
Palestine Economic Policy Research Institute (MAS)

# Studies on Social Capital In the Palestinian Territories

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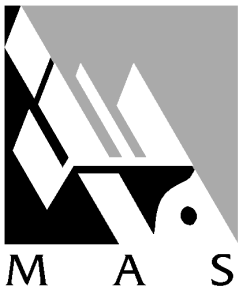
Luca Andriani

2009

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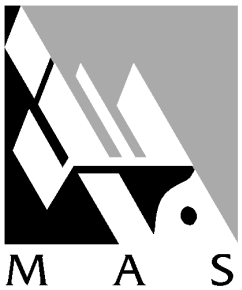


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Palestine Economic Policy Research Institute (MAS)
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# Foreword

The idea that social networking can affect the progress of societies has been adopted by economists from sociologists. This phenomenon has been called “social capital”. The significance of the word ‘capital’ is obvious here, for accumulation of capital, whether in its physical, human or social form accelerates growth and improves standards of living.

Economists have also formulated the hypothesis that social capital positively affects economic efficiency, drawing attention to the factor of ‘trust’ among individuals and its role in reducing transaction costs. They also concentrated on the role of social associations and voluntarily work in improving governance and reducing the cost of social care and rules of law.

The adoption of social capital, as a concept, required economists to move away, a bit, from the idea that economic agents are 'rational actors seeking egoistically their own self-interest. Rather, the idea of social capital implies that individuals invest time, put efforts and use resources for the sake of the society as a whole and not solely for their own individual benefits.

However, the community of economists cannot possibly be satisfied with perpetuating frequently held assumptions, such as social capital reflecting positively on efficiency. Rather, they want to prove this hypothesis empirically so that the concept is operational and can be used analytically and in policy recommendations. To do this, the first step must be to quantify ‘social capital’ and to give it a proper weight, not only studying its evolution through time, but also compare its level among various social groups, different regions within a country and between countries.

Kenneth Arrow (Nobel Prize in Economics, 1972) warned at an early date that “The concept of measuring social interaction may be a snare and delusion. Instead of thinking of more or less, it may be more fruitful to think of the existing social relations as a preexisting network into which new parts of the economy (for example, development projects) have to be fitted”[1]. Yet, efforts to find a way to measure social capital continue. We, at MAS Institute, also made our contribution by measuring social capital in

[1] Kenneth Arrow: Observation on Social Capital. In eds. P. Dasgupta & I. Sergeldin: Social Capital- A Multifaceted Perspective. The World Bank, 2000.

the Palestinian Territories in 2007. This was done through collecting the answers of a sample of 2,508 persons from the West Bank and Gaza strip on 26 carefully designed questions that reveal individuals' social networks, familial relations, community involvements and political activities.

The two papers incorporated in the present book aim at going a bit further along this road. Whereas the previous study of MAS (2007) constructed a unified single indicator for social capital in the West Bank and Gaza on the basis of the answers to the 26 questions, researchers of the present papers divided the answers into two groups to deduce two different indicators of social capital: *Bounding* social capital and *Bridging* social capital. The Bounding indicator refers to the strength of the familial ties, while the Bridging refers to the civic and citizenship relations. The first paper concludes that bounding social capital is stronger than bridging social capital in the Palestinian Territories and that building a civic and viable society/country requires effort to strengthen the bridging social capital. The second study examines the effects of bounding social capital on food security in the West Bank.

These two papers are part of a research programme carried out by MAS on Social Capital. I would like to thank the Arab Fund for Economic and Social Development for funding this research programme.

**Numan Kanafani**
**Director General**

# Contents

# Bonding Versus Bridging Social Capital

# 1. Introduction

The concept of social capital is central to the social sciences discussion. Small libraries have been published on the issue in attempt to formulate both definitions and ways by which to quantify and measure this elusive concept. The concept gained notoriety with the publication of Colman's (1998) study on family ties and education outcomes alongside Putnam's (1993) research on citizen engagement in community affairs in Italy. The latter study, which fuelled significant debate in the academic community, introduced the idea that 'the features of social organisations, such as trust, norms, and networks, can improve the efficiency of society' (Putnam,1993:167). Since 1993 the idea that relationships and interaction amongst individuals represents a significant asset for society has enjoyed a growing credence.

The extant literature explores the impact of social capital on different walks of life, ranging from the impact on poverty (Moser, 1996), employment (Sabatini, 2005), economic prosperity (Rubio, 1997), and peace-building (Capmbell, 2008; Schafft, 1998; Varshney, 2000). Empirical evidence suggests the presence of different mechanisms through which social capital affects society from an economic and 'governance' perspective (Knack & Keefer, 1997; Woolcock, 2002; Putnam, 1993).

The role of groups and social ties can be both beneficial and harmful to the establishment of a civic-society especially considering that social networks may represent mechanisms of both inclusion and exclusion. The challenge thus arises in identifying the conditions from which positive aspects of social capital might emerge and, subsequently, working out how to exploit these aspects in order to enhance the viability and success of society. The Occupied Palestinian Territories present fertile ground from which to explore the social capital concept. In light of the prospect of building an independent state, social capital in Palestinian society could be exploited in order to empower state building, civic-cooperation, and economic prosperity.

This paper will explore how social capital applies to the Palestinian Territories and will identify the main guises in which it manifests; namely 'bonding' social capital and 'bridging' social capital. The former manifestation relates to 'strong ties' between people who share similar characteristics; this level of connection occurs within families and small circles of close friends who share similar experiences and information,

resulting in strong, close knit networks. While the latter relates to 'weaker ties'; this level of connection occurs amongst individuals from different backgrounds and for those who have invariably shared different experiences and information, culminating in looser and more diverse networks.

Because trust and civic-behaviour are two crucial elements in the formation and governance of a viable society, the goal of this paper is to formulate a synthetic indicator for bonding and bridging social capital and to test its effects on building, and strengthening, these two crucial elements. Inline with Sabatini (2005), this study does not consider trust and civic-behaviour as indicators of social capital but as by-products of it.

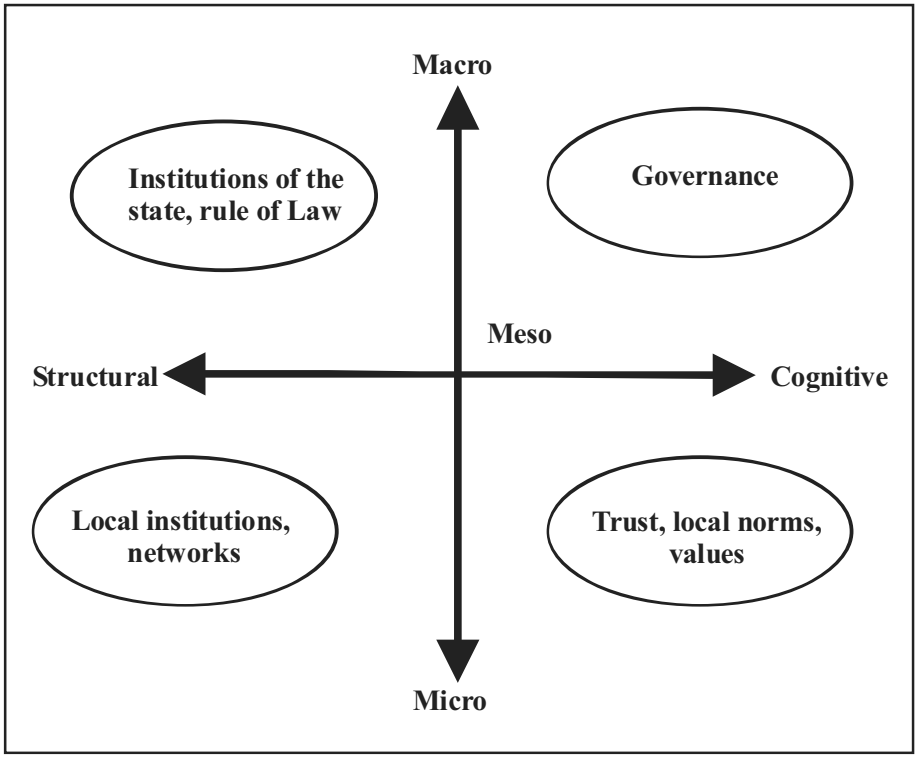
This paper arrives at the conclusion that bridging social capital is positively associated with civic-behaviour and community trust while bonding social capital can often result in less positive outcomes. The Palestinian Territories however suffers from an apparent deficit in both civic-behaviour and community trust and, consequentially, policies should enhance the emergence of social capital in its bridging nature, ensuring the emergence of a fruitful synergy between state founding efforts and a greater bridging of social capital.

The structure of this paper will be as follows; the remainder of section 1 introduces the framework of the study and discusses extant literature; section 2 presents data and a series of indicators of social capital in the Palestinian Territories; section 3 presents an empirical analysis and presents the synthetic indicators, in addition to a discussion on the differences in endowment of social capital across demographical characteristics and their impacts; while section 4 explores a number of policy conclusions.

## 1.1 Structural vs Cognitive Social Capital

The most comprehensive definition of social capital distinguishes between two forms: structural social capital and cognitive social capital (Grootaert & Bastelaer, 2002). These two forms can occur at three different levels: the micro level, the meso level, and the macro level (figure 1 offers a graphical representation of the social capital definition). Structural social capital manifests in the forms of networks, associations, and institutions, while Cognitive social capital includes attitudes, norms, shared values, and a sense of governance.

**Figure 1: Forms and Scope of Social Capital**




Source: Grootaert and Bastelaer, 2002

The two forms of social capital are undeniably intertwined. Extant literature suggests a need to consider social norms and trust as a by-product of structural social capital. In Durlauf & Fachamps's (2004) review, the central premise is that emerging shared trust, norms, and values, arise from informal associations based on social networks. They conclude that the study of social capital should start from a network based approach where positive externalities might emerge consequently though norms and trust. Putnam (1993) argues that the level of associational activity and informal networks are determinants of trust and cooperative norms. People in these networks 'trust' each other, resulting in high levels of civic-behaviour.

The literature also debates the relationship between associations and trust. Despite some positive effects of group membership, which are widely recognised, Olson (1982) posits that associations encourage rent-seeking, offsetting any positive effect. In addition to this, network social capital is

more apt for empirical analysis because it is suited to measurement unlike cognitive social capital which is much harder to quantify. However, despite difficulties in measurements, the adoption of a network based approach is supported by the literature. Putnam asserts that 'the core idea of social theory is that social networks have value' (Putnam, 2000) while an article published in the Canadian Policy Research Initiative (PRI, 2005) posits that operating social capital as a network structure is strategic for public policy and promotes consistency in research and measurement. Sabatini (2005) presents another example in which social capital is measured though social networks and trust is considered an epiphenomenon, arising as a result of social capital. In conclusion, focusing on structural forms of social capital is unlikely to diminish the importance of social capital as a concept.

## 1.2 Bonding vs Bridging Social Capital

Within the definition of structural social capital, Putnam (2000) highlights the importance of distinguishing between bonding and bridging. The literature supports the view that bridging social capital has a number of positive externalities: it reduces the cost of information transmission and information asymmetries, it builds trust and civic engagement, and it facilitates collective action. Woolcock (1998) and Narayan (1999) postulate that a positive correlation exists between efficient state functioning and high levels of bridging social capital, while sociological literature emphasises the positive effects that bridging social capital can have on conflict resolution (Schafft, 1998; Varshney, 2000) and on development of trust and cooperative behaviour in society (Stolle, 1998). Bridging social capital can facilitate access to economic activity whilst contributing to employment allocation and thus resulting in potential economic prosperity (Granovetter, 1995).

On the other hand, bonding social capital can result in closed social circles and reduce the degree of sociability beyond these boundaries. It limits the diffusion of information and the building up of inter-group networks, facilitating rent-seeking and self-interested behaviour (Beugelsdijk & Smulders, 2004; Sabatini, 2005; PRI, 2005) which can lead to exclusion and sectarianism (Rubio, 1997). However, bonding social capital still plays a crucial role in society. It can be the source of precious services - for example emergency cash - and, in poor societies, can play an important role helping to cope with poverty (Kozer & Parker, 1998). Yet despite these positive aspects, the benefits from entrenched groups, as identified in bonding social capital, can become harmful for those within the community and without.

In conclusion, the literature recognises that social capital can be both an asset and a liability (Campbell, 2008). Fortunately, the geometry of human networks are not static in nature and therefore opportunity exists for policy makers to enhance the emergence of positive expressions of social capital while limiting harmful manifestations.

