# Social Capital and Farmer Welfare in Malaysia

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## Abstract

Effects of social capital on household welfare (rice yield, income, health) were examined in a rice granary area of southern peninsular Malaysia. Social capital is categorized into structural and cognitive. OLS and 2SLS were used for estimation on data from 59 randomly selected households. As for productivity, structural social capital (frequency of community activity attendance) contributes to higher rice yield. To enhance economic welfare, cognitive social capital (group norm) which is expected to strengthen work ethic appears important. As for self-rated health status, those actively involved in educational organizations (PTA) feel themselves less healthy. On the other hand, those who put high value on local organizations tend to be healthy. On the whole, both structural and cognitive social capital enhancement are expected to improve Malaysian farmer welfare.

## Introduction

The concept of social capital has been increasingly influential since the mid 1990s in the fields of social and economic development[3,6]. It opened up unique opportunities for interdisciplinary research and development allowing scholars, policy makers, and practitioners to enjoy an unprecedented level of cooperation and dialog, though receiving criticisms on some flaws of its economic definition[10]. Increasing numbers of empirical studies have been done in developing countries, while studies featuring rural Malaysia were quite limited, with an exceptional study exploring the informal rotating credit in the livelihoods of low-income urban households in Penang, Malaysia, showing its benefit to poor women[5].

Malaysia achieved steady industrialization during the last three decades, leading to a decline in the agricultural sector's contribution to the national economy, as its share of GDP has declined from 20% in 1985 to 9% in 2004[11]. However, rural development has always been an important agenda of the government for addressing poverty issues. Based on the national poverty line income, the poverty rate declined from 22.8% in 1990 to 5.7% in 2004. Nevertheless, great disparities in income and wealth still exist between rural and urban areas. The income ratio between rural and urban areas is 1:2.1 and the rural poverty incidence of 12% is more than twice the national average[2]. This paper aims at quantitative measurement of the social capital level and examination of its influence on welfare at the household level in a rice granary area of southern peninsular Malaysia.

## Research site and survey method

The research site is located in the two sub-districts of Sawah Sempadan and Sungai Burung, district of Kuala Selangor, state of Selangor, around 80 km northwest of Kuala Lumpur, the national capital. The area is one of the eight main rice granaries where double cropping has been practiced since the early 1970s under well-facilitated irrigation systems. The area is suitable for the study as it represents a farming community in rice granary areas where small holder rice farming is the major employment and income source.

A preliminary visit to the potential study area was conducted in early 2004 to determine a manageable sample size, area coverage and specified survey items. Vil-

lage Security and Development Community Chairperson (*Pengerusi Jawatankuasa Pembangunan dan Keselamatan Kampung*) was interviewed for general information on villages, as he plays a dominant role in all aspects of community affairs. Survey respondents consisted of 10 households from each of 6 villages in the two sub-districts, being selected based on modified stratified random sampling. The household survey was conducted with a structured questionnaire by MARDI (Malaysian Agricultural Research and Development Institute) staff. Quantitative analysis was applied on 59 samples, omitting one due to missing and inconsistent responses.

## Analytical framework

### (1) Categorization of social capital

There is no consensus upon an established definition of social capital. Here we follow the broad concept of social capital, namely, "institutions, relationships, attitudes, and values that govern interactions among people and contribute to economic and social development"[7]. The effects of social capital take three forms: i) increased availability of information and lowered cost; ii) facilitated collective decisions/actions; and iii) reduced opportunistic behavior by community members[7]. As for typology, Uphoff delineated the two forms: structural (observable social structures such as networks, organizations and rules they embody) and cognitive (norms, values, attitudes)[9]. The survey questions measuring the level of social capital were based on Grootaert et al.[8], modified according to local contexts.

We postulate the hypothesis that social capital enhances farmer welfare at household level through increasing productivity (rice yield), income level (household income per capita) and health status (self-rated heath condition).

