Awareness and Participation in Local Development Initiatives

Christophe Muller

Aix-Marseille University (Aix-Marseille School of Economics), CNRS & EHESS,
Centre de la Vieille Charité, 2, rue de la Charité, 13 002 Marseille, France.
Christophe.muller@univ-amu.fr.

and Marc Vothknecht

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ABSTRACT

To change

In this paper, we study how household information affects community activity participation in Indonesia. Our economic model has two stages. First, the individuals search for information about the existence of activities in the village where she lives. Second, she decides to participate or not, given the collected information.

Our panel data discrete choice model estimates exhibit the factors that determine individual knowledge of community organizations. The strong positive impact of the educational background points to individual ability necessary to gather information about existing initiatives. Moreover, higher awareness among the better-off suggests that the search for information is associated with costs, which may not be affordable for the poor. Also, individuals and households in specific situations or with particular needs are more likely to actively search for relevant community groups in their environment. While some evidence for knowledge diffusion via the media is found, knowledge of other citizens and hence local networks appear to shape the distribution of information decisively. Finally, different attitudes across regions and socio-economic conditions at village level have a significant impact on citizen awareness.

Inc summary of participation effects

1. INTRODUCTION

Civic engagement is today seen as a vital force in fostering economic and social development. Following Putman et al.'s (1993) seminal work on the impact of a strong citizenry on institutional performance, further empirical evidence has confirmed the positive link between social capital and socio-economic outcomes (Knack and Keefer, 1997; Narayan and Pritchett, 1999). Civic networks, mutual trust, and norms of reciprocity are thereby particularly important to bottom-up, participatory development approaches. Local initiatives provide a viable alternative to overcome shortages in the state provision of public goods and services, and networks of mutual assistance allow for productive investments and the mitigation of income shocks in the absence of formal credit and insurance markets.

In this light, the World Bank (2004) has called for a greater involvement of local stakeholders in the delivery of basic services, such as education, health, or sanitary infrastructure. The actual differences in the provision of these services across and within countries are thereby striking.[1] Substantial variations remain even when accounting for overall macroeconomic conditions and the impact of national policies or related top-down interventions by donors and NGOs. As to Indonesia, Lanjouw et al.'s (2002) analysis of regional trends in poverty, education, and health reveals disparities in the supply of public services across the archipelago.

Ultimately, the success or failure of local cooperation comes down to individual commitment. Under rational choice theory, citizens engage in an activity only when they expect a positive difference of individual benefits to costs. The neglect of positive spillovers to other members of the community would then result in provision rates below the social optimum.

People embedded in networks are thereby more likely to contribute to and benefit from public

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[1] See Banerjee, Iyer and Somanathan (2008), Table 1.

goods, with societal involvement as a source of awareness of the availability and characteristics of the good (Apinunmahakul and Devlin, 2008). Information on activities' and members' characteristics may shape the individual willingness to get involved. Experimental studies have shown that the introduction of 'small talk' communication prior to the game results in substantially higher contributions as compared to the no-communication case **not very relevant** (Cason and Khan, 1999). Betrand, Luttmer and Mullainathan (2000) analyze the role of social links – as measured by the share of neighbors speaking the same language – for welfare participation in the US. Their results reveal a strong impact of available information from local language networks on individual welfare use. We shall follow such hint and examine the role of information on participation in this paper.

When the choice set perceived by an individual are not congruent with actually available opportunities, incomplete information on existing community activities may lead to inefficient participation decisions. Theoretical work on the distribution of information within social systems, however, is mostly related to (financial) market interactions and the evolution of beliefs.[2] Calvó-Armengol and de Martí (2009) model the diffusion of knowledge in finite networks with a focus on efficient communication structures from an organization's point of view. To our knowledge, little is known on the learning process of individual agents about choice availability within networks. Likewise, empirical evidence on the knowledge dissemination about civic organizations and its impact on individual participation seem to be absent, particularly in the context of local development initiatives.

This paper aims at filling this gap. We analyze the awareness of and individual participation in communal organizations in Indonesia, using data from the Indonesian Family Life Survey

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[2] For example, Samuelson (2004) provides an overview of the game-theoretic modeling of knowledge in market situations, with a focus on the role of 'common' knowledge. On a closer line, Angeletos and Pavan (2007) analyze the impact of public information diffusion and find the effects on welfare to be ambiguous and dependent, first, on the economic environment and the precision of both public, and, second, on private information.

(IFLS). While other scholars have mainly focused on the individual decision to participate,[3] our attention is drawn to the process of acquiring knowledge as a prerequisite to participation. In particular, we want to identify the drivers behind individual awareness of community activities and shed some light on the link between knowledge and actual participation.

We assume that the acquisition of knowledge is associated with costs, i.e. time and probably money spent on information collection, and that potential benefits from participation at the same time provide incentives to gather information about community activities. Heterogeneous preferences and endowments of individuals and households then should partly determine both knowledge acquisition and participation decision. Two broad channels of knowledge diffusion can be distinguished: citizen might learn about existing activities in a 'passive' way, driven by the overall visibility of an activity and interactions with the social environment, and they might actively search for information on community groups.

The IFLS module on citizen participation allows us to disentangle these effects of external information diffusion and individual search efforts. In line with the literature, we avail of data on a range of economic, social, and demographic factors to explain individual awareness of and participation in community groups. We further show that knowledge is actively searched for by those individuals who are particularly prone to participation**IIT**. Different search efforts across population groups generate information asymmetries, which result in systematically lower participation among those individuals with less comprehensive information.

The paper is structured as follows. The next section lays out our theoretical model. We then present the data, outline the characteristics of the community organizations under

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[3] Beard (2007, 2005) give a valuable overview of the Indonesian context and analyze the determinants of both individual and household contributions. Okten and Osili (2004) investigate the impact of ethnic heterogeneity and government transfers on the prevalence of community organizations and citizen contributions. Muller and Vothknecht (2011).

consideration, and provide some descriptive statistics in Section 3. This is followed by a discussion of the estimation strategy in Section 4 and the report of the estimation results in Section 5. In Section 6, we conclude with a discussion of potential policy implications of our findings.

2. THE MODEL

Just to include a simple description of two benefit maximization stages, with discussion of the correlation of error terms and individual effects, and some motivation for information search cost

3. THE DATA

Indonesia and the Indonesian Family Life Survey

We use data from Indonesia to test the implications of our model empirically. The country has undergone a period of major political, economic, and social transitions following the fall of the New Order regime in the wake of the Asian financial crisis in 1998. A decade later, the fourth most populous nation in the world is considered a stable democracy with promising economic prospects (World Bank, 2009). An important aspect of the *Reformasi* process has been the radical shift of administrative and fiscal power from a strong, centralized state to lower levels of government. Intended to strengthen responsibility and accountability of local authorities, the new legislation emphasizes a bottom-up approach to development planning and service delivery.

As a result, active participation of citizens in community groups and local-level decision-making has been fostered by the government. While the decentralization laws were implemented in 2001, mutual cooperation at village level had already enjoyed a long tradition in Indonesia (Bowen, 1986). The Suharto regime has relied on such traditional ethic ("*gotong royong*") to implement development strategies based on collective behavior and reciprocity through local community organizations.

To study the determinants of citizen involvement in these organizations in Indonesia, we use the IFLS, a large-scale, longitudinal household and community survey first conducted in 1993 and representative of about 83 percent of the Indonesian population (Strauss et al., 2009).

We use the second (IFLS2), the third (ILFS3), and the fourth (IFLS4) waves, fielded in 1997, 2000, 2007/08, respectively, which allows for the analysis of different stages of the Indonesian development process. The sample comprises a total of 30,481 adult respondents from 9,617 households, of which 10,580 individuals are observed in all three IFLS rounds and 7,901 individuals in two out of the three waves. The community survey additionally provides detailed information on the characteristics of the 312 communities[4] included in the IFLS. The survey includes all provinces on Java, the provinces of North, West, and South Sumatra, and Lampung on Sumatra, the islands of Bali and Nusa Tenggara Barat, as well South Sulawesi and South Kalimantan.

Table 1 summarizes the explanatory variables used throughout the paper. Indonesia has a relatively young population, as reflected by a mean age of adult respondents of 38 years, and is characterized by a large diversity in education, employment and incomes. For example, 54 percent of the respondents, report either no or primary education, while 6 percent have obtained higher education. The likewise remarkable variations in income and consumption

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[4] An IFLS community/village corresponds to an enumeration area (EA) that was randomly chosen from the nationally representative sample frame used in the 1993 SUSENAS survey. Each EA includes between 200 and 300 households (Strauss et al., 2009).

variables can, in part, be explained by a sizeable heterogeneity across regions in Indonesia. Indicators of within-village asset and consumption inequalities, however, also indicate substantial local disparities.

Community Participation in the IFLS

The IFLS includes a module on citizen participation with information on individual knowledge of and participation in nine different community-level activities. Some of these activities are open to both sexes: community meetings, cooperatives, voluntary labor programs, and neighborhood infrastructure enhancement. Meanwhile, local security groups, and groups providing systems for drinking water and garbage disposal are considered to be 'male' activities and address only male respondents. Finally, the women's association (*Pendidikan Kesejahteraan Keluarga*, PKK) and the mother and child health post (*Posyandu*), aim at female citizens. Table 2 provides background information on the activities (2nd column) and summarizes potential incentives for participation (3rd column).

The activities can be broadly grouped into four mutually non-exclusive categories. The first category refers to local governance organizations: community meetings are hold at different local levels, from the sub-district to the area (RW) and neighborhood (RT) units. Led by an elected local resident, regular meetings at the RW and RT level provide the platform to discuss issues relevant to the community and to decide on strategies for action. The women's association is a related activity insofar as the wife of the RT/RW leader automatically becomes the head of the PKK. While also concerned with local level planning, the focus of the PKK is more on the organization of public services which are provided by and for families of the neighborhood, such as informal education or health counseling.

The PKK, therefore, also belongs to the second category of social and health services, which

is complemented by the mother and child health post: the *Posyandu* provides primary health care for young children, including monthly check-ups, vaccination and nutritional supplements, and educates mothers in health and parenting topics. These health facilities are often run by PKK volunteers, who receive training from professional health personnel. In return for the service, participating mothers can be expected to make administrative or financial contributions, which would still be below the costs of private treatment.

A couple of the included community activities in the IFLS refers to the provision of public infrastructure. Among the programs to improve the village/neighborhood, the *Kampung Improvement Program* (KIP) started as a slum-upgrading project in Jakarta and Surabaya in 1968, and has subsequently been expanded to the national level with the support of international agencies. Building on close involvement of the community in the planning and implementation process, the program mainly aims at investments in physical infrastructure, such as public facilities, roads, drains, and water supply. While the focus of KIP is on urban agglomerations, the *Kecamatan Development Program* (KDP), initiated in 1998, follows a similar pattern for poor rural communities. The provision of systems for drinking water and garbage disposal, two of the 'male activities' asked for in the IFLS, can hence be seen as a subset of the neighborhood improvement programs.

