appropriate for fragile settings.

## PILOTING A NEW SOCIAL NETWORK MEASUREMENT TOOL

Network analysis has already been used in several notable studies on development effectiveness, to better understand issues from anticipatory action[xxi] to targeting[xxii], and provision of credit[xxiii]. However, the type of network data most commonly collected for these studies, socio-centric network data, is intensive – it requires census-level data to list all connections between individuals in a given space and therefore requires a significant amount of time for collection, leading some researchers to call for innovations in network studies that could reduce the data burden[xxiv].

Ego-centric network data – proposed for this pilot – does not require the respondent to list identifying information of their connections, thus making it more appropriate in conflict settings where the collection of sensitive data can have security implications. Further, since respondents are able to list any of their social connections that meet a given description, it more appropriately captures the networks of those whose connections may be particularly dispersed, making it well-suited for displacement networks[xxv].

These networks are also less demanding of an exercise as it does not require census-level data collection.

In fact, more recent improvements in data collection technology have facilitated ego-centric network studies, where matrices of data can be easily captured in a digital, visual format which respondents manipulate on the tablet themselves.

Figure 1 below provides an example illustrating the type of data that results from social network analysis tools. Here, a respondent (centre) is first asked to name her acquaintances and their basic characteristics (e.g., sex, displacement status). The blue circles could represent male acquaintances, for example, with the red circles indicating female acquaintances. The respondent also indicates the relationships between acquaintances, and the perceived qualities of these relationships (proxies of trust, tension, etc.) as indicated by the ties between circles and the 'plus sign' indicating positive perceived qualities.
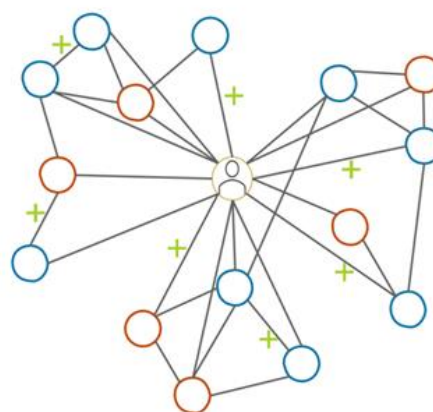
The data then allows for measuring several indicators (or qualities) of the network, such as:

Structural imbalance: in a signed network, the minimum number of ties that violate the social rule, "the enemy of my friend is my enemy"

Density: the ratio of the number of ties to the number of possible ties in a network

Homophily: the likelihood that similar acquaintances are connected to each other (in comparison to heterophily, where diverse acquaintances connect)

Components: the number of distinct groups which do not share any connections between them

The proposed approach aims to build on these studies to understand additional dimensions of social cohesion by analysing networks, and to begin generating this evidence in fragile and conflict settings. The data can allow for an exploratory correlational analysis to understand how these concepts relate to other dimensions related to social cohesion, and whether it adds explanatory power to existing model.

CONCLUSION AND NEXT STEPS

While measurement approaches of social cohesion have varied widely, the influence of social relationships and 'social connectedness' in the process of peacebuilding cannot be ignored. Both qualitative and quantitative literature have employed the lens of social network analysis to document important dynamics in fragile settings, yet key challenges of network data collection have prevented it from being a tool that is widely used in the humanitarian sector.

This document proposes a tool which can be used for quantitative impact evaluations that collect data at the household level. To validate its usefulness and appropriateness for the context, the impact evaluation unit at WFP is piloting the tool in diverse contexts.

A first draft of the social network tool was developed using Network Canvas in Warrap State, South Sudan in May 2022. This provided information on the best practices for training enumerators on the new tool, as well as highlighted some common mistakes for implementation.

A second draft of the tool and accompanying training material was then developed for use in eastern DRC, where an early analysis was conducted to validate the tool in August 2023.

Early results suggest that the tool displays a strong construct validity[xxvi] along measurements of trust and tension. Further, the preliminary analysis identified statistically significant correlations between network structure and key food security outcomes such as the food consumption score (FCS) and the minimum dietary diversity for women (MDD-W). Statistically significant differences were also detected between respondents with distinct vulnerabilities, such as women respondents and respondents who had experienced displacement.