### (2) Model

Our estimation is based on the generic equation:
$$W = \alpha + \beta S + \theta H + \rho O + \upsilon$$
where;
W = Welfare indicator for household
$\alpha$ = Constant term
S = Variables representing social capital
$\beta$ = Coefficient of variable S
H = Variables representing human capital
$\theta$ = Coefficient of variable H
O = Variables representing other characteristics
$\rho$ = Coefficient of variable O
$\upsilon$ = Error term.

As for welfare indicators, the three variables are specified as follows.
Productivity: Actual rice yield in a year (double crop-

ping)
Income level: Annual household income per capita
Health status: Self-rated health status of household head, perception on their health (1 = Normal, 2 = Healthy, 3 = Very healthy)

### (3) Construction of social capital variables

We measured the levels of various kind of social capital as follows.

Structural social capital:
Family members' attendance in community activities (Frequency in last one year; 0 = 0, 1 = 1-10 times, 2 = 11-20, 3 = 21-30, 4 = 31-40, 5 = 41 and more)
Involvement in the below organizations (Membership status; 0 = Non member, 1 = Ordinary member, 2 = Committee member, 3 = Head, secretary or treasurer).
- PPK (*Persatuan Peladang Kawasan,* Area Farmers Organization)
- JKKK (*Jawatankuasa Keselamatan dan Kemajuan Kampung*, Village Development and Security Committee)
- Political party
- PTA (Parent Teacher Association)
- *Khariat Kematian* (Funeral fund group)
- *Surau* (Mini mosque management)

Cognitive social capital:
Trust in neighbors, "Generally I consider everybody in my neighborhood as trustworthy." (0 = Do not agree, 1 = Agree)
Importance of the above listed organizations (1 = Not important, 2 = Important, 3 = Very important).

Membership status and respondents' valuations are shown in Table 1. A majority, nearly 80%, of the respondents are members of JKKK, though their valuations are divided. Regarding other organizations, around half of the respondents belong to listed organizations with various valuations.

The functions of involvement in the above organizations could not be determined a priori. To extract common factors behind the membership status and subjective valuations, factor analysis was conducted. Tables 2-1 and 2-2 present the results of the analysis regarding membership status and subjective importance. Regarding membership status, three factors are extracted. The first factor, with high loadings of JKKK, Political party, Funeral fund group, and *Surau*, is interpreted as involvement in traditional organizations, thus named as "traditional organization involvement". The second factor with high loading of PPK is named as "agricultural organization involvement". In the same way, the third factor on which PTA has high loading is named as "educational organization involvement" (Table 2-1), while as for the importance of organization, only one factor is extracted (Table 2-2). This fac-

**Table 1. Membership status and subjective valuation on organizations**

| Name of organization | Membership* | | | | Valuation** | | |
|---|---|---|---|---|---|---|---|
| | 0 | 1 | 2 | 3 | 1 | 2 | 3 |
| | --- Number of respondents --- | | | | | | |
| PPK (Area Farmers Organization) | 29 | 27 | 0 | 3 | 22 | 11 | 26 |
| JKKK (Village Development and Security Committee) | 45 | 4 | 8 | 2 | 28 | 5 | 26 |
| Political party | 28 | 16 | 9 | 6 | 23 | 10 | 26 |
| PTA | 29 | 23 | 5 | 2 | 11 | 22 | 26 |
| Funeral fund group | 24 | 24 | 7 | 4 | 13 | 23 | 23 |
| *Surau* (Mini mosque management) | 34 | 2 | 18 | 5 | 23 | 11 | 25 |

\*: 0 = Non member, 1 = Ordinary member, 2 = Committee member, 3 = Head, secretary or treasurer.
\*\*: 1 = Not important, 2 = Important, 3 = Very important.