## 1.3 Social Capital in Palestinian Society

The social capital debate further explores the relevance of social networks in economics and in the formulation of economic policies, especially in instances where such networks are strong. The Arab world is a good example of such a situation and is in need of a greater understanding of the role and impact of social networks in the context of Arab societies.

It is widely understood that Arab culture is collective rather than an individual-based. The concept of the family in Arab society stretches beyond the immediate family unit of parents and children. Strong relationships are maintained amongst members of the enlarged family and the concept of kinship remains paramount. The family is the most important social nucleus and an individual's identity is defined by the family he or she belongs to. In comparison, in individual cultures, the concept of the family often refers to smaller groups and ties within the same family networks may be looser.

In the Palestinian Territories, close family ties plays a crucial role in coping with political turbulence, the Israeli occupation, and the socio-economic situation of the nation. Since the second Intifada, Palestinian livelihoods have deteriorated, yet Palestinian social resilience remains strong. The World Bank (2003) concurs, stating: 'what is quite remarkable is the continued cohesion of Palestinian society. Despite violence, economic hardship, and the daily frustrations of living under curfew and closure, lending and sharing are widespread and families for the most part remain functional. Palestinian society is absorbing levels of unemployment that could well have fractured the social contract in industrial societies'.

The strength of informal networks has increased as a result of the political situation. Naqib (2006) was the first to posit the importance of informal social networks among Palestinians generated by a common resistance, introducing the idea of social capital as a substitute for market and state failure. The idea of the family as a safety net to cope with the economic hardship has been recognised in further studies by the World Bank (2004).

The recognition of the relevance of this topic is not new to MAS. Nasr & Hilal (2007) proposed the first attempt to measure social capital in the Palestinian Territories. The study investigated an operational definition of social capital, capable of measuring the concept in the Palestinian context by adopting the definition of the Organization for Economic Cooperation and Development (OECD, 2001). The OECD views social capital as a multidimensional concept reflecting social networks, shared norms, values, and understandings that facilitate cooperation within, or between, various groups. A Survey questionnaire was designed to capture the multidimensionality of social capital and found six dimensions: trust in political institutions, civic and political participation, behavioural values, trust in local and international organisations, participation in informal social networks, and social norms. They also identify differences across geographical areas and demographic characteristics.

The definition of social capital as defined by OECD (2001), and applied by Nasr & Hilal (2007), adopts a broad approach to social capital. It includes trust, norms, values, attitudes, and networks so that many variables can be used as a proxy for social capital. This approach is attractive due to its comprehensiveness and versatility. However, such features come at a cost. Adopting a comprehensive definition limits preciseness and presents the danger of becoming 'everything to everyone' (PRI, 2005).

Nasr & Hilal's (2007) measure of social capital remains insensitive to the important distinction between bonding and bridging. This study will build on this important distinction, with the aim to provide a measurement and to point out the relevance of the bridging and bonding dimension of social capital in the Palestinian context.

Palestine faces the crucial challenge of building a state while facing severe political limitations and challenges. The way communities are structured, and how they interconnect with each other, are all maters of social capital and are key to their relationship with the state (Woolcock and Narayan, 2000). The emergence of social capital in its bridging nature is crucial to political efforts towards the formation of a viable Palestinian state. The formation of networks, transcending family and close friends, will facilitate the establishment of a social contract required for a viable state. This study is the first attempt to examine the relevance of the bonding and bridging dimension of social capital in the Palestinian Territories.

# 2. The Data and Social Capital Indicators

In this study, we use the survey data collected and developed in the Nasr & Hilal (2007) study. The survey was administered to a sample of 2508 respondents from the West Bank and Gaza Strip.

The survey consisted of 26 questions on political, civic and professional participation, informal networks and engagement, trust in institutions and individuals, shared values, and attitudes on contemporary social and political concerns.

Based on the literature, the study proposes 17 composite indicators of social capital computed by the 26 questions; section 2.1 describes these indicators. These reflect different manifestations of social capital including indicators of associational activity, frequency of connections with family and friends, trust, volunteering attitudes, and political engagement. The 17 indicators will be the input variables for the empirical analysis in section 3.[2]

The set of indicators is constructed in line with the empirical literature on social capital. This approach differs from the Nasr & Hilal (2007) study which applied a principal component analysis on the single survey questions. The set of indicators presented in this analysis aims to capture aspects of social capital (e.g. associationalism). Hence, aggregation is warranted whenever interest was on the attitude of the respondent (e.g. membership in associations) rather than any connotation of this attitude (e.g. the type of association).[3]

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[2] In the empirical section, three of the 17 variables are excluded from the PCA. The trust-dummy indicator of social capital because binary variables are not viable to conduct a PC analysis. We exclude the indicator of density of association activity as it has a high values of missing observations. The benefit from including this variable does not compensate the loss of information from the reduced number of observations. Originally, we had included the friend number indicators. This index loads across different factors so it does not contribute to the differentiation between different dimensions of social capital. This might be due to the interpretation each respondent gave to the question "How many are your close friends?". Some respondents report high values for this questions, casting doubt about the interpretation of "close" friends. Due to this arbitrary and sensitive meaning we prefer to exclude this indicator from the analysis.

[3] In the Nasr & Hilal (2007) study the questions 'are you member of any sport club?' and 'are you member of any cultural institution?' are two different variables. Our approach combine these questions in a single 'associational activity' variable because our interest is the attitude of people. Hence, the type of association is irrelevant in this case.

## 2.1 Social Capital Indicators

- **Associational Activity indicator (AA**) This indicator is computed from the question 'Are you member of any of these institutions?' (q1). Out of 13 different institutions, it measures how many institutions a respondent is a member of. Range value: 1- 13.

- **Density of Associational Activity indicator (DAA)** This indicator measures the proportion of active memberships for each respondent. It is computed as the ratio between active membership and associational activity. Range: 0 - 1.

- **Family visits (fmvisits)** This indicator measures the frequency of visits of each respondent with his or her family in Palestine (q9_1). The survey proposes a qualitative answer that is recoded as follows: once a week = 52, once or twice a month = 24, few times a year = 6 (taken from Durkin, 2000), otherwise = 0.

- **Family calls (famcalls)** This indicators measures the frequency of the respondent's phone calls to his or her family residing abroad (q9_4). The frequencies are recoded as in point 3.

- **Friend visits (frvisit)** This indicator measure the frequency of each respondent's visits to friends and neighbours in Palestine. It is computed as the average between q9_2 and q9_3 after recoding the variables as in point 3.

- **Friend calls (frcalls)** The indicator measures the frequency of each respondent's phone calls to friends living outside Palestine (q9_5). It is computed after recoding as in point 3 above.

- **Friend invite (frinvite)** This indicator measures the frequency with which each respondent invite friends or neighbours to his or her house. It is computed as the average of question q9_6 and q9_7 after recoding as in point 3.

- **Friend number (frnum)** This indicator is formed from the question 'How many are your close friends?' (q15). It indicates the number each respondent has reported.

- **Family clan (clan)** This indicator measures whether a respondent is a member of a family clan in the village and the frequency of her participation in discussion meetings. The indicator is the product between a binomial variable indicating clan participation (q13) and the

rate of participation (q14) recoded as follow: always = 4, often = 3, sometimes = 2, rarely = 1, otherwise = 0. Range: 0 (no clan or no participation) - 4.

- **Community meetings (commeetings)** This indicator measures the frequency of participation in local community gatherings for discussion on political, local administration, economic or social issues (q12). The qualitative answers are recoded in frequency values as explained in point 3.

- **Trust dummy (dtrust)** This indicator is a binomial indicator indicating whether the respondent answered 'I trust people in general; when questioned about his or her trust (q17).

- **Generalised trust (gt)** This indicator measures the level of trust that an individual has relative to others (q18). It captures an horizontal path of trust within a community. It is computed as the sum of the trust levels across four different items (family, neighbours, people you work with, religious men, political men). The trust levels are recoded in reversely order as follow: lot of trust = 3, somehow trust = 2, little trust = 1, otherwise = 0. Range: 0 – 15

- **Institutional trust (it)** This indicator measures the level of trust that an individual has relative to the institutions (q19). It is a vertical path of trust from the community towards the governing institutions. The indicator is computed as the sum of trust levels across 19 different institutions. Level of trust are recoded as in point 12. Range: 0 – 57.

- **Civic Cooperation (civic)** This indicator represents the strength of norms of civic cooperation (q23). Each respondent is asked to give a judgment across 7 behaviours of civic cooperation (i.e. absence from work for no reasonable reason, tax evasion, bribery at work, not participating in elections, not following traffic rules, buying stolen products, not returning a found wallet to the police). The indicator is computed as the sum of the answers for each respondent recoded as following: no answer = 0, can justify it = 1, can justify it sometimes = 2, can not justify it = 3. Range: 0- 21.

- **Political Protests (protest)** This indicator measures a respondent's participation in non-electoral forms of political activities, namely distribution of political leaflets, attendance to political meetings and political marches and demonstrations. It is computed as the number of

positive answers a respondent gave to questions q6, q7, q8. Range: 0 (=no political activity) - 3 (high political activity).

- **Volunteering and Giving Attitudes (Giving)** The indicator measures the extent a respondent contributed financially to charities and any volunteering in organisations in the last 12 months (q20, q21). Range: 0 (neither donations nor volunteering) - 2 (donations and volunteering).

- **Citizenship attitudes (citizenship)** This indicator reflect the importance given to a list of state building objectives (q22). The list of objectives includes freedom from occupation, fighting corruption and nepotism, achieving safety for citizens, rule of law, achieving democracy in domestic politics, fighting poverty, and equity for women in all fields. Level of importance are recoded as follows: 0 = not important, 1 = important, 2 = very important. The indicator is computed as the sum of importance levels across all the objectives. Range: 0 – 14.

There are a number of limitations in operationalising social capital in this way. It is unfortunate that the survey questions cannot elicit the quality of the networks and hence we cannot deduce any degree of satisfaction from those connections. Also, we do not have information about the time that each respondent has spent in the community. It is possible that respondent that have moved from their native area to another which may have modified their geometry of networks and connections.

# 3. Empirical Analysis

## 3.1 Exploring the Dimensionality of Social Capital: a Principal Component Analysis

Drawing on the understanding that social capital is a multidimensional concept, we start with an explorative analysis of the underlying structure existing in the data. To this purpose we use the principal component analysis (PCA), which is used to detect 'latent' relationships among a set of variables. If distinct underlying dimensions between these variables exist, the PCA provides a method to differentiate the indicators across the various dimensions. It also provides weights which reflect the extent to which each indicator contributes to each dimension. Technically, the PCA seeks linear combinations of the original variables which helps explain their variance. That is, most of the information contained in the original variables can be maintained in a fewer number of factors.

It is important to clarify the terminology. We perform the PCA on a set of variables which are 'indicators' of different aspect of social capital. These are the inputs of the PCA. The terms 'variable' and 'indicator' are synonymous in this sense. These 'variables' are composite in that they have been constructed by aggregating similar survey questions. We refer to section 2 for details on the construction of these variables.

We use the terms 'factor' and 'component' interchangeably. Both capture the dimensionality of social capital, hence the 'first dimension' of social capital is empirically represented by the 'first factor'. The term 'factor' has to be distinguished from the term 'loadings' (or 'factor loadings') that are the weights of each variable in the formation of the factors. The loadings are the correlation coefficients between the indicators and the factors.

We perform a PCA on 14 indicators of social capital. The Keiser-Meyer-Olkin measure of sample adequacy is 0.73 supporting the implementation of factor analysis on these variables. The PCA returns 5 factors which account for 59% of the variance (Table 1). We select the first 3 factors as the most significant. Factor 1 account for 23% of the total variation, factor 2 and factor 3 explain an additional 11% and 10% of the variation respectively. Factor 4 and 5 account for a smaller percentage. With the aim of achieving an interpretable factor structure, we retain the three most significant components[4].

[4] The choice to retain three factors is validated by inspecting the residual correlation matrix. The residuals are the differences between the correlation reproduced with the selected number of

**Table 1: Principal Component Analysis: proportion of variance explained**

| Component number | Eigenvalue | Difference | Proportion of Variance explained | Cumulative Proportion of Variance explained |
|---|---|---|---|---|
| Comp1 | 3.22465 | 1.61113 | 0.2303 | 0.2303 |
| Comp2 | 1.61352 | .155508 | 0.1153 | 0.3456 |
| Comp3 | 1.45801 | .399452 | 0.1041 | 0.4497 |
| Comp4 | 1.05856 | .0232097 | 0.0756 | 0.5253 |
| Comp5 | 1.03535 | .0759848 | 0.0740 | 0.5993 |

Method: Unrotated Principal Component Analysis (correlation)
N = 2491
Trace = 14
Rho = 0.4497

A varimax rotation on these three selected factors reveals three dimensions of social capital. The component loading plot in Figure 2 shows the clustering of the indicators in the three dimensions. There are three groups: on the right of the plot, 5 indicators have high loadings for the first component and low values for the second component; on the upper left of the plot, 5 indicators show high values for component 2 and low values for component 1; and on the lower left 4 remaining indicators show low values for both components. These latter indicators load heavily on the third component.