As a next step, the tool will be employed for use in an impact evaluation with social cohesion as a key outcome, to test whether the social network analysis is able to detect impacts which complement those measured using more conventional social cohesion modules. The results of this evaluation will be shared with interested WFP colleagues, partners and donors.

Interested partners who wish to remain up-to-date with the development of the social network measurement pilot, as well as other ongoing impact evaluations conducted by WFP, can follow progress by signing up to the newsletter HERE.

Annex: Notes on implementation & analysis

The resources necessary to conduct the social network pilot are: tablet (not smartphone) devices, a central computer which can act as a 'server' for the data, and an application called Network Canvas. The software is free and open source, and comes with three components: a survey designer, a server application, and an interviewer to be installed on the tablets for the survey itself.
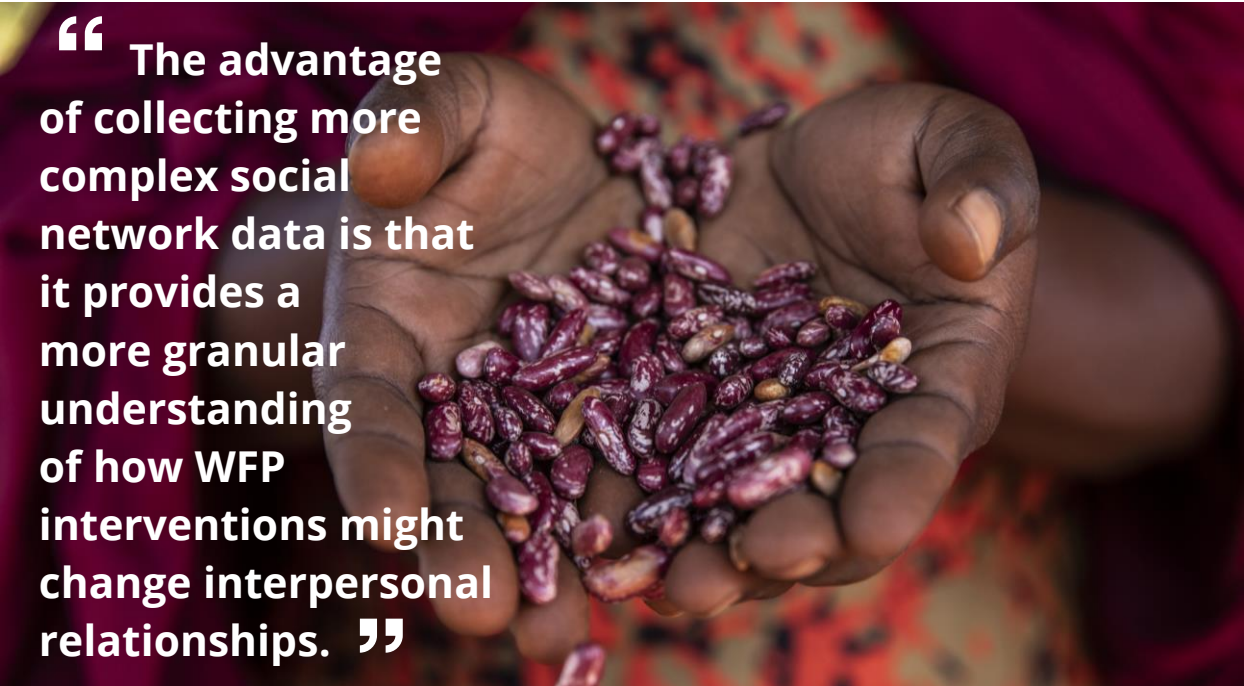
The survey design requires significant preparation, as definitions of social connections and patterns of trust or tension within communities will vary from context to context. A literature review and consultation process with country office staff will be key to ensuring the tool is appropriate for the evaluation site. For an example of a social network survey, find a summary document and the corresponding Network Canvas protocol in GitHub[xxvii].

Network data is collected as one module inside a routine household-level data collection activity. The purpose of piloting a new measurement is to test construct validity, or how well an indicator correlates with other measures that, in theory, also relate to the outcome of focus. This implies that pilot data collections should include both the social network module, as well as other modules with indicators that relate to social cohesion, such as those routinely used by WFP impact evaluations which measure tensions, trust, community participation, and social support. Data from the social network module can also allow for comparisons to food security indicators and potentially, actual data on conflict and violence for example the Armed Conflict Location and Event Data (ACLED)[xxviii]. Triangulation with this data would allow to test whether social network indicators correlate with violent events.