The so-called voluntary labor activities include aspects of both environmental development and social services. The main purpose of the "Clean Friday Movement" is to make a common effort in cleaning up the village's public facilities and roads on a regular basis. Moreover, campaigns focusing on the construction of public latrines and the provision of hygienic education are intended to further rise the awareness of cleanliness and sanitary conditions. Also subsumed under voluntary labor, but less related is the annual "*bersih desa*" (village purification) ceremony, which describes the village's thanksgiving festival usually hold after the first harvest.

Two activities remain to be discussed: neighborhood security organization and cooperatives. *Ronda*, neighborhood watches, are informal security systems organized at the RT or RW level. Supplementing the police, members of the community carry out voluntary patrols at night to enhance the safety within the community. This service contributes to the public good of security, but at the same time implies elements of mutual insurance, given the relatively small number of households clustered at RT level. Cooperatives, finally, which potentially comprise distinct types of cooperation as not further specified in the questionnaire, may represent the only risk-sharing activity in a more narrow sense.[5]

The respondents' statements on received benefits and incurred costs (last two columns of Table 2) provide another perspective on this activity nomenclature: 37 percent of the participants in cooperatives have received cash, while participants in all other activities do not report financial benefits. Health services play an overall important role and, as expected, are particularly associated with PKK and *Posyandu*. Involvement in local governance and neighborhood improvement projects seems mainly driven by the search for information**why?** and, less strong, cohesion **why?**. The average monetary costs of participation are rather comparable across activities. More substantial differences are found for mean time contributions, which are by far the highest for activities related to the provision of water and disposal systems.

Table 3 displays the prevalence of organizations at village level and the corresponding distributions of individual knowledge and participation across the sample. Information on activity prevalence is gathered from two sources: interviews with the village heads from the IFLS Community-Facility Survey, [6] and reports on prevalence and participation from

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[5] The IFLS additionally provides information on participation in the *Arisan*, a traditional rotating savings group. We cannot use the information on *Arisan* for the purpose of this study, however, as no information on the awareness of non-participants is available.

[6] Additionally, the interview with the head of the women's group provides information on the existence of

individual respondents. This approach has yielded some inconsistencies between the information provided by the village head and the citizens (see Table A1 in the Appendix for details), with the village head apparently being not always aware of, probably, very local activities in his village. We therefore assume activity prevalence when either the village head states the prevalence or when at least one interviewed village member reports participation. The resulting figures confirm the almost universal prevalence of most organizations, with the exception of cooperatives (present in 72 percent of the villages) and the water and disposal groups (present in two fifth of the villages).

Conditional on prevalence at village level, individual knowledge and participation rates differ substantially across activities. 83 percent of the female respondents in the sample are aware of the *Posyandu* institutions in their area, while the majority of individuals know about community meetings, the PKK and voluntary labor activities. Awareness levels around 40 percent are found for security groups and the neighborhood improvement activities, while less than 25 percent of the respondents are informed about the prevalence of cooperatives and projects to provide water and garbage disposal systems.

This results in accordingly low overall participation rates for the latter. Among those who know about activity prevalence, however, relatively high participation rates around 50 percent are found for all activities related to infrastructure development (voluntary labor, neighborhood improvement, water, and disposal groups). As high as 60 percent of the informed respondents contribute to the security organization in their neighborhood. Community meetings are attended by 22 percent of the whole sample, with around two thirds of those aware of the meeting *not* getting involved. For probably quite distinct reasons, low participation rates conditional on knowledge are also reported for cooperatives, the PKK, and the *Posyandu*. Before turning to the regression analyses of the underlying patterns, we have

cooperatives.

now a closer look at the variations in individual awareness and participation over time.

Variations in Individual Knowledge and Participation over Time

Table 4 presents knowledge transition rates, i.e., a) the probability that individuals initially not aware of a certain activity report knowledge in the next survey round, and, b) the probability that formerly informed individuals are no longer aware subsequently. The first three columns show the initial distribution of knowledge and participation across the sample. We group observations from 1997 and 2000, and distinguish: (1) respondents without knowledge on activity prevalence, (2) respondents that are aware of the activity, while they do not participate, and (3) actual participants. The displayed absolute numbers reflect the awareness and participation shares presented in Table 3.

Panel A of Table 4 describes the evolution of awareness of the activities prevalent in the subsequent survey round for the three sub-groups, conditional on activity prevalence at village level in both waves. A substantial share of individuals initially not aware of existing activities acquires knowledge over time. This is especially true for the most prevalent activities, such as the *Posyandu* (72 percent of the initially non-informed report awareness), local governance (around 50 percent), and voluntary labor groups (43 percent). Knowledge on less omnipresent activities, such as cooperatives or water and disposal groups, spreads apparently less easily.

This trend is confirmed by the knowledge depreciation rates reported in the last two columns of Panel A: between 65 and 75 percent of the formerly informed respondents are no longer aware whether neighborhood security, water and disposal groups are still prevalent in the next round. The according figures for cooperatives and neighborhood improvement activities are as well substantial with knowledge depreciation rates around 50 percent. A different picture emerges for the local governance activities and the *Posyandu*: Rates of decreasing knowledge

are low, especially among past participants (last column). Former participation is in general associated with a slightly higher persistence of knowledge over time. The depreciation of knowledge especially for the 'male' activities, however, remains remarkably high also among those that have been involved in the past.

There are several potential explanations for such awareness depletion. For instance, some of the infrastructure projects might be conducted on a small scale, and neighborhood watches organized at the RT level are probably unknown in other neighborhoods. Apart from this, the figures seem to imply that, in particular for those activities which deliver a common good or service, temporary individual engagement. Then, there is no guarantee that such group is sustainable. After all, they are largely dependent on good will, voluntary work and voluntary financial contributions that may cease at any time. Fluctuation in participation is substantial over time (Panel B). Community meetings and PKK are the only activities where about half of the former participants is still involved in the next period (last column). Infrastructure development groups report drop out rates of up to 86 percent, and rates well above 60 percent also for cooperatives and the *Posyandu* confirm the impression of selective individual participation.

Finally, the first two columns of Panel B compare participation rates among former non-participants. We distinguish between individuals that have only recently acquired knowledge on activity prevalence and individuals that have always been aware of the activity. Participation rates for both groups are similar and below 25 percent for local governance groups, cooperatives, and the *Posyandu*. Substantial differences are found for the remaining activities: high participation shares for those respondents which have acquired 'new' knowledge are contrasted by a relatively low involvement among the always informed, while formerly non-participating individuals. The comparably high involvement of knowledge gainers suggests systematic search for certain activities by potential participants. In the next

section, we present our empirical strategy so as to better understand these variations in knowledge and participation across individuals and over time.

4. THE EMPIRICAL STRATEGY

The determinants of individual knowledge and participation are separately analyzed for each of the nine activities included in the survey.[7] We apply a two-step procedure. First, we examine knowledge acquisition, where the propensity of individual i to know about a certain activity k in community j and year t is given by:

$$\Pr_{ijtk}^{*} = X_{it}\beta + V_{jt}\gamma + R_{j}\delta + T_{t}\varphi + a_{i} + \varepsilon_{it}, \qquad (1)$$

where X_{it} is a vector of individual and household characteristics, V_{jt} a vector of village characteristics, R_{j} and T_{t} are respectively province and time dummies, a_{i} denotes an unobserved individual effect, ε_{it} is an idiosyncratic error term with mean zero, and $\beta, \gamma, \delta, \varphi$ are parameter vectors. While the individual knowledge propensity Pr^{*} is not observed, we can observed individual knowledge acquisition, which is denoted $K_{itk} = 1$ (Knowledge); 0 Otherwise (no knowledge). We assume that on average, there is knowledge if and only if the individual knowledge propensity a given threshold C_{ijk} independent of time:

$$K_{itk} = 1 \text{ if } \Pr_{ijtk}^{*} > C_{ijk}, \text{ 0 otherwise} \qquad (2)$$

A Random Effects (RE) logit model is specified for the estimation of (1)-(2). Thus, the panel structure of the data allows us to account for unobserved individual characteristics that may substantially affect individual awareness of activity prevalence. We forego estimating a conditional fixed-effect model, which would, reliant only on knowledge 'movers', not allow for the estimation of the effects of time-invariant regressors, of which many are of major

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[7] The analysis of potential linkages across activities would go beyond the scope of this paper and provides a potential avenue for future research.

interest.

Next, we investigate the role of knowledge for the individual participation decision. The data, however, only indicate the general awareness of activities for participants (and for all informed non-participants), but they are silent on the *extent* of such individual knowledge. We can therefore not directly assess how the degree of knowledge on activity characteristics would impact on individual decision to participate. Instead, we proxy the degree of individual knowledge using the fitted values from each above RE logit regression. Based on the estimated regression coefficients $\hat{\beta}, \hat{\gamma}, \hat{\delta}, \hat{\varphi}$, the knowledge propensities $\hat{\text{Pr}}_{ikt}^{*}$ are calculated from (1) and then logit-transformed in order to yield a predictor of knowledge probability, $\hat{p}_{itk}$, for each individual and activity. The unobserved centered individual effect a_i is thereby set to zero, which helps avoiding endogeneity issues for the subsequent inclusion of the knowledge probabilities in the participation regressions that we now discuss.**To check that their mean is zero**

We address the individual decision to participate, which depends on the expected net benefit from involvement[8]:

$$B_{ijtk}^{*} = X_{it}\beta + V_{jt}\gamma + R_{j}\delta + T_{t}\varphi + a_{i} + \hat{p}_{itk}\lambda + \varepsilon_{it}. \qquad (3)$$

The independent variables of the equation are similar to that in (1), with the exception of the added indicator of individual knowledge, $\hat{p}_{itk}$. Thus, Parameter λ captures the impact of individual knowledge on the perceived benefits from participation. While the expectations on net benefits are unobserved, we can observe the individual participation choices. Participation, which is denoted by a dummy variable, is assumed to take place if and only if expected net benefit is positive:

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[8] To save on notations, we use the same notations for parameters and variables than in (1), although they correspond to different parameters, and sometimes different variables.

$$P_{itk} = 1 \text{ if } B^*_{ijtk} > 0, 0 \text{ otherwise} \qquad (4)$$

A RE logit model is applied to (3)-(4) as well. That way, we take advantage of the panel structure of the data to control for the unobserved time-invariant characteristics of individuals, likely to affect participation decisions. The determinants of individual participation are estimated conditional on individual knowledge on activity prevalence. This approach may introduce a selection bias if the informed respondents much differ from the excluded individuals unaware. The restriction on individuals reporting knowledge, however, is informative in itself since only informed individuals can logically think seriously about participation. Moreover, it allows us to identify the effect of knowledge on individual participation. For robustness and comparison, we also employ alternative specifications to address the selectivity problem.

5. THE ESTIMATION RESULTS

5.1. The Determinants of Individual Knowledge

Table 5 reports the estimation results of RE logit regression estimates on individual knowledge, separately for each activity. Besides individual and household characteristics, we include province dummies and a range of village-level control variables inspired from the collective action literature. We do not introduce community fixed effects for two reasons: first, province dummies capture a substantial share of the heterogeneity within Indonesia and moreover allows to control for regional differences with respect to community participation. Second, we aim at exploiting the information available at village level to further understand the role of community characteristics for civic engagement. For robustness checks, we include dummy variables at community level in an alternative specification. The presented estimates are based on the whole sample in order to make use of the full information available. For

comparison, we alternatively restrict the sample to panel respondents interviewed in at least two out of three waves. The results from all robustness checks are discussed in a later section.