The first factor is related to 'strong ties' formed with relatives and friends. The variables, 'family visits', 'family calls', 'friend visits', 'friend calls', and 'friend invite', load heavily on this first dimension. This can be identified as 'bonding social capital'. The second factor indicates weak networks. This dimension includes indicators related to associational activity including 'political commitment', 'discussion meetings', and 'donations-volunteering' behaviours. This relates to networking between acquaintances who share common goals and voluntarily engage in the network. It represents a different involvement and commitment than the relationships occurring within the family and friends. Hence, this dimension is indicative of 'bridging social capital'.

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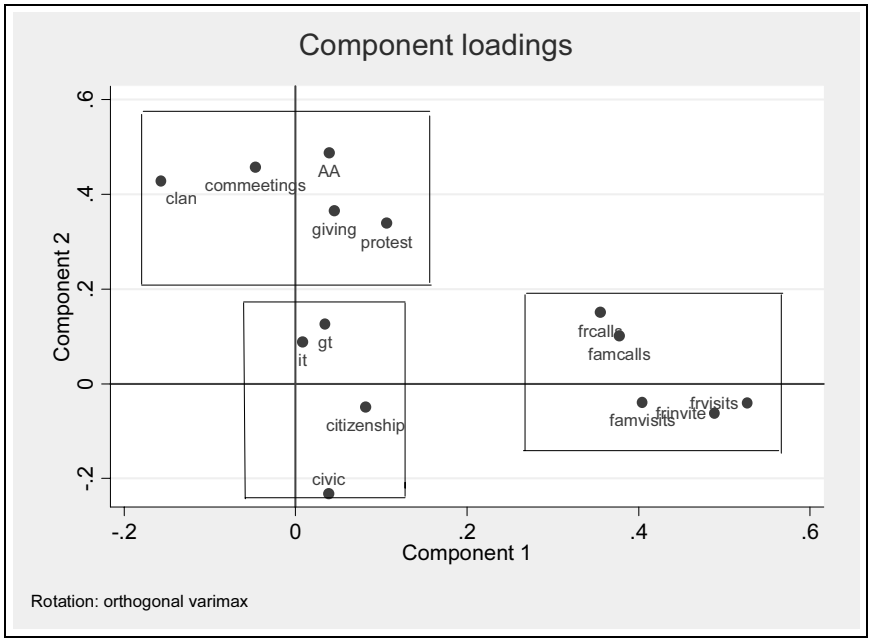
factors and the actual correlations between the original items. The residuals are close to zero indicating that the selection of the number of factors is appropriate.

**Figure 2: Component loading plot**




The third factor includes indicators related to trust towards institutions and organisations and norms of civic-behaviours. This is a vertical type of trust, in comparison with the horizontal trust developed among friends. We agree with the literature, regarding trust and shared norms as an epiphenomenon arising from the strengthening of bridging social capital and the development of viable institutions. Hence, trust is a by-product of social capital. Narayan & Cassidy (2001) discuss the distinction between determinants and outcomes of social capital in detail. This does not suggest to neglect its importance. The 'trust' aspect of social capital is crucial for the advances and the functioning of a viable state. However, trust in itself does not have a network structure, which is what we are interested in. Thus, it is outside the scope of this study to develop a measure for this aspect of social capital. This is a field for further research.

**Table 2: Principal component factor loadings**

| | F1 | F2 | F3 | Unexplained |
|---|---|---|---|---|
| AA | | 0.4879 | | 0.4434 |
| protest | | 0.3393 | | 0.6119 |
| family visits | 0.4043 | | | 0.6076 |
| famcalls | 0.3778 | | | 0.5282 |
| Friend visits | 0.5269 | | | 0.3096 |
| Friend calls | 0.3553 | | | 0.4874 |
| Friend invite | 0.4888 | | | 0.4129 |
| com meetings | | 0.4576 | | 0.58 |
| Clan | | 0.4287 | | 0.6533 |
| generalised trust | | | 0.5204 | 0.4706 |
| istitutional trust | | | 0.529 | 0.4953 |
| giving | | 0.3654 | | 0.6446 |
| Civic | | | 0.4654 | 0.5637 |
| citizenship | | | 0.2247 | 0.8952 |
| Method: Varimax Rotation | | | | |

## 3.2 Measuring Social Capital in the Palestinian Territories: Two Synthetic Indicators

We create an indicator for each of two network dimensions of social capital: 'bonding social capital' is called '$sc_i^{bond}$' and 'bridging social capital' is called '$sc_i^{bridg}$'.

The formulae used for the two indicator is the same for the two indicator:

$$sc_i^{bond,bridg} = \sum_j \frac{\lambda_j^2 x_{ij}}{(\max x_j - \min x_j)}$$

Where the upper scripts refer to the two possible social capital-dimensions. $x_{ij}$ is the variable j for individual i and $\lambda_j$ is the loading factor of variable j. The sum operator is across the j variables pertaining to the associated dimension. The extensive formula with the variables name is given below.

The first indicator ($sc_i^{bond}$) is the strong-ties social capital indicator. It is computed as a linear combination of those variables loading substantially on the first factor. Each variable is weighed by its squared factor loading and standardised by its range. The squared factor loadings reflect the percentage of variance in each indicator that is explained by the factor. In

other words, the $\lambda_j^2$ accounts for the contribution that each variable has on the each factor. Weighting the linear combination by $\lambda_j^2$ means that each variable is weighted in relation to its own contribution to the associated dimension of strong-ties social capital.

The input variables used in the PCA have different value ranges (see section 2.1). The range standardisation aims to take this into account. Dividing by the range (maximum value – minimum value) makes the variables comparable, putting the range between 0 and 1.

The same procedure is applied for the indicator of weak-ties social capital, $sc_i^{bridg}$. In this way, we obtain two new indicators of social capital for each respondent.

To achieve a synthetic indicator for the all Palestinian Territories, we average the variables $sc_i^{bond}$ and $sc_i^{bridg}$ across individuals. Since the sample was selected to be representative of the all the population in the West Bank and Gaza, the synthetic indicators are considered reliable measures of bonding and bridging social capital in the Palestinian Territories .

$$sc_i^{bond} = \frac{\lambda_{fv}^2 famvisits_i}{\max - \min value} + \frac{\lambda_{fc}^2 famcalls_i}{\max - \min value} + \frac{\lambda_{frv}^2 friendvisits_i}{\max - \min value} + \frac{\lambda_{fc}^2 friendcalls_i}{\max - \min value} + \frac{\lambda_{fv}^2 friendinvite_i}{\max - \min value}$$

$$sc_i^{bridg} = \frac{\lambda_{AA}^2 AA_i}{\max - \min value} + \frac{\lambda_{pr}^2 protest_i}{\max - \min value} + \frac{\lambda_{fm}^2 fammeeting_i}{\max - \min value} + \frac{\lambda_{cl}^2 clan_i}{\max - \min value}$$

Table 3 points out a clear deficit in bridging social capital in the Palestinian Territories compared with the bonding social capital. Section 3.3 elaborates on these findings across the different localities of the Palestinian Territories.

**Table 3: Bonding and Bridging Social Capital in the Palestinian Territories**

| Social Capital dimensions: descriptive statistics | | | | | |
|---|---|---|---|---|---|
| **Variable** | **Obs** | **Mean** | **Std. Dev.** | **Min** | **Max** |
| Bonding | 2491 | 0.422 | 0.211 | 0 | 0.92 |
| Bridging | 2508 | 0.139 | 0.117 | 0 | 0.761538 |

### 3.3 Endowments of Social Capital Across Geographical Areas

A geographical ranking of bonding social capital endowment in the West Bank shows that bonding social capital is higher in the North and South of the West Bank and lower in the Centre (Table 4 and 5). This may be due to the fact that the North of the West Bank is largely rural where livelihoods depends on the proceeds of family farming. Thus, family networks are closer than in the Centre of the West Bank, where trade and third sector activities dominate. In the South of the West Bank, bedouin traditions is relatively strong with large families and hence high levels of bonding social capital exist.

An other reason for these differences may also be related to the pattern of internal migration. Ramallah attracts a flows of students and new labour force which may favour an emergence of 'weak ties' among immigrant as people move further from their own families.

Also, in the North and the South, the construction of the separation wall has prevented access to fields in the neighbouring Israeli areas. Consequently, the family has become a strategy for protection, and solidarity between the enlarged family members has risen.

The low level of bonding social capital in the Gaza Strip may be surprising. However, this low level in the Gaza Strip, relative to the West Bank, may be a result of the economic siege to which Gazans continue to endure. And a result of the definition of bonding social capital adopted. The survey questions ask whether respondents invite relatives and friends at home. In the current situation, the living conditions and the income opportunity of Gazans do not allow much of such generosity. Saed & Qazaz (1999) emphasise that both formal and informal social safety nets become less efficient during hardships and economic crises. Further reasons for the differences of endowment in bonding social capital between West Bank and Gaza Strip may be due to the rural character of the West Bankers as compared with the refugee character of the inhabitants of Gaza.

The estimates of bridging social capital are in line with previous results. The values of the indicator confirm that the Centre is better endowed of bridging social capital than the neighbouring North and South West Bank. The Gaza Strip reports similar value as the Northern and Southern areas. This result was expected as the Centre is increasingly popular among the

young generation, the government has many of its ministries, and infrastructures necessary for groups activities are more prevalent.

**Table 4: Bonding Social Capital ; a geographical classification**

| | Bonding Social Capital | | | | |
|---|---|---|---|---|---|
| | **N** | **mean** | **Sd** | **min** | **max** |
| North | 855 | 0.434255 | 0.219404 | 0 | 0.92 |
| Centre | 823 | 0.409188 | 0.207758 | 0 | 0.92 |
| South | 609 | 0.434581 | 0.202424 | 0 | 0.92 |
| Gaza Strip | 204 | 0.388627 | 0.210282 | 0.015577 | 0.855385 |
| Total | 2491 | 0.422316 | 0.211199 | 0 | 0.92 |

**Table 5: Bridging Social Capital ; a geographical classification**

| | *Bridging Social Capital* | | | | |
|---|---|---|---|---|---|
| | **N** | **mean** | **Sd** | **min** | **max** |
| North | 864 | 0.132389 | 0.115518 | 0 | 0.591282 |
| Centre | 828 | 0.151215 | 0.128168 | 0 | 0.761538 |
| South | 612 | 0.135376 | 0.106658 | 0 | 0.742564 |
| Gaza Strip | 204 | 0.138385 | 0.113632 | 0 | 0.528718 |
| Total | 2508 | 0.139821 | 0.117888 | 0 | 0.761538 |

### 3.4 Endowments of Social Capital Across Individual Demographic Characteristics

The indicator for bonding social capital is significantly higher for men (0.43) than for women (0.40). This may be due to the role of the man within the family. The Palestinian society is a masculine society and the men are the representatives of the family. Thus, men are those who pay visits to relatives and friends on behalf of their wife. This may explain why, on average, men report higher endowment of bonding social capital.

In relation to bridging social capital, man score higher endowment of bridging social capital (0.17) than women (0.10). This result may reflect the lower freedom and possibilities that women enjoy in conservative elements of Palestinian society.

In relation to education, lesser educated people have a value of bonding social capital equal to 0.41. Better educated people have a significantly higher stock of bonding social capital (0.44). Higher educated people also show higher level of bridging social capital (0.18 compared to 0.12 for lesser educated people). These results are in line with the findings by Boix & Posner (1998) which suggest that high bonding social capital can reinforce the development of bridging social capital.

This may also reflect the fact that achieving high level of education, and potentially important position in society, does not lead to neglecting family networks in Palestinian society. The family and the enlarged family remains a core nucleus in people's personal relationships.

Finally, the mean comparison test between different age groups[5] does not show significant differences in either the bonding or the bridging social capital.