The SNA will result in structural variables (examples listed under Figure 1) which are unique for each respondent and which each describe one feature of the personal network. These indicators can then be used as any other individual-level outcome variable in an evaluation: they can be aggregated at the community level, or averaged and compared across project groups, for example.

The advantage of collecting this more complex social network data is that it can provide a more granular understanding of how WFP interventions might change interpersonal relationships (even those not explicitly aimed at improving social cohesion). Secondly, the data will provide information on how this correlates with existing social cohesion measures and other outcomes of interest such as food security, coping mechanisms, or experience of violence, and may deliver more detailed insights on which specific aspects of peace programming should focus on.

" **The advantage of collecting more complex social network data is that it provides a more granular understanding of how WFP interventions might change interpersonal relationships.** "

Footnotes

[i] Pul, H., Meinzen-Dick, R. Konde, B., Zogho, D., Kuuchille, E., McCarthy, N., Marivoet, W. 2023. Sahel social cohesion research in Burkina Faso and Niger: Working Paper. International Food Policy Research Institute.

[ii] Munialo, C. and Mellor, D. 2023. A review of the impact of social disruptions on food security and food choice. *Food Science and Nutrition* 12(1):13-23.

[iii] See, for example:
Brown, M. J., & Zahar, M.J. 2015. Social Cohesion as Peacebuilding in the Central African Republic and Beyond. *Journal of Peacebuilding & Development*, *10*(1), 10-24
Bauer, M., Blattman, C., Chytilová, J., Henrich, J., Miguel, E., Mitts, T. 2016. Can War Foster Cooperation? *Journal of Economic Perspectives*, 30 (3): 249-74**.**

[iv] This note is in line with the objectives (2c and 3c) of the workstream, which call for the development and use of innovative data collection tools which can be used for impact evaluations in humanitarian contexts.

[v] https://www.wfp.org/publications/social-cohesion-turkey-refugees-and-host-community-online-survey-findings

[vi] https://www.wfp.org/publications/wfp-bangladesh-coxs-bazar-social-cohesion-and-peace-measurement-report

[vii] WFP. 2023. Policy Evaluation of WFP's Role in Peacebuilding and Transition Settings. https://www.wfp.org/publications/evaluation-policy-wfps-role-peacebuilding-transition-settings

[viii] List of papers can be found here.

[ix] Fonseca, X., Lukosch, S., Brazier, F. 2019. Social Cohesion Revisited: A New Definition and How to Characterize It. *Innovation: The European Journal of Social Science Research* 32: 231-53.

[x] Schiefer, David, and Jolanda van der Noll. 2017. "The Essentials of Social Cohesion: A Literature Review." *Social Indicators Research* 132: 579-603.

[xi] See for example:
Valli, E., Peterman, A., Hidrobo, M. 2019. Economic Transfers and Social Cohesion in a Refugee-Hosting Setting. *The Journal of Development Studies* 55:128-146.

[xii] See for example:
Gilligan, M., Pasquale, B,. Samii C. 2014. Civil War and Social Cohesion: Lab-in-the-Field Evidence from Nepal. *American Journal of Political Science* 58(3):604-619.
Fearon, J., Humphreys, M., Weinstein, J. 2009. Development Assistance, Institution Building, and Social Cohesion after Civil War: Evidence from a Field Experiment in Liberia. CGD Working Paper.

[xiii] See for a discussion:
Esenaliev, D., A. Bolotbekova, G. Asylbek kyzy, K. Tilekeyev, A. Aladysheva, R. Mogilevskii and T. Brück (2018). "Final Impact Evaluation Report: Social Cohesion through Community-based Development Project in the Kyrgyz Republic." *IPPA Working Papers*, no. 46, University of Central Asia, Bishkek.

[xiv] See as the seminal work in this area:
Granovetter, Mark. 1973. "The Strength of Weak Ties" *American Journal of Sociology* 78(6):1360-1380.