Dependent on activity prevalence at community level, the number of available observations substantially varies across activities, from almost 50,000 observations for those activities virtually omnipresent and open to both sexes, to around 7,000 male respondents on the less commonly observed garbage disposal groups. The average number of observations over time per individual ranges from 1.9 for local governance groups, voluntary work programs, and the *Posyandu* to 1.3 for garbage disposal groups. For all activities other than water groups, the intra-individual correlation over time, *rho,* is found to be highly significant. The estimates indicate that up to 21 percent of the total variation in knowledge can be attributed to unobserved individual heterogeneity, and hence support the introduction of random intercepts.

We find substantial variations in individual knowledge across age groups. Awareness propensities of neighborhood improvement programs, voluntary work groups, the *Posyandu,* security organizations, and cooperatives are steadily decreasing with age, with young adults being most likely to know about activity prevalence. Working age respondents are the better informed of local governance activities, while retirement age individuals are almost consistently least likely to report knowledge. Younger citizen hence seem to be either better integrated in local networks or more actively looking for certain activities.

With the exception of cooperatives, significant gender differences in favor of males appear for all activities open to both sexes. The largely positive effects estimated for married respondents, household heads, and their spouses seem to capture some aspects of seniority and related responsibilities. Old age of the household head thereby impacts positively on all household member's knowledge of voluntary work programs and PKK. Members of female headed households have a slightly higher propensity of knowledge of most activities (except for security organizations), and women living with young children are obviously most likely

to know about the *Posyandu*. Household size, in general, is associated with somewhat increasing individual knowledge, hence pointing to a certain diffusion of information within households or higher search capacity in large households.

Strong impacts on knowledge are found for individual education: the higher the educational attainment, the more likely is individual knowledge of: local governance groups, neighborhood improvement programs, cooperatives and *Posyandu*. Primary education seems sufficient to learn about voluntary labor groups, while higher educated citizen are less aware and probably not in the focus at least of the sanitary education initiatives. No significant impact of education is found for security organizations. Similarly, beside of some positive effects for the well-educated, knowledge of water groups is rather not influenced by education. To control for potential intra-household spillovers, we additionally include the highest educational attainment present in the household. Positive effects only for local governance support our previous impression of limited information exchange within households.

In line with expectations, working as a civil servant raises knowledge of community organizations significantly. This is consistent with civil servants being instructed to support these organizations within the framework of the government decentralization policy. Similarly**why?**, self-employed individuals appear to be more aware of most activities (except for cooperatives and 'male' activities) as compared to private workers and respondents not working. Certain professions hence seem to facilitate access to information, perhaps through contacts with involved colleagues or costumers. The need for particular services is likely to induce active search for the relevant activities. Households with farm production, for example, report overall higher knowledge and are better informed about activities related to water access as a mean to improve agricultural productivity. Likewise, households with income from non-farm businesses are more likely to know about cooperatives, a potential

facilitator of their business activities.

Almost no impact on knowledge is found for a high workload in terms of hours worked. Knowledge, however, do increase with rising individual incomes – at least for cooperatives, voluntary work and neighborhood improvement programs. Assuming that the acquisition of knowledge is associated with costs, wealthier agents are supposed and actually seem to be found to afford these costs more easily. The budget constraints faced by the poor would then inhibit their search for information.

Such a positive relationship between material prosperity and knowledge acquisition is confirmed by the estimates of the coefficients of variables describing the household's economic situation. Members of households in the last quartile of per adult-equivalent (pae) consumption expenditure are substantially less aware of all 'non-male' activities, while the highest per-adult-equivalent consumption expenditure households are better informed of water and disposal groups as compared to households below the 75th percentile.**is it consumption or assets in fact?** The estimated impact of the household's relative economic standing in the community[9] further confirms a generally higher awareness among the economically better-off. One potential connection channel between wealth and information is the access to media. In our sample, people owning a television know better about local governance, cooperatives and *Posyandu*. While also an indicator of wealth, television is likely to facilitate the diffusion of information especially on activities with national coverage, such as PKK and *Posyandu.*

Security organizations stand out in the sense that members of poor households are more likely than the non-poor to report knowledge on prevalence. Higher vulnerability of the poor might induce higher exposure to or higher need for information on how to deal with severe security

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[9]   For this indicator, we rank all households of a community according to the value of household assets. The wealthiest household in the community is assigned a value of 1, while the value of the poorest household is equal to 1/(number of households) and therefore close to 0.

problems. We would generally expect that people in specific circumstances search for activities that are relevant to their situation. Recent exposure to natural disasters, for example, is found to increase overall knowledge of village-level organizations. In particular, the affected individuals are more aware of community meetings and neighborhood improvement initiatives, which are likely to provide information and assistance. Surprisingly at first sight, new community members are not significantly less informed about community activities than the old residents. The low persistence of awareness over time, however, suggests a recurring nature of the knowledge acquisition process. Above-average search efforts by new citizens would then allow them to compensate for an initial lack of local networks.

We now turn to the role of community characteristics. Voluntary work programs, security groups and the *Posyandu* are better known in rural areas, where these activities seem more likely to substitute to state or private institutions. A more pronounced knowledge of neighborhood improvement initiatives is found in poorer communities with probably higher needs for infrastructure development. Economic inequalities within the community barely affect knowledge diffusion. The estimated coefficient of the ethnic fractionalization index suggests lower overall knowledge in more diverse communities, pointing to communication barriers between ethnic groups within villages. However, the magnitude of this effect is dampened by the inclusion of province dummies, and turns out stronger if we do not control for overall regional heterogeneities (results not reported).**Unclear**

To measure the general attitude towards community activities in the village or neighborhood, we control for the village proportion of households that have at least one member reporting knowledge.[10] As expected, the knowledge present in the environment impacts strongly on one's own awareness. Information on activity prevalence is clearly shared among and through

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[10] To avoid obvious problems of endogeneity, we exclude the household's own knowledge status.**There is still a pb to solve as the share oalso come from the same DGP**

group members, with personal contacts as a major channel of knowledge diffusion. For those activities of which not all village heads are aware of, we also include the village's head knowledge of activity prevalence in order to capture the activity's visibility or scale. A positive link of head's knowledge to individual knowledge is indeed found for voluntary labor and security groups.

The inclusion of province dummies reveals substantial differences in knowledge across regions. Awareness of community activities tends to be highest on Java, first and foremost in the special province of Yogyakarta. The particularly strong tradition of reciprocal exchange and mutual help on the country's main island may drive this result. Comparably low rates of knowledge are found for South Sulawesi and the island of Sumatra, especially for the province of North Sumatra. Given that we control for a wide range of socio-economic factors, these regional differences may reflect cultural attitudes that impact on within-village communication. The disparities across provinces are thereby strongest for the most common activities, such as community meetings, the voluntary work initiatives, and the 'female activities'. Mostly negligible differences are found for the less pervasive activities, such as cooperatives and the water and disposal groups, this suggests that awareness of these activities is rather driven by observed individual, household, and community characteristics. Time dummies, finally, indicate overall increasing levels of knowledge over time. Voluntary labor, security, and disposal groups, however, are less well known in 2000 and 2007, as compared to 1997.

Summarizing, we find a range of factors that determine individual knowledge of community organizations. First, the strong positive impact of the educational background points to individual ability necessary to gather information about initiatives. Second, higher awareness among the better-off suggest that the search for information is associated with costs, which are often not affordable for the poor. Third, individuals and households in specific situations

or with particular needs are likely to actively search for relevant community groups in their environment. Fourth, while some evidence for knowledge diffusion via the media is found, knowledge of other citizens and hence local networks appear to shape the distribution of information decisively. Fifth, different attitudes across regions and socio-economic conditions at village level have a significant impact on citizen awareness.

5.2.   *The Probability Indicator of Individual Knowledge*

Next, we investigate the role of knowledge for the individual decision to participate. For this, the degree of individual knowledge is proxied by the fitted knowledge probabilities from the knowledge regressions. To check the accuracy of the predictions, we compare the estimated knowledge probabilities with actually observed knowledge rates. Table 6 presents the prevalence of knowledge by province for each activity, and reports the relative deviations of the average predictions from these means. The figures confirm the substantial disparities in average knowledge across regions, as also indicated by the province dummies. More important at this stage, the calculated knowledge probabilities fit the actual outcomes reasonably well.**to chzeck if not imposed by the estimator** Except for cooperatives and disposal groups, the mean of the predicted knowledge propensies deviates only marginally from the mean of the observed knowledge rates. **What about standard errors?**

In Table 7, we distinguish the knowledge probabilities for the uninformed respondents, the informed non-participants, and the participants. The results reveal clear-cut differences between those individuals with and those without knowledge **which differences?**. Smaller, but still remarkable are the differences in the propensity to know between participants and informed non-participants. With the exception of water groups, the knowledge propensity of participants is on average significantly and substantially larger than the propensity of the

knowing, while non-participating individuals.

These results confirm our previous impression of an active individual search effort. Citizen who decide to participate in community activities seem to avail of more comprehensive knowledge than the non-involved. For comparison, the second and third panel of Table 7 display average educational levels and the average prevalence of knowledge in the village for the same three sub-groups. While trends are in general similar, the knowledge propensity variable appears to be a much better predictor of participation than individual education and the existing knowledge around. Educational and network effects hence tend to influence citizen engagement through the individual proneness to get informed and involved.

5.3. Determinants of Individual Participation

Turning to the analysis of the determinants of participation, our motivation is twofold: first, we are interested in the driving forces behind participation in itself. **Most results here could be send to the general articles on the determinants of participation in Indonesia, so as to focus on the next motivation that is specific to this paper.** Second, we aim at understanding further the link between knowledge and participation. Table 7 presents the results from separate regressions for each activity. We use the same set of explanatory variables as for the knowledge regressions, and restrict the sample to those respondents which have reported knowledge.

RE logit regressions on participation are run for all activities. The model does not converge for security organizations, water and disposal groups, which points to random effect parameters non-significantly different from zero **to check why**. In this case, the conventional logit model delivers identical estimates and is used here. For the other activities, the estimated

coefficients of *rho* are significantly higher as found for the knowledge regressions, with unobserved individual effects accounting for up to 55 percent (PKK) of the total variation in participation **we need to explain what rho is**. Shares of 40 percent also for cooperatives and of around 25 percent for community meetings, voluntary labor groups, and *Posyandu* suggest that personality traits are more influential on the decision to participate than on the acquisition of knowledge.

Still, observable characteristics significantly contribute to individual involvement. Age effects are strong and differ from the knowledge results in the sense that working age individuals and especially the group aged 40 to 65 years are most likely to participate. One obvious exception is *Posyandu* with its focus on young mothers, while people above 65 years are still and particularly involved in local governance and cooperatives. Like the generally higher participation of males, married individuals, and heads of households, these age patterns seem to mirror the underlying social structure of the society and related role models. Low participation rates of the young, however, in line with a substantial overall decline in participation over time, might also point to less connectivity to social networks among younger generations.