**Table 2-1. Results of factor analysis, membership status**

| | Factor 1 | Factor 2 | Factor 3 | Communalities |
|---|---|---|---|---|
| JKKK | **0.845** | 0.134 | 0.058 | 0.736 |
| Political party | **0.777** | 0.326 | 0.211 | 0.754 |
| Funeral fund group | **0.714** | –0.128 | –0.044 | 0.529 |
| *Surau* | **0.553** | 0.356 | –0.175 | 0.463 |
| PPK | 0.095 | **0.946** | 0.049 | 0.906 |
| PTA | 0.026 | 0.027 | **0.973** | 0.948 |
| Sum of squared loadings | 2.144 | 1.163 | 1.030 | |
| % of variance | 35.7 | 19.4 | 17.2 | |
| Cumulative % | 35.7 | 55.1 | 72.3 | |

Kaiser-Meyer-Olkin measure of sampling adequacy: 0.648.
Extraction method: Principal components extraction.
Rotation method: Varimax with Kaiser normalization.

**Table 2-2. Results of factor analysis, importance of organization.**

| | Factor 1 | Communalities |
|---|---|---|
| JKKK | 0.907 | 0.823 |
| PPK | 0.866 | 0.750 |
| Political party | 0.859 | 0.738 |
| *Surau* | 0.845 | 0.714 |
| PTA | 0.845 | 0.713 |
| Funeral fund group | 0.691 | 0.478 |
| Sum of squared loadings | 4.216 | |
| % of variance | 70.3 | |

Kaiser-Meyer-Olkin measure of sampling adequacy: 0.854.
Extraction method: Principal components extraction.

tor, representing a tendency of evaluating the significance of organizations in general, is named as "group norm".

Based on the results of factor analyses, the social capital variables for "traditional organization involvement" and "group norm" are constructed as follows. Traditional organization involvement: Membership scores (0 to 3) of JKKK, Political party, Funeral fund group, and Sura, are summed up then normalized with values of 0 to 1. Group norm: Valuation scores of all organizations (1 to 3) are summed up then normalized with values of 0 to 1.

## Results and discussion

Descriptive statistics of the variables are presented in Table 3. Age of the household heads ranged from 30 to 70 with an average of 47 years old. As for education, the majority had an elementary (6 years) and lower sec-

**Table 3. Descriptive statistics of variables**

| Variable | Min. | Max. | Average | Standard deviation |
|---|---|---|---|---|
| Age of household head (years) | 29 | 67 | 47.20 | 10.42 |
| Educational level of household head (years) | 0 | 16 | 7.78 | 2.96 |
| Family size | 2 | 11 | 5.05 | 2.30 |
| Operational rice field (ha) | 0.61 | 10.25 | 3.51 | 1.97 |
| Lease ratio of operational rice field | 0 | 1 | 0.70 | 0.36 |
| Rice production cost (MYR[1]/ha) | | | | |
|     Current input | 116 | 1,490 | 912.05 | 232.93 |
|     Machine service | 120 | 1,753 | 1,060.91 | 223.99 |
|     Hired labor | 196 | 3,080 | 1,675.71 | 709.25 |
| Rice yield (t/ha/year)[2] | 8.17 | 16.67 | 12.46 | 2.01 |
| Annual household income per capita (MYR) | 1,080 | 27,054 | 6,698.61 | 5,858.65 |
| Rice income ratio (%) | 23 | 100 | 75.07 | 22.22 |
| Self-rated health status[3] | 1 | 3 | 2.19 | 0.88 |
| Structural social capital | | | | |
|     Traditional org. (normalized) | 0 | 1 | 0.26 | 0.25 |
|     Agricultural org. (normalized) | 0 | 1 | 0.20 | 0.25 |
|     Educational org. (normalized) | 0 | 1 | 0.22 | 0.26 |
|     Community activity attendance | 0 | 5 | 1.25 | 1.36 |
| Cognitive social capital | | | | |
|     Group norm (normalized) | 0 | 1 | 0.55 | 0.37 |
|     Trust in neighbors (dummy) | 0 | 1 | 0.14 | 0.35 |

[1]: 1 MYR = 0.28 USD (November 2008).

[2]: Double cropping.

[3]: 1 = Normal, 2 = Healthy, 3 = Very healthy.

ondary level (9 years) education. Only one respondent had attended no formal education, while two had college education. Basically, the household type is nuclear family with average size of 5 members. The average operational rice field of 3.5 ha is larger than that in the area. A high ratio of farmland lease (70% of operational area) suggests the tendency of scale expansion through tenancy. All the farmers practice rice double-cropping, achieving an average yield of 12 t/ha/year, with a wide range from 8 to 16 t/ha. Rice farming is the main income source from which 75% of total household income is derived.