For a recent application, see:
Vacca, R., Solano, G., Lubbers, M. J., Molina, J. L., & McCarty, C. 2018. "A personal network approach to the study of immigrant structural assimilation and transnationalism." *Social Networks*, *53*, 72-89. https://doi.org/https://doi.org/10.1016/j.socnet.2016.08.007

[xv] Fonseca, Xavier, Stephan Lukosch, and Frances Brazier. 2019. "Social Cohesion Revisited: A New Definition and How to Characterize It." *Innovation: The European Journal of Social Science Research* 32: 231-53.

[xvi] See, for example:

Howe, K., Krystalli, R., Krishnan, V., Kurtz, J., Macaranas, R. 2018. The Wages of War: Learning from how Syrians have adapted their livelihoods through seven years of conflict. Washington, DC: Mercy Corps.
Jeeyon, K., Humphrey, A., Marshak, A., Gathuoy, N. M., & Krishnan, V. 2020. The Currency of Connections: Why Do Social Connections Matter for Household Resilience in South Sudan? Washington, DC: Mercy Corps.
Kim, J., Elsamahi, M., Humphrey, A., Kadasi, A., Maxwell, D. 2022. Sharing to Survive: Investigating the Role of Social Networks During Yemen's Humanitarian Crisis. Washington DC: Resilience Evaluation, Analysis and Learning (REAL) Associate Award.
Stites, E., Humphrey, A., & Krystalli, R. 2021. Social Connections and Displacement from South Sudan to Uganda: Towards a Relational Understanding of Survival during Conflict. *Journal of Refugee Studies*. https://doi.org/10.1093/jrs/feaa109

[xvii] Landau, L. 2017. Displacement and Disconnection? Exploring the Role of Social Networks in the Livelihoods of Refugees in Gaziantep, Nairobi, and Peshawar. Technical Report. Washington, DC: Urban Institute.

[xviii] McMichael, G. 2018. Gender, Risks and Urban Livelihoods Study in three cities in Syria: Aleppo. Homs and Lattakia. World Food Programme.

[xix] Martí, J., Bolíbar, M., & Lozares, C. 2017. "Network cohesion and social support." *Social Networks*, *48*, 192-201. https://doi.org/https://doi.org/10.1016/j.socnet.2016.08.006

[xx] Vacca, R., Solano, G., Lubbers, M. J., Molina, J. L., & McCarty, C. 2018. "A personal network approach to the study of immigrant structural assimilation and transnationalism." *Social Networks*, *53*, 72-89. https://doi.org/https://doi.org/10.1016/j.socnet.2016.08.007

[xxi] Shehara, P. L. A. I., Siriardana, C. S. A., Amaratunga, D., & Haigh, R. 2019. "Application of Social Network Analysis (SNA) to Identify Communication Network Associated with Multi-Hazard Early Warning (MHEW) in Sria Lanka" Moratuwa Engineering Research Conference, Moratuwa, Sri Lanka.

[xxii] Alatas, V., Banerjee, A., Chandrasekhar, A. G., Hanna, R., & Olken, B. A. 2016. "Network Structure and the Aggregation of Information: Theory and Evidence from Indonesia." *American Economic Review*, *106*(7), 1663-1704. https://doi.org/10.1257/aer.20140705

[xxiii] Banerjee, A. V., Chandrasekhar, A. G., Duflo, E., & Jackson, M. O. 2018. Changes in Social Network Structure in Response to Exposure to Formal Credit Markets. *Available at SSRN*. https://doi.org/http://dx.doi.org/10.2139/ssrn.3245656

[xxiv] Alatas et al. 2016; as above.

[xxv] Vacca, R., Solano, G., Lubbers, M. J., Molina, J. L., & McCarty, C. 2018. "A personal network approach to the study of immigrant structural assimilation and transnationalism." *Social Networks*, *53*, 72-89. https://doi.org/https://doi.org/10.1016/j.socnet.2016.08.007

[xxvi] Construct validity refers to how well an indicator correlates with other measures that, in theory, also relate to the outcome of focus.

[xxvii] https://github.com/WFPimpactevaluation/Measurement-Tools

[xxviii] https://acleddata.com/about-acled/

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