The influence of education on participation is strong. Some differences stand out: individuals without primary education are consistently less prone to participation, in particular in security organizations. Being likely to impart necessary skills for participation, basic education seems to constitute a prerequisite to involvement. Individuals with above than primary education are less prone to participate in neighborhood improvement programs and security groups. Finally, involvement of higher educated individuals is concentrated in community meetings and cooperatives. This progression may indicate a signaling effect of education for access to certain groups. On the other side, well educated individuals might as well show a particular interest in the information and services provided by some of these activities. They may also

be particularly averse to manual work. Spillover effects of education within households, finally, are mainly found for the 'female activities': while female participation in the PKK increases with the presence of higher educated household members, the opposite effect is found for *Posyandu*. Mothers from these households appear less reliant on the rather fundamental services and information offered by health posts, perhaps because they can easily satisfy their needs by directly using household resources.

In parallel to its contribution to knowledge acquisition, the occupation has a significant impact on participation. Government workers show the highest propensity to participate for almost all activities. While this could be part of their professional duties, it might also stem from their network of local contacts. Self-employed respondents are particularly involved in community meetings and cooperatives, which seems related to benefits relevant to small business holders. Likewise, members from agricultural households have a generally higher propensity to participate in community groups. However, no significant impact of farming activities is found for participation in cooperatives. Especially in rural areas, community meetings might serve as an alternative forum to discuss agricultural issues.

Individual income has no significant influence on participation. Other better measured household characteristics seem to better represent the impact of available economic resources. Thus, wealthier households, both in terms of consumption and relative assets, participate more in local governance and cooperatives. A general negative impact is found for households below the 25th per-adult-equivalent consumption expenditure percentile. This overall lower involvement of the poor might reflect participation costs and entry barriers. Surprisingly, a high workload has a positive impact on contributions to voluntary work, neighborhood improvement, and security organizations. Work capacity seems therefore be favoring participation in physical activities. On the other hand, this suggest that possible time constraints in this sense are not important since they would be only found for participation in

Posyandu.

Former experience of a natural disaster leads to increasing citizen participation in most activities. The affected households are particularly engaged in community meetings and infrastructure projects, which likely reflects their needs for assistance. New community members tend to participate less, especially for voluntary work and neighborhood improvement. Recent migrants hence seem to either be less prone to participation in community activities or face obstacles to integration, with PKK as a positive counter-example.

Community meetings tend to be more frequented in rural areas, which could be related to greater cohesion among villagers and higher relevance of such meetings for rural livelihoods. Otherwise, urban-rural differences and population size effects are hardly present. The higher participation in *Posyandu* activities in smaller communities is probably related to a lack of other health care institutions in less densely population areas. In line with the underlying objectives of improving public infrastructure in underdeveloped areas, participation in voluntary labor and neighborhood improvement programs tends to be higher in poorer communities.

Local economic disparities, measured by the Gini index of within-village asset inequality, are found to increase participation in community meetings, voluntary work, and neighborhood improvement programs. As found by previous studies, wealthier citizens are less likely to contribute to these activities in more unequal communities. Moreover, wealth disparities apparently discourage participation in cooperatives, which seem to require rather equal conditions among its members.

Ethnic fractionalization at village level only affects participation in community meetings in a significantly negative way. Similar to knowledge diffusion, ethnic heterogeneity impact is

partly captured by the province fixed effects. Once the province dummies are excluded (results not reported), participation in all activities other than security groups is found to be substantially lower in more ethnically diverse communities. Ethnic heterogeneity hence seems to be one driver behind the highly significant estimated coefficients for the province dummies.

Highest participation rates are found for Yogyakarta. Participation in other parts of Java and particularly in the capital Jakarta, however, are relatively low as compared to the high levels of knowledge found for these regions. Given individual knowledge, respondents on Sumatra show a generally high propensity to participate in community groups. The low overall citizen participation in these regions hence seem to be rather related to the (non-)diffusion of knowledge on activity prevalence rather than to the citizen's (un-)willingness to participate. Remarkable as well is a trend to less participation in *Posyandu* off-Java.

Summarizing the results so far, motivations for individual participation appear quite diverse: first, the strong effects of age, gender, and the individual's position within the household point to societal role models that encourage or discourage participation in village life. Second, participation seems to require a minimum level of skills, while involvement becomes increasingly unattractive with higher educational attainment. Third, participation is obviously driven by specific individual needs – potentially related to occupation, family characteristics, or exceptional situations – that are addressed by different community activities. Fourth, poor households are less prone to participation despite the fact that some of the activities specifically address their needs. Local governance, in particular, is rather shaped by the more prosperous citizens. These elements suggest the presence of access barriers correlated with economic status. Fifth, the results confirm a generally negative impact of ethnic diversity on individual willingness to get involved in community activities, and wealthier individuals tend to drop out with rising economic heterogeneities.

This is the main interest and should occupy much more space We finally discuss the impact of individual knowledge propensity on participation. Strong and highly significant positive estimates for most activities confirm our descriptive findings. With the exception of water and garbage groups and the almost universally known *Posyandu*, individuals with a high propensity to know about activity prevalence are also more likely to participate. This implies that knowledge acquisition on community activities is not independent of actual participation. Knowledge, as a prerequisite to get involved, is rather actively searched for by those individuals also prone to participation.

5.4. *Results from Alternative Specifications*

The analysis is repeated with different sets of explanatory variables, samples, and estimation methods in order to assess the robustness of the results.[11] We begin with the introduction of community dummies in order to capture unobserved village characteristics. The resulting estimates are very close to those for the main specification, and therefore confirm that province dummies and the village-level controls accurately capture the heterogeneity across villages *[◄ based on "old results]???*. Excluding the province dummies yields more pronounced estimates for the socio-economic village characteristics, while the results at individual and household level remain largely the same.

The restriction of the sample to respondents included in at least two out of the three IFLS waves has almost no effect on the results. More influential on results is the introduction of the respondents' former knowledge of and former participation in the activity, which confines the sample to the last two waves. Former involvement determines both current knowledge and participation in a significant way and picks up the individual effect as well as some individual

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[11] While not reported for lack of space, all results are available from the authors upon request.

and household characteristics. However, the main findings hold, notably the strong relation between the individual propensity to knowledge and actual participation.

Finally, we address the potential selectivity bias in the participation model caused by the restriction of the sample to those individuals reporting knowledge. We first run 'Heckmann Probit' regressions on the pooled sample in order to assess the selection into knowledge. Knowledge is identified by the share of other households in the village that report awareness of activity prevalence, i.e. by the activity's visibility. Results are in line with previous specifications, with weak evidence for selection once we include the individual knowledge probability derived from the fitted values of the knowledge regressions. Additionally, we run the participation regressions on the whole sample, hence also including the non-informed individuals. Again, the main findings are confirmed.

6. CONCLUSION

Scholars and practitioners have increasingly advocated for bottom-up development approaches with an active involvement of the targeted citizens. Community groups and networks thereby make a particular difference in areas where such initiatives substitute for non-existent or non-functioning state and market institutions. In this paper, we attempt to understand how knowledge of community groups is spread among potential participants, an aspect that has attracted relatively little attention in the literature. Using household and community panel data from Indonesia, we find that citizen awareness of prevaling activities in their community is far from universal. These differences in the prevalence of knowledge can partly be explained by group characteristics and the village environment, with existing networks in the village as a major channel of information diffusion.

Here: to add something about the model

Our main findings, however, suggest that potential participants actively search for information on existing activities, and that better knowledge is associated with a higher probability of participation. Better educated and wealthier individuals are thereby particularly prone to the acquisition of knowledge, while the opposite is true for poor households and individuals without education. The resulting inequalities in the distribution of knowledge lead to low involvement of poor (target) citizen in social and health services, while local governance activities are particularly dominated by the better-off.

Different knowledge search efforts across population groups hence create information asymmetries, which result in systematically lower participation among those individuals with less comprehensive information. When citizen participation is hampered by an incomplete knowledge of the properties of community activities, an intensified provision of public information seems necessary to enhance the coverage of participatory development initiatives. Given the low inclination of the poor to acquire knowledge of existent groups, this particularly applies to activities which aim at the involvement of the most vulnerable community members.

TO ADD SOMETHING ON IMPACTS ON EFFICIENCY AND EQUITY

TO ADD SOMETHING ON INFO DISSEMINATION FOR DEVELOPMENT PROJECTS

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Table 1: Descriptive Statistics Explanatory Variables

Variable	n	Mean	Std. Dev.	Min	Max
Individual Characteristics					
Age	59250	38.0	16.7	14	111
Sex (1: men)	59250	0.468	0.499	0	1
No education	59250	0.121	0.326	0	1
Primary education	59250	0.420	0.494	0	1
Junior high school	59250	0.168	0.374	0	1
Senior high school	59250	0.227	0.419	0	1
Higher education	59250	0.064	0.245	0	1
Employment: private worker	59247	0.211	0.408	0	1
Employment: self-employed	59247	0.283	0.451	0	1
Employment: unpaid family worker	59247	0.106	0.307	0	1
Employment: government worker	59247	0.043	0.202	0	1
Hours normally worked per week	59250	29.2	27.5	0	112
Monthly income (in 1,000 Rp.,[a] 2000 Prices)	59241	238.5	771.1	0	79,730
Married	59250	0.655	0.475	0	1
Household head or spouse	59250	0.624	0.484	0	1
Dummy: Seriousness of the respondent <u>not</u> excellent or good	59247	0.177	0.382	0	1
Household Characteristics					
Age household head	17,012	47.4	14.7	15	111
Household consumption (adult equivalent, in 1,000 Rp., 2000 Prices)	16,488	273.9	969.0	3.1	76,066
Household asset value, relative rank in the community	17,012	0.521	0.289	0.02	1
Household with farm production	17,012	0.403	0.490	0	1
Female headed household	17,012	0.171	0.375	0	1
Number of household adults	17,012	3.94	2.32	1	37
Number of household children age 0-4	17,012	0.41	0.62	0	5
Number of household children age 5-9	17,012	0.46	0.66	0	4
Number of household children age 10-14	17,012	0.51	0.72	0	6
Highest HH education: No education	17,012	0.067	0.249	0	1
Highest HH education: Primary education	17,012	0.313	0.464	0	1
Highest HH education: Junior high school	17,012	0.188	0.391	0	1
Highest HH education: Senior high school	17,012	0.313	0.464	0	1
Highest HH education: Higher education	17,012	0.118	0.323	0	1
Experience of a shock (natural disaster)	17,012	0.217	0.412	0	1
Household has moved to this community in the last 2 years	17,012	0.090	0.286	0	1
Household owns a television	17,012	0.625	0.484	0	1
Community Characteristics & Province Dummies					
Rural	915	0.410	0.491	0	1
Total population	915	10,756	16,471	207	236,500
Average HH asset value in the village (in Mio. Rp.)	915	61.5	81.4	4.4	1,079.2
Within-village Gini index of asset inequality	913	0.541	0.122	0.171	0.885
Within-village Gini index of consumption inequality	913	0.384	0.125	0.102	0.878
Index of ethnic fractionalization [b]	896	0.235	0.238	0	0.820
Province dummy: Jakarta	915	0.109	0.312	0	1
Province dummy: Jawa Barat	915	0.160	0.366	0	1
Province dummy: Jawa Tengah	915	0.118	0.323	0	1
Province dummy: Jawa Timur	915	0.146	0.354	0	1
Province dummy: Yogyakarta	915	0.061	0.240	0	1
Province dummy: Bali	915	0.045	0.207	0	1
Province dummy: Nusa Tenggara Barat	915	0.052	0.223	0	1
Province dummy: Sulawesi Selatan	915	0.050	0.219	0	1
Province dummy: Kalimantan Selatan	915	0.040	0.197	0	1
Province dummy: Sumatera Utara	915	0.081	0.273	0	1
Province dummy: Sumatera Barat	915	0.046	0.209	0	1
Province dummy: Sumatera Selatan	915	0.045	0.207	0	1
Province dummy: Lampung	915	0.036	0.187	0	1