**Table 5: T-test along demographic individual characteristics**

| Groups | | N | mean | Se |
|---|---|---|---|---|
| **Gender** | | | | |
| Bonding | Male | 1253 | 0.437927 | 0.006064 |
| | Female | 1236 | 0.406642 | 0.005879 |
| Bridging | Male | 1261 | 0.176277 | 0.003575 |
| | Female | 1244 | 0.103042 | 0.002684 |
| **Age range** | | | | |
| Bonding | 16-25 | 616 | 0.45687 | 0.008439 |
| | 25-35 | 725 | 0.435167 | 0.008055 |
| Bridging | 16-25 | 621 | 0.145392 | 0.004656 |
| | 25-35 | 729 | 0.150878 | 0.004721 |
| **Education Level** | | | | |
| Bonding | Low educated | 1786 | 0.4126 | 0.004947 |
| | High educated | 705 | 0.446931 | 0.008087 |
| Bridging | Low educated | 1794 | 0.122009 | 0.002489 |
| | High educated | 714 | 0.184576 | 0.005037 |

[5] The two age groups are chosen to reflect two different stages in the life cycle in the Palestinian society.

## 3.5 Limitations of the Technique

As in many fields in social sciences, computing indicators of social capital has a compelling trade-off: comprehensiveness versus precision. Combining variables related to the same dimension of social capital increase the comprehensiveness of the outcome indicator. On the other hand, aggregation procedures make it difficult to control the relative weights that different variables have on the indicator (i.e. some variable have greater contribution on one dimension than others) and it obscures the interplay between the variables.

The PCA is an appropriate technique to reduce the attribute space of a set of variables. It traces the main dimensionality of the data. However, achieving comprehensiveness using the factor scores to compute measures of social capital dimensions comes at a price. Factor scores are calculated on all the variables on each factor. Using the factor scores rather than the explicit variables muddies the purity of the meaning of the variables.

The indicators presented in this study are an attempt to mitigate this problem. The PCA is used to detect the dimensionality in the data and the weights each row indicator of social capital have in each of these dimensions. When it comes to measurement, the explicit variables are used rather than the factor scores. This is an other different from Nasr & Hilal's (2007) study.

It is undeniable that a certain degree of arbitrariness still exists and the aggregation procedure is not insulated from problems. However, using the row variables improves the understanding of the dimensions of social capital maintaining the meaning close to the original indicators.

The PCA have a number of limitations related to the difficulty in interpreting the results. To trace down the loadings, the PCA needs to impose just-identifying restrictions, since any non-singular transformation gives observationally equivalent factors and loadings: $X = (FP^{-1})(P\Lambda) + E$. Therefore, unless we know the weight that matrix P attributes to each factor, there may be infinite linear combinations for each factor. Identification is usually achieved by a normalisation assumption (e.g. $PP^{-1} = I$). This raises a concern about the interpretation of the factors because the normalisation need not have an economic meaning.

## 3.6 Trust and Bridging Social Capital

In section 3.1 we argued that trust and cooperative behaviours are considered a by-product of social capital. The main idea is that involvement in associations and voluntary groups help build interpersonal trust and civic-minded behaviour. Putnam (1993) put forward this idea in his seminal work 'Making democracy works'. This difference is in line with the fact that all variables related to trust form a separated group in the PCA results.

Considering vertical trust as an epiphenomenon forms a basis from which to argue that greater endowment of social capital in its bridging form is a valuable asset in building greater trust in government and civic values. Associational activity facilitates the diffusion of common values and shared norm of civil cooperation. This in turn will represent an asset in building a viable Palestinian state.

In this section we explore whether our data support this argument. We use ordered logic regressions to determine if indicators of bridging social capital significantly increases the likelihood of having high trust in people and in the governmental institutions. We also evaluate whether bridging social capital significantly increase the likelihood of reporting high scores of citizenship values.

Table 6.a, 6.b and 6.c show the results. The dependent variables used are a ranking score for generalised trust, a ranking score for trust in governmental institutions, and a ranking score for citizenship attitudes.[6]

The indicator of associational activity (AA), political protest and clan and volunteering attitudes, are significantly associated with reporting high trust in people. These indicators of social capital represent the dimension of bridging social capital.

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[6] The ranking score for generalised trust uses the variable "generalised trust" (gt) discussed in point 12, section 2.1. This latter ranges from 0 (=no trust) to 15 (high trust). To compute the ranking, we define gt < 5 as "low trust", 5 < gt ≤ 10 as "moderate trust", 10< gt ≤15 as "high trust".
The variable "trust in governmental institutions" (gvtr) is computed from four questions related to government institutions with the scale used in point 12 section 2.1 (lot of trust = 3, somehow trust = 2, little trust = 1, otherwise = 0). The resulted variable ranges from 0 to 12. To achieve the rating, we define gvtr < 4 as "low trust", 4 < gvtr ≤ 8 as "moderate trust", 8< gvtr ≤12 as "high trust".
The ranking score for citizenship attitudes uses the variable "citizenship" (ctz) discussed in point 17, section 2.1. This latter ranges from 0 to 14. To compute the ranking, we define ctz < 5 as "low citizenship attitudes", 5 < ctz ≤ 10 as "moderate citizenship attitudes", 10< ctz ≤14 as "high citizenship attitudes".

The small size of the coefficients is due to the bivariate nature of the analysis. This was expected as many other variables are likely to affect the level of interpersonal trust and they should be included in a full model. Here, we are interested in the sign and significance of the association between indicator and trust. The size of the coefficients should not be interpreted directly but only relatively with the other variables[7].

The indicators of AA are better predictors in explaining trust than indicators of bonding social capital. Hence, there is evidence supporting the hypothesis that increasing the endowment of bridging social capital will have positive externality in the level of interpersonal trust, contributing to co-operational behaviours needed to state formation.

Similar conclusions arise when the level of trust in governmental institutions is selected as dependent variables. We focus on the level of trust in government institutions among a larger set of institutions because it is political institutions (the presidency, the parliament, and the ministries) that manage the issues of the Peace Process. Indeed, if an independent Palestinian state is to be, the trust in its own governmental institutions will be the crucial aspects of trust needed to establish a viable state.

The indicator of bridging social capital, namely AA, are significantly associated with higher trust. Despite all coefficients being small, these indicators show the highest coefficient sizes (Table 6) . Hence, we interpret these results as evidence for the contribution of bridging social capital in building trust in government.

Similar results arise when the level of 'institutional trust', as computed in point 13, section 2.1, is used as dependent variable. The table is available from the authors.

Finally, the result in Table 6.c confirm that bridging social capital enhances the emergence of citizenship attitudes. The variables AA, political protest and giving are all positive and significantly associated with reporting high scores of citizenship attitudes. Their coefficient (marginal effects) are larger in comparison with the bonding social capital indicators, which have low or insignificant coefficients.

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[7] It is worth noticing that we do not argue a causal effect from bridging social capital to trust and civic behaviour. If social capital indicators are correlated with unobserved factors that affect trust, there is a problem of endogeneity. As it is common in the social capital literature, we are not insulated from the problem of possible endogenous regressor here. The analysis show a positive relationship between bridging social capital indicators and trust. We refer to the literature to give theoretical explanation of this association. Detecting causality needs fairly strong assumptions and instrumenting some of the indicators is warranted.

This is an important result: encouraging the development of bridging social capital reinforces the confidence in the importance of the rule of law, the achievement of democracy in Palestinian politics, equity for women and efforts in fighting corruption, poverty and nepotism.

**Table 6: Predictions of interpersonal trust, government trust and citizenship behaviour**

| **Table a : Predictors of high interpersonal trust (se )** | | **Table b : Predictors of high government trust (se )** | | **Table c : Predictors of citizenship behaviour (se )** | |
|---|---|---|---|---|---|
| AA | .0307078*** | AA | .0066538*** | AA | .0127963*** |
| | -0.00335 | | -0.00135 | | -0.00366 |
| Protest | .0595124*** | protest | .011346*** | Protest | .0375437*** |
| | -0.00712 | | -0.00278 | | -0.00758 |
| Famvisits | .0013664*** | famvisits | .0006355*** | Famvisits | -5.8E-05 |
| | -0.00037 | | -0.00015 | | -0.00034 |
| Famcalls | 0.000509 | famcalls | 0.000115 | Famcalls | .0013298*** |
| | -0.00039 | | -0.00015 | | -0.0004 |
| Frvisits | .0038318*** | frvisits | .0007718*** | Frvisits | .0010351*** |
| | -0.0004 | | -0.00016 | | -0.00037 |
| Frcalls | 0.00052 | frcalls | -0.00015 | Frcalls | -0.00029 |
| | -0.00044 | | -0.00017 | | -0.0004 |
| Frinvite | .0034499*** | frinvite | .000749*** | Frinvite | .0017178*** |
| | -0.00039 | | -0.00016 | | -0.00037 |
| Commeetings | .0041967*** | commeetings | 0.000117 | Commeetings | -0.00068 |
| | -0.00092 | | -0.00037 | | -0.00081 |
| Clan | .0396292*** | clan | 0.002485 | Clan | 0.009884 |
| | -0.00826 | | -0.00328 | | -0.00899 |
| Giving | .0624101*** | giving | .0151146*** | Giving | .0199721*** |
| | -0.00782 | | -0.00312 | | -0.00719 |
| Civic | .0214479*** | civic | .0063777*** | Gt | .0071617*** |
| | -0.00265 | | -0.00118 | | -0.00207 |
| Citizenship | .0093353** | citizenship | .0047849*** | Civic | .0131314*** |
| | -0.0038 | | -0.00156 | | -0.00188 |
| Dependent variable: low trust (gt≤5), moderate trust (5<gt≤10), high trust (10<gt≤15). | | Dependent variable: low trust (gvtr≤4), moderate trust (4<gvtr≤8), high trust (8<gvtr≤12). | | Dependent variable: low citizenship (ctz≤5), moderate citizenship (5<ctz≤10), high citizenship (10<gvtr≤14). | |
| Method: ordered logit regressions | | Method: ordered logit regressions | | Method: ordered logit regressions | |

# 4. Policy Conclusions

This paper seeks to formulate a new measure of social capital to explore the differences between bonding and bridging nature of social capital.

Bridging social capital, where it exists, is a crucial contributor for state capacity-building. The literature on post-conflict society points out the potential of bridging networks in the facilitating collective action among communities.

The data analysis presented here confirm a three-dimension structure of social capital in the Palestinian Territories. The first dimension is related to 'strong ties' formed with relatives and friends. This can be identified as 'bonding social capital'. The second dimension refers to weak networks between acquaintances and voluntarily committed people. This dimension is indicative of 'bridging social capital'. The third dimension represents trust towards institutions and organisations and norms of civic-behaviours. The analysis suggests that bonding social capital is more developed than bridging social capital in the Palestinian Territories. The constructed indicators of bridging and bonding social capital point out a clear deficit in bridging social capital in the Palestinian Territories, whose reasons may rely on the peculiar context of Palestinian society.

Policy makers and funding organisations should remain mindful of this characteristics of social capital in the Palestinian Territories when designing their initiatives. The potential of network social capital in the Palestinian Territories can be exploited.

Bridging social capital can enable citizens to develop forms of collaboration and partnerships between community and formal institutions. This may help to create a new form of social contract needed to support the construction of a Palestinian State after decades of occupation. The presence of a strong sense of family can empower the development of the bridging social capital.

The challenge for policy-makers remains to devise appropriate strategies that can alter this uncovered geometry of networks in the Palestinian Territories. Hence, enhancing the emergence of social capital in its bridging nature that will be complementary to the political effort to build a viable Palestinian state.

# References


Coleman, J. (1988). 'Social Capital in the Creation of Human Capital', *American Journal of Sociology,* 94, 95-120.

Durlauf, S. and Fafchamps, M. (2004). Social Capital. NBER Working Paper 10485. National Bureau of Economic Research.

Fine, B. (2001). *Social capital versus Social Theory.* In Sabatini, F. (2005). Social capital as social networks: A new framework for measurement. http://129.3.20.41/eps/othr/papers/0506/0506013.pdf

Granovetter, M. (1995). *The economic sociology of firms and entrepreneurs.* In Alejandro Portes, ed., The economic sociology of immigration: essays on networks, ethnicity and entrepreneurship. New York: Russell Stage Foundation.

Grootaert, C. and Bastelaer, T. (2002). *Understanding and Measuring Social Capital: A multidisciplinary Tool for Practitioners*. Directions in Development, World Bank.

Knack, S. and Keefer, P. (1997). Does social capital have an economic payoff? A cross-country investigation. The Quarterly Journal of Economics, November 1997, Vol. 112, No. 4, 1251-1288.

Naqib, F. (2006). *The Concept of Social Capital and its Relevance to the Occupied Palestinian Territory*. Palestine Economic Policy Research Institute (MAS), Ramallah, (Arabic).

Nasr, M. and Hilal, J. (2007). *Measuring Social Capital in the Palestinian Territories.* Palestine Economic Policy Research Institute (MAS), Ramallah, (Arabic).