Results of the regression analyses are summarized in Table 4. As for agricultural productivity measured by rice yield, higher expenditure for machine service and frequency of attending community activities contribute to higher yield. Machine use may reflect the level of rice cultivation technology. Structural social capital, measured by household members' community activities, significantly affects rice yield positively. It appears that farmers who actively participate in collective activities also perform better farming. Unexpectedly, an involvement in agricul-

tural organization (PPK) has no significant impact on rice productivity. These findings call for further investigation, as the role of PPK was originally to facilitate productivity improvements, strongly guided by the government. Thanks to government longstanding rice policies, the basic rice production technologies have been well diffused among farmers. The PPK continues to provide routine stereotype services such as delivery of input materials and transportation of harvested rice. Considering this situation, small scale part-time farmers, who have little incentive to increase productivity as their farm income is negligible, have good incentive to join PPK to save transaction costs in purchasing input materials and marketing their harvest. In contrast, more productive full-time farmers may tend to transact directly with merchants for procurement of production materials in bulk at a discount and seek more favorable rice markets. Those progressive farmers may hardly find any merits to join and to hold official positions in PPK.

As expected, annual household income per capita is largely affected by rice farming. Large farm size with less

**Table 4.  Estimation results of welfare determinants in sample households, Kuala Selangor, Malaysia, 2003**

| Dependent variable / Explanatory variable | Rice yield[a] | Ln Annual income per capita[b] | Health Status[c] |
|---|---|---|---|
| Constant | 5.657 (1.556) | 5.887 (4.560)*** | 2.549 (1.898)* |
| Human capital | | | |
| Age of household head (years) | 0.007 (0.161) | −0.006 (−0.528) | −0.046 (−3.225)*** |
| Educational level of household head (years) | 0.091 (0.665) | 0.005 (0.118) | 0.079 (1.734)* |
| Family size | | −0.168 (−5.407)*** | |
| Family labor (Family size/operational rice field) | 0.013 (0.076) | | |
| Physical capital | | | |
| Operational rice field (ha) | 0.171 (0.809) | 0.233 (6.818)*** | |
| Lease ratio of operational rice Field | 0.976 (1.258) | −0.547 (−2.421)** | |
| Structural social capital | | | |
| Traditional org. (normalized) | −0.592 (−0.514) | −0.341 (−1.001) | 0.051 (0.127) |
| Agricultural org. (normalized) | −1.418 (−1.151) | 0.014 (0.108) | −0.113 (−0.254) |
| Educational org. (normalized) | −0.963 (−0.808) | 0.091 (0.724) | −0.730 (−1.997)* |
| Community activity attendance | 0.353 (1.693)* | −0.039 (−0640) | −0.018 (−0.246) |
| Cognitive social capital | | | |
| Group norm (normalized) | −0.454 (−0.538) | 0.404 (1.863)* | 0.518 (1.713)* |
| Trust in neighbors (dummy) | 0.231 (0.240) | −0.162 (−0.502) | 0.340 (1.127) |
| Rice production cost ($10^3$MYR/ha) | | | |
| Current input | 0.844 (0.670) | | |
| Machine service | 4.220 (3.152)*** | | |
| Hired labor | −0.218 (−0.432) | | |
| Rice yield (t/ha/year) | | 0.245 (2.222)** | |
| Ln Annual household income per capita (MYR) | | | 0.127 (0.813) |
| Number of observations | 59 | 59 | 59 |
| Adjusted $R^2$ | 0.198 | 0.783 | 0.452 |
| F-statistics | 2.025** | 13.748*** | 6.325*** |

Source: Authors.

[a]: OLS is used for the estimation; t-statistics are in parentheses.

[b]: 2SLS is used for the estimation.  "Rice yield" as predictive variable, "Current input" and "Machine service" as instrumental variables; t-statistics are in parentheses.