[a] Exchange rate in 2000: 1 US-$ ~ 3,000 IDR

[b] The index of ethnic fractionalization (EF) is based on the population shares $s_{i,\,i=1,2,3}$ of the three largest ethnic groups in the village:

$$EF = 1 - \sum_{i=1}^{3} s_i^2$$

Table 2: Overview of Community Organizations

Activity (Indonesian Term)	Background Information	Type of Activity and Incentives for Participation	Benefits Received[*] (Share of Participants)	Average Contributions of Time and Money[*][†]
Community Meeting Including Village Advisory Board activities *Pertemuan Masyarakat*	Community meetings are organized at various levels. The RT (*Rukun Tetangga*, neighborhood) is the lowest tier of governmental hierarchy and comprises about 20-50 households. The neighborhood association is supposed to manage various community matters, and usually also organizes the neighborhood watches.	Type: Local governance Incentives: Influence on local level decision making, information, cohesion	Health (28 %) Cohesion (18 %) Information (17 %),	Time: 25 h Money: 19 TRp.
Cooperatives Includes all types and levels of cooperatives *Kooperasi*	Cooperatives compass a wide range of potential organizations. In general, a cooperative is intended to pool resources and to share risks among a group of actors with similar economic or socials needs. This might include retailers' cooperatives, credit unions, or agricultural cooperatives, and is not specific to Indonesia.	Type: Risk sharing, club good Incentives: Insurance, borrowing, pooling of resources, access to markets, lower transaction costs	Money (37 %) Service (27 %) Health (15 %)	Time: 29 h Money: 31 TRp.
Voluntary Labor *Kerja Bakti Rutin* (*Jumat Bersih, Bersih desa*)	Two different activities are included: *Jumat Bersih* ("Clean Friday Movement") is intended to promote healthy living behavior with emphasis on personal, domestic and community hygiene starting on Thursday evenings. *Bersih desa* describes the yearly 'cleansing of the village', a communal thanksgiving ceremony.	Type: Public good – public cleanliness and public health Incentives: Clean environment, sanitary improvement, information	Environment (47 %) Infrastructure (29 %) Health (17 %)	Time: 37 h Money: 4 TRp.
Program to Improve the Village/Neighborhood Street improvement, public facilities *Program Perbaikan Kampung* (*KIP, MHT, Konblokisasi*)	The Kampung Improvement Program (KIP) mainly addresses the housing problems of low- and middle-income households. Typical activities include the building or renovation of school and health facilities, the improvement of the living space (lighting, footpaths), or the reduction of housing density. MHT is a part of the nation-wide KIP program.	Type: Public good – provision of infrastructure Incentives: Involvement in the planning, decision, and implementation process. Improvement of (own) housing conditions	Infrastructure (35 %) Information (30 %) Environment (18 %)	Time: 32 h Money: 13 TRp.
Neighborhood Security Organisation *Ronda/Siskamling*	*Ronda*, neighborhood watches, have a long tradition especially on Java. This non-paid community service is provided by volunteers and typically organized at the neighborhood or street level. *Siskamling* describes private security units whose guards might receive a small salary and also protect public or business facilities.	Type: Public good – security Incentives: Self-protection, cohesion/social contacts, reputation in the neighborhood	Environment (51 %) Infrastructure (19 %)	Time: 143 h Money: 4 TRp.
System for Drinking Water *Sistem mengelola air untuk minum*	Activities aimed at the improvement of the neighborhood infrastructure, such as the installation of a public pump system or the construction of public washing areas (MCK, referring to bath, wash, toilet).	Type: Public good – provision of infrastructure Incentives: Involvement in the planning, decision, and implementation process. (Privileged) access to water.	Infrastructure (40 %) Information (20 %) Environment (20 %)	Time: 736 h Money: 24 TRp.
System for Garbage Disposal *Sistem mengelola sampah padat*	Set-up and maintenance of a system for garbage disposal.	Type: Public good – provision of infrastructure and public health Incentives: Involvement in the planning, decision, and implementation process. Improvement of living conditions	Environment (52 %) Infrastructure (25 %) Service (8 %)	Time: 385 h Money: 14 TRp.
Women's association activities *Kegiatan PKK*	The Women's Family Welfare Organization (PKK) was first promoted by the New Order Regime in 1972 as a national organization. The PKK is organized at all administrative tiers, from the neighborhood to the national level, and mainly organizes health and education services.	Type: Local governance , social services Incentives: Influence on local level planning, cohesion, provision of services as a source of self-esteem	Health (33 %) Information (25 %) Cohesion (6 %)	Time: 30 h Money: 6 TRp.
Community Weighing Post *Posyandu*	The integrated community health post (*Posyandu*) is run by volunteers and provides preventative health care for young children. There are over 200,000 *Posyandu* spread out in urban and rural areas, in general supported by sub-district health centers and their trained staff.	Type: Health service. Incentives: Low-cost health service for young mothers	Health (44 %) Environment (28 %) Service (9 %)	Time: 19 h Money: 19 TRp.

[*] Based on IFLS 2 and IFLS3, no information available from IFLS4. [†] Time and Money spend in the last 12 months. Average contributions of participants.

Table 3: Prevalence of Activities and Individual Knowledge and Participation Rates

| Activity | Prevalence of Activities | | Individual Knowledge (%) | Individual Participation (%) | |
	Prevalence (%)	Obs.		Whole Sample	Among Knowing Ind.
Community Meeting	99.4	59,292	62.1	22.0	36.2
Cooperative	72.0	42,971	24.7	4.1	16.5
Voluntary Labor	98.9	59,187	53.0	26.8	52.2
Neighborhood Improvement	94.0	57,169	38.7	16.0	44.3
Neighborhood Security*	94.5	26,455	38.6	22.0	59.8
Water Systems*	40.3	11,888	18.0	8.4	49.1
Garbage Disposal*	38.9	9,135	20.1	7.8	52.8
Women's Group**	99.9	31,672	58.0	10.8	19.1
Posyandu**	99.7	31,597	82.8	18.4	22.4

* Male-specific Organization. ** Female-Specific Organization.

Table 4: Knowledge and Participation Transition Rates

Activity	↻ Initial Status (Number of Individuals)			**A** ➲ Knowledge in the Next Round (Share of the Initial Sub-group)		
				ACQUISITION	*DEPRECIATION*	
	① No KL	② KL, no PA	③ PA	① New KL	② Former KL	③ Former PA
				▶ Knowledge	▶ No Knowledge	
Community Meeting	11,191	9,881	7,120	54.2	28.4	18.6
Cooperative	12,122	3,356	920	26.1	53.2	43.3
Voluntary Labor	12,588	6,675	8,615	43.1	41.5	36.5
Neighborhood Improvem.	17,159	4,438	4,460	40.2	49.9	49.4
Neighborhood Security	6,753	1,569	3,211	28.8	65.2	64.4
Water Systems	2,300	399	389	17.0	75.2	73.3
Garbage Disposal	1,669	283	384	20.3	73.1	69.3
Women's Group	6,704	6,783	2,035	47.6	28.4	15.8
Posyandu	2,897	9,437	3,135	72.1	10.1	6.5

Activity	**B** ➲ Participation in the Next Round (Share of the Initial Sub-group)		
	MOBILIZATION		*DROP OUT*
	① New KL	② Always KL	③ Former PA
	▶ Participation		▶ No PA
Community Meeting	23.8	24.7	50.4
Cooperative	14.3	14.3	71.8
Voluntary Labor	43.7	26.7	55.3
Neighborhood Improvem.	39.6	28.3	68.1
Neighborhood Security	59.3	37.4	75.3
Water Systems	55.0	44.4	85.3
Garbage Disposal	58.0	31.6	85.9
Women's Group	10.5	11.8	49.7
Posyandu	12.0	14.6	64.7

Conditional on Activity Prevalence at Village Level. "KL" – Knowledge; "PA" – Participation.

Table 5: Knowledge Regressions (RE)