Narayan, D. (1999). Bonds and Bridges: social capital and poverty. Policy Research Working Paper, n. 2167, The World Bank, Washington, DC.

OECD (Organisation for Economic Cooperation and Development) 2001, *The Wellbeing of Nations: the Role of Human and Social Capital*, Paris: OECD. http://www.oecd.org/dataoecd/48/22/1870573.pdf [accessed 15/08/2009].

PRI (2005). *Social Capital as a Public Policy Tool: Project Report.* Policy Research Initiative. Ottawa.

Putnam, R., Leonardi, R., and Nanetti, R. (1993). *Making Democracy Work: Civic Traditions in Modern Italy.* Princeton University Press. Princeton, New Jersey.

Putnam, R. (2000). *Bowling alone: the collapse and revival of American community.* New York: Simon and Schuster.

Qazzaz, H. and Saed, N. (1999). *Poverty in Palestine: Case Studies.* Centre for Development Studies. Birzeit University. (Arabic).

Rubio, M. (1997). Perverse social capital – Evidence from Colombia. *Journal of Economic Issues*, 31 (3), 805-816.

Sabatini, F. (2005). Social capital as social networks: A new framework for measurement. http://129.3.20.41/eps/othr/papers/0506/0506013.pdf [accessed 15/08/2009].

Sabatini, F. (2009). Social capital as social networks: A new framework for measurement and an empirical analysis of its determinants and consequences. *Journal of Socio-Economics, 3*, 429-442.

Schafft, K. (1998). Grassroots development and reconfiguration of local political institutions: local minority self-governance as a political and economic resource for Hungary's Roma population. Paper presented at the Graduate Student Conference on International Affairs, George Washington University, Washington, DC.

Stolle, D. (1998). Bowling together, bowling alone: the development of generalised trust in voluntary associations, *Political Psychology*, 19, 497-525.

Varshley, A. (2000). Ethnic conflict and civic life: Hindus and Muslim in India. Yale University Press, New Haven.

Wallis, J. and Killerby, P. (2004). Social economies and social capital. In Boas, S. (2007). *How Can Social Capital be Operationalized as a Public Policy Resource in Palestine*. Unpublished Master Dissertation.

Woolcock, M. (1998). "Social capital and economic development: Toward a theoretical synthesis and policy framework". *Theory and Society*, 27 (2), 151-208.

World Bank (2003). Twenty Seven Months – Intifada, Closures, and Palestinian Economic Crisis. Jerusalem, World Bank.

World Bank (2004). *Disengagement, the Palestinian Economy and the Settlements*, Jerusalem, World Bank.

# Appendix

**Table 1: Ranking of Palestinian Territories governorates based on "bonding" social capital**

| Gov | N | mean | sd | min | Max |
|---|---|---|---|---|---|
| Tubas | 48 | 0.519475 | 0.26442 | 0.105 | 0.92 |
| Qalqilia | 79 | 0.518909 | 0.195537 | 0.049615 | 0.92 |
| Jenin | 226 | 0.486567 | 0.264212 | 0 | 0.92 |
| Betlehem | 179 | 0.472119 | 0.224553 | 0 | 0.92 |
| Jerusalem | 119 | 0.455684 | 0.209399 | 0.080769 | 0.92 |
| Ramallah | 288 | 0.454249 | 0.205378 | 0.018462 | 0.92 |
| Jericho | 47 | 0.446698 | 0.177229 | 0.073846 | 0.92 |
| Tulqarem | 156 | 0.419394 | 0.16525 | 0 | 0.796154 |
| Hebron | 430 | 0.418954 | 0.190573 | 0.034615 | 0.92 |
| Nablus | 298 | 0.38953 | 0.18414 | 0 | 0.858077 |
| Gaza Strip | 204 | 0.388627 | 0.210282 | 0.015577 | 0.855385 |
| Jerusalem | 369 | 0.354247 | 0.200094 | 0 | 0.92 |
| Salfit | 48 | 0.289379 | 0.187942 | 0 | 0.92 |
| Total | 2491 | 0.422316 | 0.211199 | 0 | 0.92 |

**Table 2: Ranking of Palestinian Territories governorates based on "bridging" social capital**

| Gov | N | mean | sd | min | Max |
|---|---|---|---|---|---|
| Tubas | 48 | 0.227914 | 0.163547 | 0 | 0.580769 |
| Jerusalem | 371 | 0.174065 | 0.146241 | 0 | 0.761538 |
| Jenin | 228 | 0.168314 | 0.13029 | 0 | 0.536539 |
| Qalqilia | 84 | 0.154818 | 0.119228 | 0 | 0.591282 |
| Ramallah | 288 | 0.148798 | 0.111018 | 0 | 0.578846 |
| Gaza Strip | 204 | 0.138385 | 0.113632 | 0 | 0.528718 |
| Bethlehem | 180 | 0.13673 | 0.099255 | 0 | 0.485256 |
| Hebron | 432 | 0.134812 | 0.109701 | 0 | 0.742564 |
| Nablus | 300 | 0.108747 | 0.08627 | 0 | 0.433333 |
| Jerusalem | 121 | 0.10678 | 0.10237 | 0 | 0.502564 |
| Jericho | 48 | 0.101127 | 0.082861 | 0 | 0.293077 |
| Salfit | 48 | 0.099637 | 0.089141 | 0 | 0.442308 |
| Tulqarem | 156 | 0.09396 | 0.095136 | 0 | 0.493718 |
| Total | 2508 | 0.139821 | 0.117888 | 0 | 0.761538 |

# Food Insecurity and the Role of Informal Networks in the West Bank

# 1. Introduction

In this paper we explore whether the informal assistance provided from family and friends helps alleviate the condition of food insecurity in the West Bank. The importance of informal networks has been brought to light in the recent report by FAO and WFP (2009). The report highlights that 18% of the households receiving assistance in the West Bank consider friends and relatives as their first source of assistance. In addition, 27% of recipient households consider friends and relatives to be a second source of assistance, and 36% consider friends and relatives as the third main source. Table 1 shows the importance of friends and relatives as a provider of assistance relative to the assistance from the Palestinian National Authority (PNA) and international organisations. The PNA represents the first source of assistance for 21% of the households receiving assistance, while international organisations (excluding UNRWA) were considered the first source of assistance for only 6%[8].

**Table 1: Assistance providers to West Bankers, by first second and third source of assistance (%)**

| Source of Assistance | First | Second | Third |
|---|---|---|---|
| Local Council | 8 | 6 | 4 |
| PNA | 21 | 29 | 25 |
| UNRWA | 35 | 22 | 16 |
| Local NGO | 3 | 2 | 3 |
| International NGO | 6 | 4 | 2 |
| International Organization | 6 | 7 | 11 |
| Religious Orgs and Entities | 1 | 1 | 1 |
| Friends and Relatives | 18 | 27 | 36 |
| Private Sources | 1 | 2 | 1 |

FAO and WFP (2009)

Palestinian society has been recognised to be well endowed with local networks that are the product of extensive social bonding. Extended family networks and friends represent informal safety nets which have proved crucial in coping with the hardships generated by years of occupation.

[8] The high percentage for UNRWA reflect the fact that refugees represents more than 25% of the West Bank population. UNRWA's assistance has been delivered since 1948. Thus the high percentage need not to be interpreted as an indictor of deteriorating Palestinian socio-economics livelihood.

Thus Palestine is relatively rich in terms of "bonding social capital" (Cavatorta *et al.*, 2009).

This study aims to explore the contribution that the support of family and friends play in alleviating food insecurity in the West Bank. We want to assess how much more likely it is that a household will suffer from food insecurity when it primarily relies on family assistance compared to a household that has government or international assistance as its first source of help. The hypothesis is that informal assistance from family and friends plays a large role in improving food security conditions. Assistance through these informal channels is likely to be as effective as formal assistance programs, with the advantage that it can minimise the negative externalities that aid assistance may entail (such as dependency). This might guide future policy interventions and promote food assistance programs that could link services to the family and other informal-based networks.

The study uses the data from the socio-economic and food security survey conducted in the West Bank in July 2009 by the Palestinian Central Bureau of Statistic (PCBS). As differences between areas where individuals live are likely to have an important influence on food insecurity, this study proposes a methodology which takes into account both the households characteristics and governorate characteristics.

# 2. Literature Review

In the recent decades, Palestinian livelihoods have, in general, gone through an extremely difficult period. The outbreak of the second Intifada in 2000 resulted in a deterioration of the relationship between Israel and the Palestinians. Israeli closure measures have become tougher and more restrictive. The construction of the separation wall and land confiscation are emblematic examples. After the Islamic Resistance Movement (Hamas) won a majority in the Palestinian Legislative Council elections in January 2006, Israeli-Palestinian relationships have further deteriorated. As a result of the elections, international aid disbursements stopped in Gaza and the West Bank until mid 2007 and PNA clearance revenues were frozen. This led the Palestinian economy into a deep crisis. Hence, the worsening of the dialogue in the political sphere has severe reflections in the livelihoods of Palestinians.

**Table 2: Main Socio-economic indicators in the Occupied Palestinian Territories, 1999 and 2008**

| Indicator | 1999 | 2008 |
|---|---|---|
| Gross Domestic Product (million $, base year 1996) | 3,484.1 | 2,987.2* |
| Agricultural production (million $, base year 1996) | 611.4 | 494.1* |
| Unemployment rate (%) | 11.8 | 26 |
| Employment in Israel and Settlements (%) | 23 | 11.6 |
| Food aid provided (thousands tonnes) | 38 | 185* |
| Budget Deficit before assistance (million $) | 469.0 | 1492.8 |
| Foreign assistance (million $) | 497.0 | 1763.1 |
| Poverty rate (% based on consumption) | 20 | 30.3 |
| Consumer price index (base year 1996) | 119.9 | 154.4* |

Source: Palestinian Central Bureau of Statistics (PCBS), national accounts (various issues), labour force survey (various issues), consumer price index (various issues), poverty (2006, 2007). Agricultural production data from Srouji and Ghazawneh (2009). Food aid provided data from Interfais (International Food Aid Information System-WFP). Assistance data from MAS, PCBS and PMA (2009b).

* data for 2007

Unemployment rates increased during the last decade: unemployment reached 26% in 2008 compared to 11.8% in 1999 (MAS, PCBS and PMA, 2009a). Poverty rates have also increased. According to an income-based definition of poverty, the PCBS (2008) poverty report in the Occupied

Palestinian Territories shows that 57.2% of households lived below the poverty line in 2007. A poverty line definition based on actual consumption does not give a more reassuring picture: the report states that 30.3% of Palestinian households were below the poverty line in 2007. Both figures highlight the crisis that Palestinian society is facing. Table 2 shows the main economic and social changes in the Occupied Palestinian Territories between 1999 and 2008.

## 2.1 Food Security in the Palestinian Territories

The World Food Summit (1996) defines food security as a broader concept: *"[Food security is achieved] when all people at all times have both physical and economic access to sufficient food to meet their dietary needs for a productive and healthy life".* Four elements coexist in this definition:

- Food availability – food should be available whether produced locally or imported.
- Food accessibility –all individuals should have access to adequate resources to meet appropriate dietary needs.
- Food stability –access to adequate food is permanently secured, with no risk of shocks.
- Food utilisation – the consumption of food occurs with adequate sanitation, clean water and health care.

According to FAO, WFP and UNRWA reports, the food insecurity problem originates from the lack of accessibility to food, which in turn affects the stability and the utilisation of food as a resource (FAO and WFP (2003); FAO and WFP (2007); FAO, WFP and UNRWA (2008). Physical accessibility of food is hampered by the severe restrictions on movement of people and goods imposed by the Israeli army. These restrictions take the form of closures, checkpoints and the construction of the separation wall. These measures make internal trade between villages and cities difficult and costly, they isolate agricultural areas from urban markets and dwarf job-opportunities across the border. There is also a lack of economic accessibility: this is due to the deterioration of Palestinian income conditions. High unemployment rates and reported losses of business are symptoms of the worsening of living conditions. These circumstances make the Palestinian Territories a peculiar case among low-income countries where generally food insecurity is a problem of availability of food. As pointed out in FAO and WFP reports, food is

generally available in the Palestinian Territories, the issue is accessing it and acquiring the financial resources needed to purchase it. As a matter of fact, as more recent FAO and WFP reports (2008, 2009) highlight, an increasing number of people are reliant on food aid.