[c]: 2SLS is used for the estimation. "Ln Annual household income per capita" as predictive variable, "Rice yield", "Operational rice field" and "Family labor" as instrumental variables; t-statistics are in parentheses.

***, ** and *: 1%, 5% and 10% levels of significance, respectively.

lease ratio and higher productivity lead to higher income. While the larger the family size, the smaller the per capita income.  Among social capital variables, the sense of importance on organizations positively influences income.

In the case of self-rated health status, aged respondents feel themselves less healthy.  Well educated respondents, taking care of their health, tend to keep health conditions better.  While the structural social capital, measured by involvement in PTA, negatively influences health status.  Interpretation of this finding is a remaining issue, though not a major topic of this study.  On the other hand, respondents with a higher level of the cognitive social capital, measured by the sense of importance on organizations, tend to be healthy.

## Policy implications

Effects of social capital are summarized in Table 5.  In general, social capital shows positive impacts, except structural social capital affects negatively on health.  It should be noted that interpretation of social capital is highly contextual in terms of the socio-economic, political,

**Table 5. Social capital and farmer welfare**

|                          | Productivity | Income   | Health   |
|--------------------------|:------------:|:--------:|:--------:|
| Structural social capital | Positive     | NS       | Negative |
| Cognitive social capital  | NS           | Positive | Positive |

NS: Not Significant.
Source: Compiled from Table 4.

cultural, and historical settings. No significant impacts of traditional and agricultural organization involvement in this study present a good example. The Malaysian rice sector has been highly politicized as the dominant farm policy agenda shifted from a food problem to agricultural adjustment in the course of rapid economic growth[4]. The role of traditional and farmers' organizations transformed as well. After the infrastructural development was mostly completed and therefore mechanized labor saving production technology was well diffused, PPK began to function mainly as a distributional channel of government subsidies to rice farmers.

The finding of structural social capital (family members' community activities attendance) has positive effect on productivity suggests that to further improve farming performance, more spontaneous and horizontal farmer-to-farmer connections became increasingly important. At the same time, to alleviate poverty, cognitive social capital (group norm) which is expected to strengthen work ethic appears important.

However, the inconsistent impact of social capital on health is to be further investigated.

## Acknowledgments

## References

1. Ali, A. K. & Mansur, A. E. (2006) Social capital and rural community development in Malaysia. *In* Potential of social capital for community development, eds. Yokoyama, S. et al., Asian Productivity Organization (APO).
2. Badawi, A. A. (2006) The prime minister's speech at the tabling of the motion on the ninth Malaysia plan, 2006–2010.
   http://www.pmo.gov.my/RancanganWeb/Rancangan1.nsf/ucapanPMEng?openForm
3. Isham, J., Kelly, T. & Ramaswamy, S. eds. (2002) Social capital and economic development, Well-being in developing countries. Edward Elgar Pub., pp.234.
4. Ishida, A. (2001) Political economy of Malaysian agriculture. Nihon Keizai Hyoronsha [In Japanese].
5. Ghazali, S. (2003) Kut (informal rotating credit) in the livelihood strategies of urban households in Penang, Malaysia. *Area*, **35**(2), 183–194.
6. Grootaert, C. & Bastelaer, T. eds. (2002a) The role of social capital in development: An empirical assessment. Cambridge Univ. Press, New York, pp.384.
7. Grootaert, C. & Bartelaer, T. eds. (2002b) Understanding and measuring social capital: A multidisciplinary tool for practitioners. World Bank, Washington DC, pp.278.
8. Grootaert, C. et al. (2004) Measuring social capital: An integrated questionnaire. *World Bank Working Paper*, No. 18, World Bank, Washington DC.
9. Uphoff, N. (2000) Understanding social capital: learning form the analysis and experience of participation. *In* Social capital: A multifaceted perspective, eds. Dasgupta, P. & Serageldin, I. World Bank, Washington DC.
10. Woolcock, M. (2001) The place of social capital in understanding social and economic outcomes. *Isuma Canadian J. Policy Res.*, **2** (1), 11–17.
11. World Bank (2008) World development indicators 2008. World Bank, Washington DC.