DV: **Knowledge**	(1) Meeting	(2) Cooperative	(3) Voluntary	(4) Neighborh.	(5) Security	(6) Water	(7) Garbage	(8) Women	(9) Post
Individual Characteristics									
Age Group: 25-39 Years[a]	0.10***	-0.00	-0.07*	-0.05	-0.13**	0.02	0.15	0.15***	0.10
	(0.007)	(0.972)	(0.058)	(0.159)	(0.044)	(0.864)	(0.227)	(0.004)	(0.160)
Age Group: 40-65 Years	0.07	-0.14**	-0.16***	-0.12***	-0.24**	-0.36**	0.35*	0.13**	-0.32***
	(0.166)	(0.035)	(0.000)	(0.008)	(0.012)	(0.029)	(0.056)	(0.036)	(0.000)
Age Group: >65 Years	-0.02	-0.32***	-0.21***	-0.18***	-0.35***	-0.38*	0.15	-0.18**	-0.79***
	(0.771)	(0.001)	(0.000)	(0.005)	(0.007)	(0.081)	(0.546)	(0.035)	(0.000)
Men	0.40***	0.04	0.22***	0.13***					
	(0.000)	(0.207)	(0.000)	(0.000)					
No education[b]	-0.39***	-0.46***	-0.15***	-0.20***	-0.13	0.14	0.14	-0.52***	-0.52***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.142)	(0.351)	(0.582)	(0.000)	(0.000)
Junior High School	0.18***	0.14***	-0.07*	0.12***	-0.04	0.04	0.25**	0.28***	0.21***
	(0.000)	(0.009)	(0.060)	(0.001)	(0.536)	(0.731)	(0.044)	(0.000)	(0.006)
Senior High School	0.35***	0.20***	-0.05	0.17***	0.00	0.22*	0.31**	0.25***	0.09
	(0.000)	(0.000)	(0.207)	(0.000)	(0.977)	(0.052)	(0.010)	(0.000)	(0.249)
Higher Education	0.54***	0.22**	-0.14**	0.18***	-0.09	0.17	0.47***	0.42***	0.46***
	(0.000)	(0.013)	(0.039)	(0.005)	(0.387)	(0.382)	(0.006)	(0.000)	(0.001)
Job Category: Private Worker	0.06	-0.08	0.06	0.04	-0.04	0.06	0.20	0.02	0.16
	(0.263)	(0.237)	(0.180)	(0.433)	(0.575)	(0.608)	(0.170)	(0.779)	(0.129)
Job Category: Self-Employed	0.18***	0.07	0.12***	0.10**	0.00	-0.05	0.17	0.13*	0.23**
	(0.000)	(0.275)	(0.005)	(0.025)	(0.962)	(0.693)	(0.251)	(0.071)	(0.014)
Job Category: Unpaid Family Worker	0.07	0.05	0.09**	0.12***	-0.06	-0.01	0.14	0.14**	0.18**
	(0.123)	(0.425)	(0.031)	(0.005)	(0.497)	(0.958)	(0.466)	(0.021)	(0.022)
Job Category: Government	0.28***	0.28***	0.21***	0.08	0.18*	0.27	0.28	0.50***	0.11
	(0.001)	(0.003)	(0.003)	(0.224)	(0.082)	(0.116)	(0.137)	(0.000)	(0.503)
Hours worked per week	0.01	0.01	-0.00	0.01	0.03***	0.00	-0.00	-0.01	-0.01
	(0.110)	(0.522)	(0.888)	(0.157)	(0.004)	(0.896)	(0.809)	(0.267)	(0.309)
Total monthly income (ln)	0.00	0.01**	0.01**	0.01**	-0.00	0.01	-0.01	0.01	-0.00
	(0.371)	(0.044)	(0.042)	(0.014)	(0.406)	(0.281)	(0.633)	(0.275)	(0.688)
Married	0.15***	0.04	0.06*	0.12***	-0.04	-0.06	0.00	0.15***	0.44***
	(0.000)	(0.423)	(0.069)	(0.001)	(0.585)	(0.604)	(0.991)	(0.003)	(0.000)
Head or Spouse of Head	0.14***	0.21***	0.15***	0.09**	0.19**	0.46***	0.06	0.15***	0.15**
	(0.001)	(0.000)	(0.000)	(0.020)	(0.026)	(0.002)	(0.704)	(0.006)	(0.028)
Seriousness of Answers: <u>not</u> excellent or good	-0.09***	-0.11**	-0.04	-0.04	-0.13**	-0.15*	0.12	-0.14***	-0.17***
	(0.002)	(0.017)	(0.176)	(0.206)	(0.011)	(0.081)	(0.258)	(0.001)	(0.001)
Household Characteristics									
Age HH Head: 40-65 Years[a]	0.10***	0.09*	0.13***	0.04	0.03	0.20	0.08	0.05	-0.01
	(0.007)	(0.071)	(0.000)	(0.253)	(0.714)	(0.141)	(0.598)	(0.232)	(0.905)
Age HH Head: >65 Years	0.01	0.10	0.10**	0.02	0.07	0.16	0.01	0.14**	-0.05
	(0.811)	(0.165)	(0.041)	(0.663)	(0.467)	(0.329)	(0.978)	(0.026)	(0.524)
Household Expenditure – 1st Quantile[c]	-0.10***	-0.14***	-0.09***	-0.11***	0.10**	-0.00	0.03	-0.12***	-0.15***
	(0.000)	(0.001)	(0.001)	(0.000)	(0.041)	(0.981)	(0.799)	(0.004)	(0.003)
Household Expenditure – 4th Quantile	0.04	0.02	0.04	0.07**	0.06	0.13	0.06	0.01	-0.05
	(0.208)	(0.579)	(0.165)	(0.029)	(0.227)	(0.108)	(0.483)	(0.883)	(0.414)
Relative Wealth: Asset Value Rank within Village	0.26	0.66**	0.04	0.20	-0.32	-0.30	-0.53	0.41	0.42
	(0.162)	(0.013)	(0.803)	(0.245)	(0.275)	(0.525)	(0.419)	(0.112)	(0.176)
Household with Farm Income	0.09***	0.11***	0.05*	0.07***	-0.01	0.18**	-0.01	0.09**	0.05
	(0.003)	(0.008)	(0.052)	(0.009)	(0.862)	(0.023)	(0.904)	(0.033)	(0.319)
Household with Income from Non-.Farm Business	-0.01	0.09***	-0.02	0.01	-0.03	-0.02	0.08	0.04	0.04
	(0.816)	(0.006)	(0.476)	(0.606)	(0.398)	(0.780)	(0.319)	(0.279)	(0.439)
Female Household Head	0.06	0.02	-0.05	0.09**	-0.13*	0.11	-0.00	0.12**	0.21***
	(0.109)	(0.699)	(0.207)	(0.011)	(0.080)	(0.384)	(0.978)	(0.018)	(0.002)
HH Adults	0.01**	-0.00	0.02***	0.02***	0.01	0.02	0.01	0.00	0.01
	(0.042)	(0.898)	(0.005)	(0.000)	(0.427)	(0.176)	(0.492)	(0.955)	(0.209)
HH Children Age 0-4	0.00	0.03	0.00	0.00	-0.01	-0.01	-0.04	-0.04	0.18***
	(0.922)	(0.253)	(0.869)	(0.907)	(0.769)	(0.799)	(0.543)	(0.137)	(0.000)
HH Children Age 5-9	-0.01	0.07***	0.02	0.04**	0.02	0.05	0.07	0.02	0.11***
	(0.614)	(0.006)	(0.220)	(0.031)	(0.538)	(0.256)	(0.200)	(0.434)	(0.000)
HH Children Age 10-14	0.02	0.06***	-0.01	0.01	0.01	-0.00	-0.04	0.04	-0.02
	(0.289)	(0.004)	(0.494)	(0.347)	(0.636)	(0.915)	(0.466)	(0.102)	(0.584)
Highest HH Education: No education[b]	-0.01	0.07	-0.02	0.03	0.01	0.04	-0.16	0.06	-0.01
	(0.859)	(0.573)	(0.735)	(0.655)	(0.932)	(0.875)	(0.694)	(0.472)	(0.939)
Highest HH Education: Junior High School	0.01	-0.03	0.04	-0.01	-0.04	0.22**	-0.13	0.07	0.11*
	(0.884)	(0.588)	(0.261)	(0.749)	(0.493)	(0.032)	(0.390)	(0.194)	(0.100)
Highest HH Education: Senior High School	0.06	-0.01	0.01	0.00	-0.05	-0.09	-0.07	0.14***	0.11
	(0.120)	(0.809)	(0.685)	(0.981)	(0.432)	(0.407)	(0.625)	(0.009)	(0.104)
Highest HH Education: Higher Education	0.15**	0.12	-0.02	0.00	-0.13	-0.05	-0.15	0.29***	-0.05
	(0.013)	(0.117)	(0.748)	(0.979)	(0.178)	(0.759)	(0.399)	(0.000)	(0.588)

Continued...	Meeting	Cooperative	Voluntary	Neighborh.	Security	Water	Garbage	Women	Post
Household Characteristics (cont.)									
Recent Economic Hardship (Crop, Job or Income Loss)	0.09***	0.07*	0.04	0.12***	0.05	0.16**	0.02	0.07*	0.09*
	(0.001)	(0.063)	(0.113)	(0.000)	(0.243)	(0.034)	(0.808)	(0.083)	(0.075)
Household migrated in the last two years to this community	-0.01	-0.02	0.02	-0.07*	-0.10	-0.17	-0.17	-0.10*	-0.20**
	(0.838)	(0.789)	(0.639)	(0.093)	(0.149)	(0.180)	(0.255)	(0.098)	(0.015)
Household owns a televisior	0.10***	0.11***	-0.03	-0.01	0.00	-0.03	0.01	0.09**	0.24***
	(0.000)	(0.009)	(0.288)	(0.593)	(0.916)	(0.735)	(0.940)	(0.021)	(0.000)
Village Characteristics									
Rural	0.02	0.07	0.09***	0.03	0.09*	0.03	-0.50***	0.01	0.15***
	(0.499)	(0.117)	(0.002)	(0.245)	(0.068)	(0.709)	(0.001)	(0.774)	(0.006)
Population Size	0.01	0.01	0.01*	0.01	0.02	-0.00	0.01	-0.00	0.01
	(0.285)	(0.195)	(0.084)	(0.152)	(0.114)	(0.974)	(0.618)	(0.819)	(0.377)
Average HH Asset Value	0.03	-0.05	0.02	-0.08***	0.03	-0.06	-0.00	-0.03	-0.04
	(0.116)	(0.111)	(0.316)	(0.000)	(0.378)	(0.292)	(0.937)	(0.350)	(0.299)
Within-Village Gini Index of Asset Inequality	-0.27	0.34	-0.01	0.30	-0.04	-0.20	0.39	-0.02	0.08
	(0.225)	(0.286)	(0.968)	(0.148)	(0.903)	(0.723)	(0.583)	(0.941)	(0.828)
Interaction Term Asset Gini x Relative HH Wealth	-0.07	-0.41	0.16	-0.27	0.65	0.67	1.20	-0.13	-0.46
	(0.846)	(0.389)	(0.616)	(0.402)	(0.227)	(0.432)	(0.270)	(0.784)	(0.417)
Index of Ethnic Fractionalization	-0.34***	-0.14	-0.09	-0.22***	-0.12	0.20	0.47**	-0.04	-0.20
	(0.000)	(0.168)	(0.184)	(0.001)	(0.295)	(0.316)	(0.035)	(0.697)	(0.122)
Share of Other HHs in the Village reporting Knowledge	0.04***	0.04***	0.04***	0.03***	0.04***	0.05***	0.04***	0.04***	0.05***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Village Head Reports Activity Prevalence		0.01	0.12***	-0.03	0.14**	-0.10	-0.03		
		(0.797)	(0.000)	(0.285)	(0.013)	(0.114)	(0.667)		
Province and Time Dummies									
Jakarta[e]	-0.26***	0.03	0.28***	-0.27***	0.05	-0.01	-0.21	-0.37***	-0.46***
	(0.000)	(0.731)	(0.000)	(0.000)	(0.628)	(0.926)	(0.134)	(0.000)	(0.000)
West Java	-0.15***	0.14**	0.02	-0.16***	0.12*	-0.25*	-0.14	-0.32***	-0.18**
	(0.001)	(0.024)	(0.560)	(0.000)	(0.084)	(0.053)	(0.269)	(0.000)	(0.034)
East Java	-0.23***	0.05	0.13***	-0.04	-0.03	0.00	-0.28*	-0.08	-0.22***
	(0.000)	(0.386)	(0.001)	(0.265)	(0.683)	(0.987)	(0.066)	(0.192)	(0.007)
Yogyakarta	1.35***	0.11	0.26***	0.17***	0.18**	-0.13	0.07	0.36***	0.59***
	(0.000)	(0.116)	(0.000)	(0.001)	(0.038)	(0.407)	(0.615)	(0.000)	(0.000)
Bali	0.14**	0.18**	-0.07	-0.34***	0.01	-0.00	0.10	-0.31***	-0.88***
	(0.025)	(0.016)	(0.177)	(0.000)	(0.872)	(0.977)	(0.537)	(0.000)	(0.000)
Nusa Tenggara Barat	0.05	0.19**	0.09*	-0.05	-0.01	0.10	-0.45*	-0.48***	-0.33***
	(0.348)	(0.025)	(0.067)	(0.351)	(0.950)	(0.444)	(0.085)	(0.000)	(0.001)
South Sulawesi	-0.53***	-0.04	-0.10*	-0.46***	0.06	0.01	-0.55**	-0.65***	-0.86***
	(0.000)	(0.680)	(0.062)	(0.000)	(0.509)	(0.933)	(0.037)	(0.000)	(0.000)
South Kalimantan	-0.35***	0.06	-0.27***	-0.18***	0.20*	0.01	-0.47*	-0.34***	-0.54***
	(0.000)	(0.491)	(0.000)	(0.003)	(0.075)	(0.933)	(0.079)	(0.000)	(0.000)
North Sumatra	-0.74***	-0.10	-0.32***	-0.45***	-0.05	-0.03	-0.51**	-0.71***	-0.88***
	(0.000)	(0.355)	(0.000)	(0.000)	(0.665)	(0.864)	(0.041)	(0.000)	(0.000)
West Sumatra	-0.19***	0.05	-0.25***	-0.17***	-0.07	-0.18	-0.09	-0.58***	-0.20*
	(0.002)	(0.534)	(0.000)	(0.002)	(0.529)	(0.295)	(0.653)	(0.000)	(0.097)
South Sumatra	-0.54***	-0.08	-0.32***	-0.27***	0.05	-0.32	-0.77***	-0.58***	-0.58***
	(0.000)	(0.445)	(0.000)	(0.000)	(0.669)	(0.158)	(0.004)	(0.000)	(0.000)
Lampung	-0.40***	-0.10	-0.02	-0.28***	0.25**	0.09	-0.43	-0.33***	-0.50***
	(0.000)	(0.336)	(0.704)	(0.000)	(0.017)	(0.593)	(0.197)	(0.001)	(0.000)
Year 2000	0.18***	0.16***	-0.16***	0.01	-0.34***	-0.05	-0.42***	0.19***	0.36***
	(0.000)	(0.000)	(0.000)	(0.824)	(0.000)	(0.543)	(0.000)	(0.000)	(0.000)
Year 2007	0.22***	0.18***	-0.03	0.29***	-0.16***	0.01	-0.20**	0.16***	0.63***
	(0.000)	(0.000)	(0.319)	(0.000)	(0.001)	(0.927)	(0.047)	(0.000)	(0.000)
Constant	-3.71***	-3.57***	-3.50***	-1.86***	-3.15***	-2.37**	-3.15***	-2.24***	-2.14***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.017)	(0.004)	(0.000)	(0.001)
Observations	49925	35878	49914	48475	22121	10223	7343	26915	26846
Individuals	26866	21950	26923	26634	12618	7174	5470	14050	14025
Average Obs. per Individual	1.858	1.635	1.854	1.820	1.753	1.425	1.342	1.916	1.914
Rho	0.125	0.211	0.095	0.047	0.114	0.052	0.055	0.144	0.117