**Box 1: Food insecurity in Palestine**

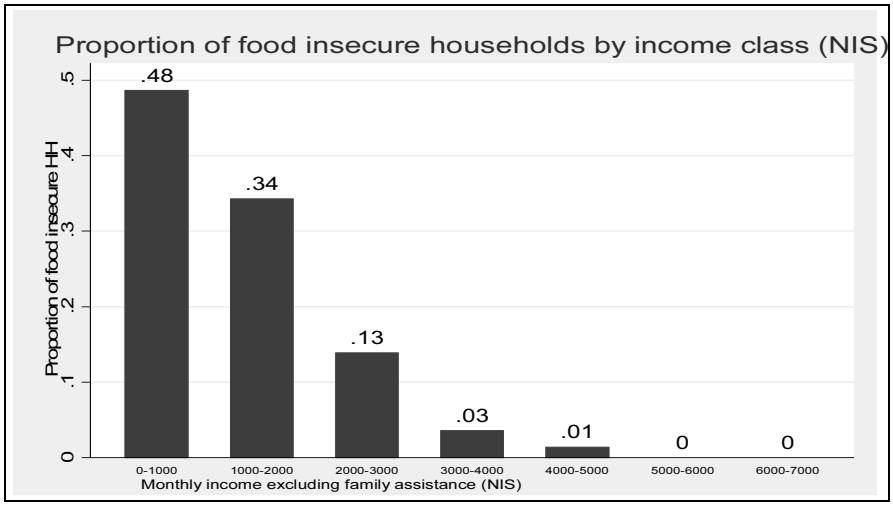
Food insecurity in Palestine is primarily the consequence of political dysfunction addressed by the international community as if it were a technical and /or natural problem. But rather than food aid, what is needed is the restoration of Palestinians right to unrestricted movement and work. (Kanafani and Al-Botmeh, 2008).

For this study we identify food insecure households with a binomial indicator. The indicator is set to 1 if the household is food insecure and 0 otherwise. The classification is taken from FAO (2009)[9].

Figure 1 illustrates the present food insecurity situation in the West Bank. The histogram helps identify the level of income at which the food insecurity condition becomes negligible. The histogram is constructed over various income classes: among households that rely on an average monthly income below 1000 NIS, the proportion of food insecure households is 48%; this proportion decreases to 34% over the income class 1000-2000 NIS. The proportion of food insecure households drops to 3% for the income class 3000-4000 NIS and decreases to 1% for the income class 4000-5000 NIS. The histogram suggests that above a monthly average income of 5000 NIS, food insecurity is a negligible problem. In the current situation, this condition is a rare circumstance. According to our sample, the median income in the West Bank is 2,000 NIS.

[9] FAO (2009) report defines food insecure household according to two characteristics: 1. Household has income and consumption below USD4.7/adult equivalent/day; 2. household shows decrease in total, food and non-food expenditures, including inability to further decrease their expenditure patterns. FAO proposes 4 classification of food security conditions, including "food secure households", "marginally secure households", "vulnerable households" and "food insecure households" All the variables used in this study, their definitions, how they are calculated and the sources are listed in table 1 in the Appendix.

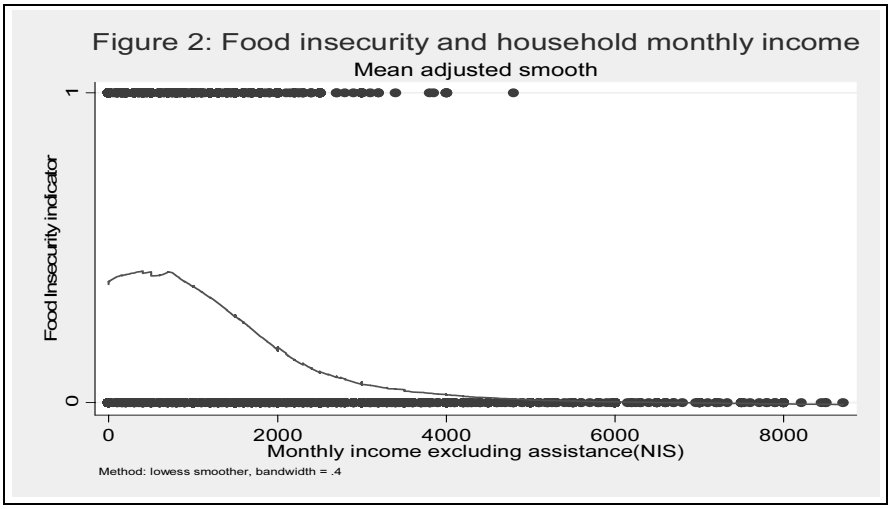
**Figure 1: Proportion of Food Insecure Households by Income Class (NIS)**




Data source: Socio-economic and food security survey in the West Bank, 2009 (PCBS).

Figure 2 uses a lowess smoother to guide the interpretation of the trend of food insecurity related to income. The algorithm of the lowess smoother defines a *k* point neighbourhood for each observation and it fits a regression line to the points in the neighbourhood. This might help the interpretation as it smoothes out the noise in the row data. The lowess smoother suggests that households with income of at least 4000 NIS/month are not generally food insecure. Below this threshold, the percentage of food insecure households increases. Between 3000-4000 NIS the increase is smooth, most households can still get by through adopting additional coping strategies (e.g. borrowing). Below 2000 NIS/month the increase in the percentage of food insecure households is significantly sharper. It is likely that for those households the additional income received from family and friends is crucial to carry on.

**Figure 2: Food Insecurity and Household Monthly Income Class (NIS)**




Data source: Socio-economic and food security survey in the West Bank, 2009 (PCBS).

## 2.2 Informal Social Networks in the Palestinian Territories

To cope with the hardship of the political and economic conditions, Palestinians have developed long term social resilience. This has not passed unnoticed. The World Bank (2003) outlined the condition of social networks in the Palestinian Territories in these terms: *"What is quite remarkable is the continued cohesion of Palestinian society. Despite violence, economic hardship and the daily frustrations of living under curfew and closure, lending and sharing are widespread and families for the most part remain functional…. Palestinian society is absorbing levels of unemployment that could well have fractured the social contract in industrial societies"*.

A literature review of the social protection in the Occupied Palestinian Territories conducted by FAO and MAS (2008) illustrates that the informal social support system is the strongest mechanism that holds Palestinian society cohesion. The public and the private sector failed in providing enough protection. This may be explained by the fact that the public sector has been suppressed by Israeli occupation for decades. Although the Palestinian Authority was created in 1994, the public sector continues to be heavily underfunded. The private sector remains undeveloped and it is extremely vulnerable to macroeconomic shocks.

Beside this, international organisations are subject to political compromises and do not contribute to cohesion and stability of economic conditions. The international community suspension of aid inflows in 2006 is a clear example.

As a consequence, the informal social support system has consolidated over the years and it should be regarded as a coping strategy to resist the hardship of the occupation. Hilal *et al.* (1997) explain that there are five main factors that contribute to the strengthening of informal networks. According to Hilal *et al.*, the feeling of insecurity and instability has led individuals to congregate along traditional lines, such as kinship relationships, the neighbourhood, and the village. Palestinian society has experienced a collective shift from agriculture to paid labour which the closure scheme has accelerated. Income from employment however is more unstable, thus generating an increasing need for safety nets. Also, authors suggest that the pessimistic outlooks regarding the scope of development and the possibility of promoting the national economy under the occupation has strengthened the sense of family and kinship. The weakness of governmental institutions and the social welfare services they offer and the dependency on remittances from relatives abroad has also contributed to this trend.

This phenomenon demonstrates the importance of studying informal networks as a strategic option to alleviate food insecurity. Bowles and Gintis (2002) consider informal networks as a form of "*community governance"*. The community is defined as an organism of governance complementary to the state and the market. This is mainly due to a reduced asymmetry of information between the members inside a community. Put simply, community might provide an important contribution to the governance of a society in which market contracts and government actions fail because of lack of necessary information. This implies that insiders will benefit much more than outsiders from this informal "governance". Table 3 shows two types of recipients: refugees and non-refugee families. The main source of help of these two categories is quite different. The refugees receive most of the aid from international agencies and do not rely much on informal networks or on PNA assistance. On the contrary, family and friends assistance is more significant for non-refugee households. Non-refugee families might be more connected to informal networks than refugees or they might belong to more efficient and diversified communities. Despite its merely descriptive nature, these preliminary statistics anticipate some interesting aspects that we will be further investigated in the empirical model.

**Table 3: Differences in reliance on informal networks between refugees and non-refugees**

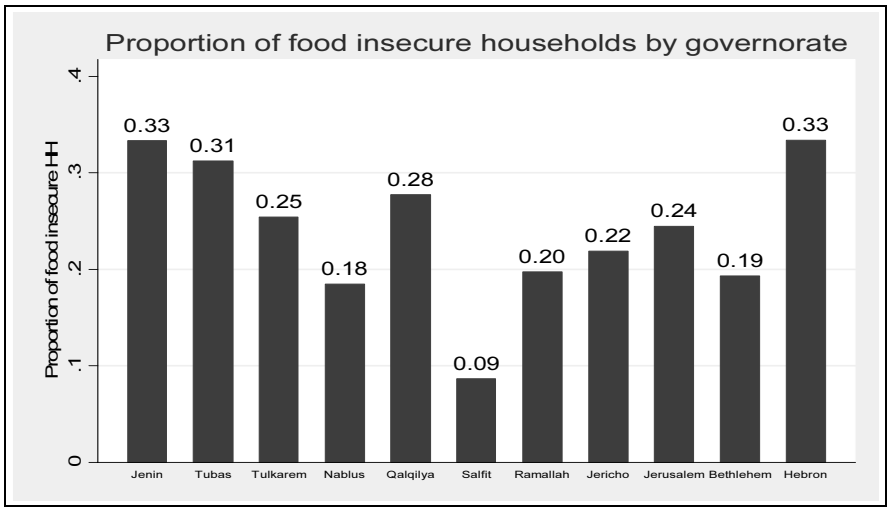
| Household status | First source of assistance | | | | | |
|---|---|---|---|---|---|---|
| | Family and friends | | PNA | | International agencies | |
| Refugee | 80 | 30% | 54 | 14% | 498 | 72% |
| Non-refugee | 184 | 69% | 325 | 85% | 190 | 27% |
| Total | 264 | | 379 | | 688 | |

Data source: Socio-economic and food security survey in the West Bank, 2009 (PCBS).

## 2.3 Governorate differences

Household's condition of food insecurity can be substantially influenced by the areas in which they live. Small libraries of literature in the field of health economics and medical geography have pointed out the simultaneous effect of individual and area characteristics in influencing health-related behaviours (Duncan et al., 1993; Jones and Moon, 1993).

**Figure 3: Proportion of food insecure households per governorate**




Data source: Socio-economic and food security survey in the West Bank, 2009 (PCBS).

In the West Bank there are 11 governorates and there are important socio-economic differences among them. Living conditions and employment

opportunities have been affected by changes in Israeli security policy, closures and settlement expansion. These differences can not be ignored in the analysis. Figure 3 shows the proportion of food insecure households per governorate in the West Bank. There is a substantial variation across governorates. The highest percentages of food insecure people are found in Jenin, Hebron and Tubas. On the other extreme, Salfit is the governorate where food insecurity is least pronounced. This variability suggests that, above the effects of factors characterising households, differences between governorates matter. To explore the additional effects of areas we apply a multilevel approach. This takes into consideration both the household characteristics and the governorate characteristics that are likely to affect the household food insecurity condition.

# 3. Methodology: A Multilevel Approach

We investigate the contribution of informal assistance from family and friends on the food insecurity problem in the West Bank using a multilevel probit model. The multilevel analysis allows us to investigate the impact of area factors above or in interaction with household characteristics. Geographic and contextual effects might be important determinants of food insecurity conditions. The previous discussion has shown that the Palestinian food security situation heavily depends on accessibility to food. Many of the factors affecting accessibility are not directly depending on the household behaviour. Closures are determined by Israeli authorities; as well as settlement presence and land confiscation. These factors might be responsible for differences between governorates, as they create differences in potential access to food and income availability.

Also, governorates differ in land use, number of inhabitants and economic structure. We account for these characteristics including population growth rates and employment growth rates. Empirically, these factors create clusters in the data. This implies that the area where a household resides is important for its food security condition and these governorate differences matter.

Technically, overlooking the importance of cluster effects may render invalid traditional statistical techniques. Recognising only households as units of analysis produces correlated residuals that results in larger standard errors and thus less efficient estimates and inferences. With a multilevel approach the governorate effect is controlled and modelled explicitly. This offers an advantage over standard (fixed effect) models. The latter merely acknowledges that there is a difference between different clusters (e.g. governorates) and they control for this with a set of area dummy variables. The multilevel random effect models, explicitly model these difference attributing them to specific causes. This enables to assess the importance of these area effects. The selection of these causes is based on a qualitative investigation which seeks to identify the causal relationship based on economic theory and the political economy of the Palestinian Territories.