RE Logit Regression. Conditional on activity prevalence at village level. Longitudinal personal weights used.

P-values in parentheses. * significant at 10%; ** significant at 5%; *** significant at 1%.

[a] Reference category: Age Group 15-24 Years, [b] Reference category: Primary education;

[c] Reference category: Individuals not working, [d] Reference category: 2nd and 3rd Quantile.

[e] Reference category: Central Java

Table 6: Knowledge and Fitted Values – Means by Province

Activity	Jakarta μ(KL)	Jakarta Δ[μ(Pr)]	West Java μ(KL)	West Java Δ[μ(Pr)]	Central Java μ(KL)	Central Java Δ[μ(Pr)]	East Java μ(KL)	East Java Δ[μ(Pr)]	Yogyakarta μ(KL)	Yogyakarta Δ[μ(Pr)]	Bali μ(KL)	Bali Δ[μ(Pr)]	NTB μ(KL)	NTB Δ[μ(Pr)]
Community Meeting	63.2	1.4	62.7	1.5	73.8	0.3	58.4	1.2	93.0	1.2	76.8	2.3	65.2	1.6
Cooperative	25.6	-10.2	28.1	-6.7	23.8	-11.2	27.2	-7.6	32.5	-6.3	35.5	-4.1	19.1	-12.7
Voluntary Labor	70.8	1.7	51.4	0.2	53.4	-0.4	60.2	1.1	73.0	1.7	63.3	1.5	55.1	0.5
Neighb. Improvement	34.1	-1.5	37.9	-1.0	51.9	-0.5	43.4	-0.2	63.9	0.6	30.2	-1.6	37.9	-1.1
Neighb. Security	45.7	-0.3	50.0	-0.1	28.1	-1.7	29.4	-2.9	48.5	-0.2	45.0	-0.6	35.4	-1.3
Water Systems	37.9	-0.7	9.0	-5.2	19.1	-5.1	15.5	-3.7	13.3	-3.5	14.0	-4.0	18.0	-3.3
Garbage Disposal	34.5	-2.2	15.8	-5.9	19.7	-7.2	13.2	-7.5	31.6	-1.5	17.2	-5.1	9.6	-7.3
Women's Group	67.7	1.9	54.8	0.9	74.8	0.9	63.7	1.6	87.2	1.9	57.1	0.8	34.9	-2.7
Posyandu	85.3	1.4	88.7	1.3	91.3	0.8	83.2	1.4	94.8	0.8	70.4	1.5	83.6	1.4

Activity	South Sulawesi μ(KL)	South Sulawesi Δ[μ(Pr)]	S. Kalimantan μ(KL)	S. Kalimantan Δ[μ(Pr)]	North Sumatra μ(KL)	North Sumatra Δ[μ(Pr)]	West Sumatra μ(KL)	West Sumatra Δ[μ(Pr)]	South Sumatra μ(KL)	South Sumatra Δ[μ(Pr)]	Lampung μ(KL)	Lampung Δ[μ(Pr)]
Community Meeting	49.2	-0.1	57.3	1.4	29.0	-4.5	68.2	2.2	42.9	-1.1	54.7	0.2
Cooperative	18.2	-13.8	26.0	-9.9	15.0	-16.7	29.4	-6.9	22.4	-12.6	20.1	-10.9
Voluntary Labor	49.9	0.2	30.7	-3.0	28.4	-3.5	37.0	-2.1	32.3	-2.1	58.5	1.1
Neighb. Improvement	17.4	-3.7	30.2	-2.0	21.6	-2.8	41.3	-0.3	30.5	-1.6	34.6	-1.2
Neighb. Security	45.1	-0.5	45.5	-0.3	24.4	-4.9	25.0	-3.8	39.5	-1.0	58.1	0.7
Water Systems	14.3	-4.5	23.8	-1.8	19.1	-2.6	10.7	-5.0	11.3	-5.4	32.3	-1.3
Garbage Disposal	9.5	-8.7	12.6	-7.1	12.1	-7.2	21.2	-4.5	8.3	-8.1	9.5	-7.5
Women's Group	40.7	-2.3	58.0	1.0	34.2	-3.6	56.4	1.1	41.3	-1.8	57.5	0.8
Posyandu	71.4	1.4	85.3	1.6	61.9	0.6	90.7	1.3	81.2	1.7	76.9	1.2

Δ[μ(Pr)]= (μ(KL)- μ(Pr))/μ(KL), i..e the relative deviation of the average prediction from the observed mean.

Table 7: Comparison of Mean Values for Non-Knowers, Non-Participants and Participants

	Estimated Knowledge Probability			Educational Level (1-5)			Share of HHs in the Village reporting Knowledge (in %)[*]		
	Non-Knowers	*Non-Participants*	*Partici-pants*	*Non-Knowers*	*Non-Participants*	*Partici-pants*	*Non-Knowers*	*Non-Participants*	*Partici-pants*
Community Meeting	51.8	67.3	74.8	2.49	2.78	2.89	71.6	84.6	85.9
Cooperative	19.2	35.1	41.1	2.69	2.97	3.14	37.6	57.5	60.2
Voluntary Labor	44.5	58.4	63.7	2.65	2.68	2.78	62.7	78.4	80.2
Neighborhood Improvement	32.5	47.9	51.6	2.63	2.82	2.74	52.1	68.9	70.4
Neighborhood Security	27.2	51.7	60.0	2.86	3.00	2.76	33.1	58.3	66.4
Water Systems	14.2	*32.1*	*31.6*	2.78	3.03	2.66	17.9	40.4	39.7
Garbage Disposal	15.2	32.6	37.5	3.15	3.41	3.39	19.5	44.6	46.2
Women's Group	44.8	66.6	77.3	2.32	2.69	2.87	52.0	72.7	80.2
Posyandu	67.1	87.2	91.0	2.26	2.59	2.73	73.6	90.1	89.8

Italic: Mean-Difference *not* significant at the 1%-level. [*] Own observation excluded.

Table 8: Participation Regressions (RE)