We can model the state of food insecurity as a latent variable model as it follows:

$y_{ij}$ is the response variable of interest. We observe $y_{ij} = 1$ if the household is food insecure, while we observed $y_{ij} = 0$ if the household is not food insecure. The condition of food insecurity is modelled as follows:

$$y_{ij} = \beta_{0j} + \sum_{h=1}^{H} \beta_h x_{i0} + \beta_a x^a{}_{i0} + \varepsilon_{ij}$$

where $\beta_{0j}$ are governorate specific intercepts and $x_{i0}$ is a set of household specific characteristics, $x^a{}_{i0}$ is an indicator for the primary type of assistance received. $\varepsilon_{ij}$ is the disturbance term, assumed to be normally distributed with zero mean and known variance, $\varepsilon_{ij} \sim N(0, \pi)$.

Under the hypothesis of the random effect model we explicitly define the intercept, which contains the macro effects, as:

$$\beta_{0j} = \gamma_0 + \gamma_1 w_{0j} + u_{0j}$$

where $\gamma_0$ is the intercept, $w_{0j}$ is a set of the governorate-level fixed effects and $u_{0j}$ is a random effect of cross-governorate variability.

The model assumes that the two level errors are not correlated and that there is no correlation between different households in the same governorate, $Cov(\varepsilon_{ij}, \varepsilon_{i'j})=0$. The reduce form is

$$y_{ij} = \gamma_0 + \gamma_1 w_{0j} + \beta_a x^a{}_{i0} + \sum_{h=1}^{H} \beta_h x_{i0} + u_{0j} + \varepsilon_{ij}$$

The model is estimated by maximum likelihood conditioning on the unobserved random effect $u_{0j}$.

Empirically, our dependent variable is a binomial indicator of food insecurity versus lack of food insecurity taken from FAO classification (2009). The household characteristics included in the model are demographic and the socio-economic condition of the household or household head. We control for education, refugee status, amount of assistance received over income, stability of income and expectation on ability to steadfast in the future. We include an indicator for the source of assistance on which the household primarily relies. The governorate-level variables are number of closures, number of Israeli settlements, population growth and employment growth. We refer to the household level model as *micro model* and to the model that includes governorate-level regressors as *macro model*.

## 3.1 Empirical results

With a multilevel probit model we want to identify to what extent the contextual effect of governorates matter in determining food insecurity. Technically, this amounts to the quantification of the proportion of

variation explained by clustering, also called intra-class correlation[10] (ρ). In our model[11], the first level of analysis pertains to household characteristics, which we refer to as *micro* model. The analysis yields a ρ statistic of 0.045 (column 1, Table 4). This can be interpreted as indicating that about 4.5% of the total variability in food insecurity is attributable to unobserved governorate characteristics. For an additional test, we computed the odds ratio pertaining to food insecure household in any two different regions. This is equal to 1.14. This means that the odds of being food insecure for a household in region R1 has nearly the same odds of a household with the same observed characteristics living in region R2. This means that observing a household in region R1 says very little about the condition of food insecurity of its twin household in region R2. Hence, this confirms that regions have their own characteristics affecting the condition of food insecurity on top of household characteristics. We explicitly model this areas heterogeneity in the set of model *macro*.

Table 4 presents the marginal effects of a multilevel probit estimation. The household level explanatory variables have the expected sign. Education, as captured by the variable *degree*, has a negative sign: this means that families whose head of the household holds a bachelor degree are less likely to be food insecure. Better educated people are more likely to find a job and maintain a stable income. Refugees are on average more likely to experience food insecurity: this was expected and confirms previous results on the Palestinian distribution of aid (FAO and WFP, 2009). This result reinforces the insights the descriptive analysis had anticipated. One of the dark sides of the community governance is the tendency of the community to be relatively homogeneous (Bowles, Gintis, 2002). A community is likely to build barricades between the members and the non-members. This might create the common problem of insider-outside distinctions based on nationality, culture, ethnic origins or simply initial economic and social endowment[12].

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[10] Conventionally this is defined as. $\rho = \frac{\sigma_u^2}{\sigma_u^2 + \sigma_e^2}$ This is the ratio of the variance of the random effect, $u_j$, due to the unobserved governorate characteristics, to the total variance.

[11] The model presented is the best fitting model of a battery of competing models.

[12] In our model we are not able to distinguish the original reason of the informal help. We do not know, and it is not the object of analysis, whether the help provider acts according to altruism or because of self interest. The socio-economic endowments of a recipient might be represented by the connections of this family with other members of the community to which the donor is connected as well and that they might represent a form of collateral for the recipient. This might put in action a system of mutual obligations that the donor might find beneficial. If the refugees do not hold this efficient social collateral, it might be difficult for a potential donor to take advantage from this informal insurance mechanism.

**Table 4: Marginal effects of the multilevel probit model**

| | micro_f<br>Xmfx_dydx/se | macro_f<br>Xmfx_dydx/se | micro_p<br>Xmfx_dydx/se | macro_p<br>Xmfx_dydx/se | micro_i<br>Xmfx_dydx/se | macro_i<br>Xmfx_dydx/se |
|---|---|---|---|---|---|---|
| **foodinsec** | | | | | | |
| fa1 | -0.064** | -0.063** | | | | |
| | (0.103) | (0.102) | | | | |
| degree | -0.171*** | -0.176*** | -0.168*** | -0.173*** | -0.167*** | -0.171*** |
| | (0.073) | (0.073) | (0.074) | (0.074) | (0.074) | (0.074) |
| refugee | 0.035** | 0.040*** | 0.047*** | 0.051*** | 0.013 | 0.018 |
| | (0.048) | (0.048) | (0.048) | (0.048) | (0.052) | (0.052) |
| depend | -0.038** | -0.040** | -0.057*** | -0.058*** | -0.052*** | -0.054*** |
| | (0.059) | (0.059) | (0.059) | (0.059) | (0.059) | (0.059) |
| inc_div | -0.140*** | -0.143*** | -0.136*** | -0.138*** | -0.138*** | -0.141*** |
| | (0.052) | (0.052) | (0.051) | (0.051) | (0.051) | (0.051) |
| keep_up | 0.045*** | 0.046*** | 0.043*** | 0.043*** | 0.043*** | 0.044*** |
| | (0.015) | (0.015) | (0.015) | (0.015) | (0.015) | (0.015) |
| cons | -0.196*** | -0.426*** | -0.213*** | -0.457*** | -0.202*** | -0.430*** |
| | (0.103) | (0.223) | (0.104) | (0.228) | (0.102) | (0.236) |
| closure | | 0.000* | | 0.000 | | 0.000 |
| | | (0.001) | | (0.001) | | (0.001) |
| settlemt | | -0.011*** | | -0.012*** | | -0.011*** |
| | | (0.008) | | (0.008) | | (0.009) |
| g_pop | | 0.738*** | | 0.785*** | | 0.725*** |
| | | (0.685) | | (0.701) | | (0.727) |
| g_emp | | 0.194*** | | 0.203*** | | 0.192*** |
| | | (0.144) | | (0.147) | | (0.153) |
| pa1 | | | 0.112*** | 0.114*** | | |
| | | | (0.074) | (0.074) | | |
| intl1 | | | | | 0.077*** | 0.073*** |
| | | | | | (0.064) | (0.064) |
| **lnsig2u** | | | | | | |
| _cons | *** | *** | *** | *** | *** | *** |
| | (0.537) | (0.861) | (0.530) | (0.818) | (0.527) | (0.773) |
| sigma_u | 0.217 | 0.084 | 0.229 | 0.089 | 0.217 | 0.095 |
| rho | 0.045*** | 0.007*** | 0.050*** | 0.008*** | 0.045*** | 0.009*** |
| ll | -2129 | -2122 | -2121 | -2113 | -2124 | -2118 |
| chi2 | 430*** | 686*** | 437*** | 679*** | 438*** | 650*** |
| N | 4197 | 4197 | 4197 | 4197 | 4197 | 4197 |

Reliance on a stable income decreases the likelihood of food insecurity: we capture the condition of income stability by controlling for income diversity. The indicator *inc_div* increases if the household has the benefit of different sources of income. Reasonably, relying on different sources of income can buffer hardship in critical situations such as loss of jobs and downturns of business. Receiving greater amounts of assistance necessarily alleviates the condition of food insecurity despite notorious side-effects such as aid dependency.

The micro model for family assistance (model *micro_f*, table 4) confirms that informal networks reduce the likelihood of being food insecure. In

comparison, the micro models for PNA assistance as first source (*micro_p*, table 4) and international agencies assistance (*micro_i*, table 4) show a positive association with the food insecurity condition.

A possible reason might be the volatility of international aid and PNA assistance. In periods of large inflows of foreign assistance, people tend to become very dependent. Such conditions can turn into bitter situations of food insecurity and poverty if the assistance stops. The argument applies to the PNA assistance since the PNA is heavily funded from foreign donors[13].

The micro model cannot explain the differences between governorates. As explained before the ρ statistics and the odds ratio confirm that there are significant differences between governorates. The food security condition in the West Bank is heavily affected by the construction of the separation wall and the deterioration of the relationship with Israel. 15% of the respondents in the West Bank have encountered difficulties due to limitations on employment in Israel and restrictions of movement due to checkpoints and roadblocks. The construction and expansion of settlements also affects the condition of food insecurity at governorate level. FAO and WFP (2009) reports that food insecurity levels are lower among families with members employed in Israel or Israeli settlements. In the macro specifications we control for the number of closures per governorate and the number of settlements per governorate. We also control for the population growth rate and the employment growth rate.

The estimate signs shows that settlements are negatively associated with food insecurity while closures are positively associated as they hampered the accessibility to food and sources of income. Population growth per governorate is significant and positively signed: this means that households residing in overpopulated governorates are more likely to be food insecure. The coefficient of employment growth is positively related to food insecurity. This might be due to the fact that employment increases the costs of crowding out and thus it reduces the opportunity for an individual to have access to food. The crowding out problem is quite common in social capital and informal network analysis. An individual unemployed might receive informal help through his/her informal network. As soon as the individual finds a job this informal insurance mechanism might disappear and move towards another member of the

[13] A remark needs to be made regarding the dummies for assistance. Assistance and food insecurity might be simultaneously determined. If this is the case, the dummies for assistance might suffer from the problem of endogeneity. A suitable instrumentation strategy might be appropriate since endogeneity might affect the signs and size of the explanatory variables.

group that is unemployed. If the individual employed does not receive enough money from his new job to offset the loss of the informal insurance mechanism, the individual is worse off and the probability of being food insecure rises. Cox and Jimenez (1995), using household level data from urban Philippines, show that the informal net transfer is particular sensitive to the employment condition of the recipient. More precisely, they end with the conclusion that public policy intervention, such as unemployment insurance schemes, would cause a reduction in net private transfer of 92 pesos for every 100 pesos offered by the public program. A similar approach might be applied inside community governance. An individual or family moving from the unemployment to the employment status is likely to lose the "unemployment benefit" provided by the community. In case the new income is not high enough to compensate the loss benefit, the individual is likely to be worse off or at least to feel worse off. This variable indicates, therefore, that public programs should be set very cautiously in order to avoid increasing the costs of "crowding out". Another element is that policy interventions should consider the dark side of the informal network. When aid programs offer help and assistance, in terms of subsidies for example, it is possible that only members of a network can benefit due to their social endowments. Angelucci *et al.* (2007) show that when households are offered a 66% subsidy to send their children to secondary school, only households that are part of a well connected family and thus able to pool social resources, raise the level of school attendance. On the contrary, households eligible for this school subsidy but outside a family network do not increase school enrolment.

The specifications presented model the probability of being food insecure given the observed household characteristics and governorate features. We want to assess how much more likely it is that a household will suffer from food insecurity when it primary relies on family assistance compared to a household that has government assistance as first resource for help. To calculate this, we use the odds ratio. The odds ratio is a relative measure that indicates how much more likely it is that an event occurs rather than not[14].

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[14] The odds ratio can be expressed as $\dfrac{\dfrac{\Pr(y=1|fa1,X)}{\Pr(y=0|fa1,X)}}{\dfrac{\Pr(y=1|pa1,X)}{\Pr(y=0|pa1,X)}} \bullet y=1$ means that the household is food insecure. In the numerator, the probability of being food insecure as compared to being food secure are conditioned on relying on family assistance as primary source, *fa1*, and a set of

If we consider the event "being food insecure", an odds ratio smaller than one means that 'being food insecure' for a household is less likely to happen when it relies mainly on informal networks rather than on official assistance (e.g. PNA or international agencies). If the odds ratio is equal to one, the event is equally likely under the two kind of assistance.

Our focus is to assess the importance of informal networks, thus we use the model with family assistance as a benchmark and we compare it with other sources of assistance. We predict the odds ratio for an average household using the macro model. We select an average household whose head holds a bachelor degree and he/she is not a refugee; we set the remaining observed contextual characteristics to their median level[15]. Considering family assistance and PNA assistance, our model predicts an odds ratio of 0.30. This means that there is 70% less chance of being food insecure for a household that relies primarily on family assistance as compared to PNA assistance.

When comparing the assistance from family to the formal assistance from international agencies, the picture gives similar results. The odds ratio is 0.38: there is 62% less chance of being food insecure if the first help comes from the family as compared with help from international agencies.

These results need not to be interpreted as suggesting wastefulness of official assistance but rather to acknowledge that informal networks do play a role in alleviating the suffering caused by food insecurity.

## 3.2 Limitations of the technique

Section 3 has introduced some of the advantages that multilevel analysis may offer. Despite their usefulness and promising application, models for multilevel analysis require a set of restrictive assumptions and they should be used with care.

The macro models presented assume random effect residuals on cluster units (i.e. governorates). To increase the precision of estimates this number should be as high as possible. 11 governorates may present little structural complexity for the random effect model to be fully efficient. Furthermore,

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household and governorate characteristics, $X$. In the denominator, the probabilities are conditioned on reliance on another main source of assistance, e.g. the PNA assistance, *pa1*.

[15] The reason we choose the median is that the measure is less sensible to extreme values than the mean. As we wanted an 'average' situation, the median gives a more accurate reflection of the situation across governorate, as it is less influenced by the unusual conditions of Hebron and Nablus, which suffer from an exceptionally high number of closures.

the maximum likelihood estimation technique requires the assumption that residuals are normally distributed. Various reasons, including the survey data collection, may cause this assumption to fail.

The research question of this analysis also conceals the important issue of redistribution of assistance. From the data at hand, it is impossible to disentangle whether family and friends redistribute assistance which is originally disbursed by other donor institutions. Analysing the primary source of assistance, necessarily disregards this issue. The internal redistribution of aid is an important question which brings to light the question of altruism or self-interest in studies of development assistance[16]. This is outside the scope of this study and it is recommended as a topic of further research.

Finally, our analysis might suffer from an endogeneity problems. This is an important issue in the econometric modelling of research questions like the one we are investigating. Endogeneity can arise because an important variable is omitted or because the dependent variable and one of the explanatory variables are simultaneously determined. In our analysis, assistance levels may be influenced by food insecurity in the past and may also be determined by previous experiences of assistance. This might be a source of concern for the dummy variables for assistance in our analysis. An instrumental variable approach can be an alternative technique for further improvements of this study.

[16] The literature on altruism and self interest is a vast literature. An initial accurate analysis has been provided by Donald Cox (1987, 1992).

# 4. Conclusions and Policy Implications

The results from this study can provide an interesting picture of the interactions between social networks and food security in the Palestinian Territories. Our analysis shows that social support plays a key role in the reduction of food insecurity. Some policy recommendations can be deduced from this analysis.

Firstly, the fundamental reasons for poverty are not only based on lack of money, but also on the lack of social networks and social support. The distinction between insider and outsider in our results represents an interesting message. Non-refugees families rely more on informal help than refugees whose main resource of aid comes from international agencies. This suggests that an efficient policy should promote conditions where citizens can build and increase their social capital endowments and not be merely focusing on food assistance. Put simply, food policies should be complementary to other public and international interventions which might address other aspects of the social life of a family. More precisely, social capital might represent a consistent endowment where the quality of the network facilitates the exchange of resources. When most of the members of a network are located below the poverty line, then the social capital belonging to that group might represent a negative externality rather than an asset, by decreasing the probability of the family of escaping from the poverty trap. Policies on food insecurity might represent an emergency. They represent a short term solution and they might become inefficient in the long term, in the sense that they might not break the poverty trap. Interventions on education, for instance, might have a positive effect not only at an individual or household level, but at the aggregate level. From our analysis it we can see that better educated individuals are likely to take advantage of a more diversified network, maybe due to the increased opportunities generated by increased social interaction. Moreover, better educated people increase their chances of obtaining a better job which implies a higher salary and therefore higher collateral in case they need informal help from their social network. In the absence of a system of complementary policies the trap of dependency from international or national aid can, in extreme cases, reduce the probability of escaping from food insecurity.

A second crucial element is that policies should be designed in order to minimise crowding out costs. The empirical evidence from this study indicates a paradox that employment can increase the probability of food

insecurity. This might occur because of the low returns (wages) of work. Effective policies might change a household's status from unemployed to employed. As a consequence, this family looses the right to receive benefits from the community. As long as the new employment situation provides an income insufficient to offset the loss of the original informal insurance package, the family might end up worse off. Finally, another interesting point is related to closures: these represent physical barriers to access to food. This analysis shows that families located in areas with higher numbers of closures are likely to face higher food insecurity. Anyone involved in the policy making process should remain mindful of this.

This analysis also highlights the significance of the governorate effects. Places as well as people may play a role in determining food insecurity. This suggests that specific targeting of more disadvantaged areas should be integrated into food security policies.

# References


Angelucci, M De Giorgi, G Rangel, M A and Rasul, I (2007) Family Networks and School Enrolment : Evidence from a Randomized Social Experiment, mimeo University College London.

Bowles, S. and Gintis, H. (2002). Social Capital and Community Governance. *The Economic Journal*, 112 (November), F419-F436.

Cavatorta, E., Ghazawneh, H. and Andriani, L. (2009). *Bonding versus Bridging Social Capital: The Case of Palestine*. Palestine Economic Policy Research Institute (MAS). Ramallah.

Cox, D (1987) "Motives for Private income Transfers" *The Journal of Political Economy* Vol. 95 No. 3 (June 1987) pp. 508-546.

Cox, D. and Jimenez, E (1995) Private transfers and the Effectiveness of Public Income Redistribution in the Philippines" Chapter 12 in Van de Walle, D , Nead, K (eds.) *Public Spending and the Poor: Theory and Evidence* Johns Hopkins University Press Baltimore.

Cox, D Rank, M R (1992) "Inter-Vivos Transfers and Intergenerational Exchange" *The Review of Economics and Statistics,* Vol. 74, No. 2 (May, 1992) pp. 305-314.

Duncan, C., Jones, K. and Moon, G. (1993) "Do places matter? A multi-level analysis of regional variations in health-related behaviour in Britain" *Social Science & Medicine* 37. pp.725-733

FAO and MAS (2008). *Social Protection in the West Bank and Gaza Strip 2006-2007: A literature review*. Working Paper Series, Paper 3. Food and Agriculture Organization and Palestine Economic Policy Research Institute (MAS).

FAO and WFP (2003). *Food Security Assessment: West Bank and Gaza Strip*. Food and Agriculture Organization and World Food Programme. Jerusalem.

FAO and WFP (2007). *West Bank and Gaza Strip: Comprehensive Food Security and Vulnerability Analysis (CFSVA)*. Food and Agriculture Organization and World Food Programme. Jerusalem.

FAO and WFP (2009). *Socio-Economic and Food Security Survey Report, West Bank*. Food and Agriculture Organization and World Food Programme. Jerusalem.

FAO, WFP and UNRWA (2008). *Joint Rapid Food Security Survey in the Occupied Palestinian Territory.* Food and Agriculture Organization, World Food Programme and United Nations Relief and Works Agency for Palestine Refugees (UNRWA). Jerusalem.

Hilal. J., El-Malki, M. and Shalabi, Y.(1997). *Informal Social Support System (non-institutionalized) in the West Bank and Gaza Strip.* Palestine Economic Policy Research Institute (MAS). Ramallah.

Jones, K. and Moon, G. (1993) Medical geography: taking space seriously. *Progress in Human Geography* 17, 515-524.

Kanafani, N. and Al Botmeh, S. (2008). The Political economy of food aid to Palestine. *The Economic of Peace and Security Journal.* Vol. 3, No. 2, pp. 34-48.

MAS, PCBS and PMA (2009a). *Economic and Social Monitor*. Volume 17. Palestine Economic Policy Research Institute (MAS), Palestinian Central Bureau of Statistics (PCBS) and Palestine Monetary Authority (PMA). Ramallah.

MAS, PCBS and PMA (2009b). *Economic and Social Monitor*. Volume 16. Palestine Economic Policy Research Institute (MAS), Palestinian Central Bureau of Statistics (PCBS) and Palestine Monetary Authority (PMA). Ramallah.

PCBS (2008). *Press conference: Poverty and living Standards in the Palestinian Territories, 2007*. Palestinian Central Bureau of Statistics. Ramallah. (June 26th 2008).

Srouji, F. and Ghazawneh, H. (2009). *Food Aid and Macroeconomic Indicators in Palestinian Territories.* Palestine Economic Policy Research Institute (MAS). Ramallah.

World Bank (2003). Twenty Seven Months – Intifada, Closures, and Palestinian Economic Crisis. Jerusalem, World Bank.

World Food Summit (1996). *Rome Declaration on the World Food Security and World Food Summit Plan of Action.* Rome.

# APPENDIX

**Table 1: Variable definitions and sources.**

| Variable | Label | Calculation | Source |
|---|---|---|---|
| foodinsec | Household is food insecure | 1 if household is food insecure, 0 otherwise | SEFSec 2009, FAO elaboration |
| fa1 | Family and friends assistance | 1 if family and friends is the 1st source of assistance, 0 otherwise. | SEFSec 2009 |
| pa1 | Palestinian Authority (PA) assistance | 1 if PA is the 1st source of assistance, 0 otherwise. | SEFSec 2009 |
| intl1 | International Organisations assistance | 1 if int'l organisation is the 1st source of assistance, 0 otherwise. | SEFSec 2009 |
| ir03 | Family size | Number of members | SEFSec 2009 |
| edu | Education attainment | Schooling years completed by HH head | SEFSec 2009 |
| degree | Education attainment | HH head holds degree of tertiary education | SEFSec 2009 |
| refugee | Refugee status | HH head is refugee | SEFSec 2009 |
| wage | Wage stability | HH head is salary employee | SEFSec 2009 |
| depend | Dependency ratio | Income from assistance / total income | SEFSec 2009 |
| inc_div | Income diversity | Scale: 1 (one source of income) to 9 (9 various sources of income). | SEFSec 2009 |
| keep_up | Forward looking expectation (how long can you steadfast) | Scale: 1 (can steadfast) to 5 (cannot manage) | SEFSec 2009 |
| risk | Risks faced in the past 6 months (e.g. loss of job) | Scale: 1 (no risk) to 10 (10 different risks faced) | SEFSec 2009 |
| closure | Number of closures | Number of closures per governorate | OCHA |
| settlemt | Number of Israelis settlements | Number of Israelis settlements per governorate | OCHA |
| g_pop | Population growth 1997-2007 | Population growth 1997-2007 | PCBS |
| g_emp | Employment growth 1997-2007 | Employment growth 1997-2007 | PCBS |

**Table 2: Descriptive Statistics**

| Variable | Obs | Mean | St. Dev | Min | Max |
|---|---|---|---|---|---|
| fa1 | 4788 | .0551378 | .228273 | 0 | 1 |
| pa1 | 4788 | .0791562 | .2700106 | 0 | 1 |
| intl1 | 4788 | .1436926 | .3508144 | 0 | 1 |
| ir03 | 4788 | 5.402882 | 2.625415 | 1 | 34 |
| edu | 4788 | 9.210109 | 4.636902 | 0 | 25 |
| degree | 4788 | .1825397 | .386329 | 0 | 1 |
| refugee | 4788 | .3475355 | .4762373 | 0 | 1 |
| wage | 4788 | .323726 | .4679457 | 0 | 1 |
| depend | 4750 | .1400809 | .4334776 | 0 | 9 |
| inc_div | 4788 | 1.09127 | .5779738 | 0 | 3 |
| keep_up | 4786 | 2.458211 | 1.516757 | 0 | 5 |
| risk | 4788 | 2.174185 | 1.130943 | 0 | 9 |
| closure | 4788 | 80.08855 | 62.15515 | 14 | 191 |
| settlemt | 4788 | 15.57978 | 8.010549 | 3 | 26 |
| g_pop | 4236 | .3165727 | .0807421 | .1220098 | .4272206 |
| g_emp | 4236 | .3584449 | .4386577 | .0707217 | 1.852371 |