DV: **Participation**	(1) Meeting	(2) Cooperative	(3) Voluntary	(4) Neighborh.	(5) Security	(6) Water	(7) Garbage	(8) Women	(9) Post
Individual Characteristics									
Age Group: 25-39 Years[a]	0.63***	0.76***	0.28***	0.37***	0.52***	0.65***	0.04	0.92***	0.20***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.851)	(0.000)	(0.004)
Age Group: 40-65 Years	0.85***	1.23***	0.33***	0.46***	0.46***	0.79**	0.82*	1.04***	-0.85***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.023)	(0.059)	(0.000)	(0.000)
Age Group: >65 Years	0.47***	0.69**	-0.64***	-0.22*	-0.72***	0.34	1.38**	0.78***	-0.52***
	(0.000)	(0.018)	(0.000)	(0.066)	(0.000)	(0.456)	(0.021)	(0.001)	(0.001)
Men	1.64***	0.09	2.66***	2.31***					
	(0.000)	(0.304)	(0.000)	(0.000)					
No education[b]	-0.64***	-0.87***	-0.28***	-0.19**	-0.55***	-0.51*	-0.33	-0.82***	-0.72***
	(0.000)	(0.000)	(0.000)	(0.022)	(0.000)	(0.060)	(0.349)	(0.000)	(0.000)
Junior High School	0.08	0.21	0.10	-0.05	-0.12	-0.28	0.14	0.38***	0.41***
	(0.132)	(0.123)	(0.111)	(0.464)	(0.157)	(0.138)	(0.665)	(0.001)	(0.000)
Senior High School	0.27***	0.42***	0.14**	-0.12*	-0.20*	-0.22	0.23	0.30**	0.37***
	(0.000)	(0.002)	(0.041)	(0.080)	(0.069)	(0.316)	(0.456)	(0.021)	(0.000)
Higher Education	0.36***	0.47**	0.21*	0.03	-0.05	-0.39	-0.03	0.05	0.16
	(0.000)	(0.023)	(0.062)	(0.773)	(0.746)	(0.357)	(0.949)	(0.811)	(0.301)
Job Category: Private Worker	0.09	0.54***	0.10	0.05	0.20*	-0.02	0.53*	-0.25	-0.25**
	(0.206)	(0.002)	(0.183)	(0.517)	(0.084)	(0.927)	(0.079)	(0.146)	(0.036)
Job Category: Self-Employed	0.30***	0.56***	0.21***	0.12	0.18*	0.22	0.23	0.27*	0.03
	(0.000)	(0.001)	(0.004)	(0.103)	(0.088)	(0.372)	(0.499)	(0.075)	(0.816)
Job Category: Unpaid Family Worker	-0.08	-0.01	0.25***	0.26***	0.06	0.33	-0.31	0.12	-0.31***
	(0.254)	(0.965)	(0.000)	(0.000)	(0.659)	(0.205)	(0.524)	(0.347)	(0.000)
Job Category: Government	0.52***	1.07***	0.35***	0.10	0.53***	0.49	0.76**	0.87***	0.21
	(0.000)	(0.000)	(0.004)	(0.380)	(0.001)	(0.152)	(0.022)	(0.000)	(0.243)
Hours worked per week	0.01	-0.02	0.02**	0.03***	0.06***	-0.02	-0.01	-0.03	-0.05***
	(0.213)	(0.430)	(0.021)	(0.001)	(0.000)	(0.572)	(0.902)	(0.136)	(0.000)
Total monthly income (ln)	0.01	-0.00	0.01	0.01	0.01	0.01	0.02	0.01	-0.01
	(0.179)	(0.950)	(0.156)	(0.168)	(0.119)	(0.616)	(0.375)	(0.456)	(0.344)
Married	0.47***	0.34**	0.15**	0.21***	0.18**	0.25	0.29	1.20***	2.07***
	(0.000)	(0.021)	(0.011)	(0.001)	(0.049)	(0.286)	(0.256)	(0.000)	(0.000)
Head or Spouse of Head	0.60***	0.94***	0.26***	0.36***	0.47***	-0.28	0.74*	0.86***	0.01
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.386)	(0.052)	(0.000)	(0.904)
Seriousness of Answers: <u>not</u> excellent or good	-0.00	-0.04	0.03	-0.05	-0.01	0.17	-0.10	-0.07	-0.03
	(0.957)	(0.703)	(0.551)	(0.335)	(0.911)	(0.423)	(0.693)	(0.463)	(0.679)
Household Characteristics									
Age HH Head: 40-65 Years[a]	0.08	-0.24*	-0.08	-0.06	0.07	-0.05	-0.52*	0.05	-0.20***
	(0.148)	(0.077)	(0.185)	(0.311)	(0.480)	(0.867)	(0.053)	(0.611)	(0.001)
Age HH Head: >65 Years	0.09	-0.15	-0.09	0.07	0.01	0.31	-0.67	-0.09	-0.40***
	(0.244)	(0.462)	(0.251)	(0.440)	(0.932)	(0.413)	(0.140)	(0.530)	(0.000)
Household Expenditure – 1st Quantile[c]	-0.15***	-0.19*	-0.16***	-0.15***	-0.00	-0.17	0.21	-0.04	-0.12*
	(0.000)	(0.096)	(0.001)	(0.002)	(0.961)	(0.262)	(0.327)	(0.643)	(0.054)
Household Expenditure – 4th Quantile	0.22***	0.23**	0.04	0.02	0.10	-0.32*	0.30*	0.21**	-0.03
	(0.000)	(0.015)	(0.393)	(0.724)	(0.276)	(0.063)	(0.070)	(0.013)	(0.636)
Relative Wealth: Asset Value Rank within Village	0.61**	-0.06	0.56*	0.60*	0.15	1.58*	0.37	0.11	-0.26
	(0.022)	(0.930)	(0.058)	(0.055)	(0.739)	(0.085)	(0.818)	(0.833)	(0.490)
Household with Farm-Income	0.12***	0.04	0.26***	0.15***	0.19**	0.05	-0.24	-0.20**	0.12**
	(0.004)	(0.679)	(0.000)	(0.002)	(0.016)	(0.831)	(0.401)	(0.027)	(0.032)
Household with Income from Non-.Farm Business	-0.05	0.01	-0.09**	-0.07*	0.04	-0.17	-0.00	-0.04	-0.03
	(0.159)	(0.953)	(0.034)	(0.098)	(0.520)	(0.224)	(0.990)	(0.577)	(0.583)
Female Household Head	0.19***	0.02	0.23***	0.24***	0.34***	-0.21	0.62**	0.19	0.49***
	(0.001)	(0.921)	(0.000)	(0.000)	(0.005)	(0.447)	(0.020)	(0.104)	(0.000)
HH Adults	0.02**	0.05**	0.02	-0.00	0.01	0.05	0.06	0.02	-0.07***
	(0.017)	(0.011)	(0.105)	(0.987)	(0.689)	(0.108)	(0.115)	(0.411)	(0.000)
HH Children Age 0-4	-0.05*	-0.02	-0.06*	-0.02	0.01	0.10	-0.03	-0.13**	1.60***
	(0.052)	(0.745)	(0.054)	(0.456)	(0.824)	(0.300)	(0.807)	(0.020)	(0.000)
HH Children Age 5-9	0.09***	-0.05	0.04	0.05	0.19***	-0.04	-0.09	0.09*	0.04
	(0.001)	(0.402)	(0.165)	(0.101)	(0.001)	(0.672)	(0.451)	(0.073)	(0.269)
HH Children Age 10-14	0.03	-0.04	0.02	0.01	0.06	0.01	0.02	-0.04	-0.08***
	(0.143)	(0.433)	(0.439)	(0.624)	(0.220)	(0.958)	(0.811)	(0.381)	(0.010)
Highest HH Education: No education[b]	0.14	0.68	-0.10	0.11	-0.18	0.31	-0.39	0.13	0.40**
	(0.259)	(0.100)	(0.400)	(0.412)	(0.388)	(0.478)	(0.461)	(0.621)	(0.023)
Highest HH Education: Junior High School	-0.04	-0.21	-0.09	0.02	-0.06	0.10	-0.23	0.26**	-0.20***
	(0.448)	(0.170)	(0.152)	(0.742)	(0.556)	(0.571)	(0.399)	(0.029)	(0.008)
Highest HH Education: Senior High School	-0.02	0.23	-0.09	-0.03	-0.04	-0.44*	-0.19	0.38***	-0.27***
	(0.687)	(0.101)	(0.167)	(0.606)	(0.720)	(0.054)	(0.503)	(0.001)	(0.000)
Highest HH Education: Higher Education	-0.08	-0.06	-0.27***	-0.14	-0.29**	-0.63*	-0.26	0.61***	-0.24**
	(0.325)	(0.763)	(0.003)	(0.155)	(0.031)	(0.054)	(0.492)	(0.000)	(0.039)

Continued...	Meeting	Cooperative	Voluntary	Neighborh.	Security	Water	Garbage	Women	Post
Household Characteristics (cont.)									
Recent Economic Hardship (Crop, Job or Income Loss)	0.19***	0.19**	0.06	0.17***	0.04	-0.21	0.25*	0.17**	0.09
	(0.000)	(0.047)	(0.190)	(0.001)	(0.597)	(0.149)	(0.093)	(0.037)	(0.107)
Household migrated in the last two years to this community	-0.10	-0.13	-0.32***	-0.24***	-0.14	0.15	-0.14	0.25*	0.11
	(0.117)	(0.434)	(0.000)	(0.001)	(0.266)	(0.668)	(0.711)	(0.081)	(0.182)
Household owns a televisior	-0.03	0.08	-0.00	-0.12**	-0.14*	-0.25*	0.30	-0.03	-0.20***
	(0.508)	(0.498)	(0.963)	(0.017)	(0.077)	(0.056)	(0.217)	(0.782)	(0.001)
Village Characteristics									
Rural	0.15***	0.06	0.00	0.04	-0.04	-0.11	0.77	-0.06	-0.08
	(0.001)	(0.569)	(0.941)	(0.487)	(0.726)	(0.547)	(0.116)	(0.560)	(0.209)
Population Size	0.02	0.02	-0.02	-0.01	-0.01	0.01	-0.02	-0.02	-0.07***
	(0.221)	(0.384)	(0.293)	(0.599)	(0.600)	(0.905)	(0.757)	(0.571)	(0.001)
Average HH Asset Value	0.04	-0.02	-0.09***	-0.17***	-0.04	-0.20	0.08	0.08	-0.06
	(0.139)	(0.750)	(0.006)	(0.000)	(0.577)	(0.119)	(0.502)	(0.253)	(0.176)
Within-Village Gini Index of Asset Inequality	0.70**	-2.13***	1.24***	1.06***	-0.37	1.34	-0.16	-1.09	-0.11
	(0.030)	(0.009)	(0.001)	(0.005)	(0.555)	(0.313)	(0.935)	(0.109)	(0.795)
Interaction Term Asset Gini x Relative HH Wealth	-0.85*	1.02	-1.27**	-1.06*	-0.55	-2.78	-0.34	0.49	0.22
	(0.082)	(0.389)	(0.020)	(0.069)	(0.521)	(0.136)	(0.898)	(0.626)	(0.752)
Index of Ethnic Fractionalization	-0.30***	-0.11	0.12	-0.18	-0.25	0.59	0.72	0.55**	-0.03
	(0.006)	(0.674)	(0.299)	(0.141)	(0.398)	(0.232)	(0.185)	(0.016)	(0.829)
Province Dummies									
Jakarta[e]	-0.31***	-1.29***	-0.57***	-0.71***	-0.19	-0.87**	-1.19***	-2.52***	-0.13
	(0.001)	(0.000)	(0.000)	(0.000)	(0.288)	(0.011)	(0.000)	(0.000)	(0.330)
West Java	-0.49***	-0.55***	-0.22***	0.34***	-0.33*	-0.15	0.17	-2.03***	-0.18**
	(0.000)	(0.001)	(0.002)	(0.000)	(0.076)	(0.579)	(0.520)	(0.000)	(0.039)
East Java	-0.35***	-0.44***	-0.55***	-0.27***	0.06	-0.13	0.09	0.02	-0.33***
	(0.000)	(0.004)	(0.000)	(0.000)	(0.704)	(0.615)	(0.808)	(0.866)	(0.000)
Yogyakarta	0.81***	-0.23	0.71***	0.59***	0.40*	0.13	0.15	0.51***	0.40***
	(0.000)	(0.175)	(0.000)	(0.000)	(0.054)	(0.801)	(0.494)	(0.001)	(0.000)
Bali	-0.11	-0.02	-0.09	0.09	-0.23	0.32	-0.92	0.14	-0.21
	(0.167)	(0.913)	(0.319)	(0.386)	(0.302)	(0.333)	(0.147)	(0.448)	(0.112)
Nusa Tenggara Barat	-0.30***	-0.30	0.50***	0.77***	0.18	-0.08	-0.76	-0.40*	0.31***
	(0.000)	(0.190)	(0.000)	(0.000)	(0.467)	(0.776)	(0.194)	(0.086)	(0.005)
South Sulawesi	-0.46***	-0.82**	-0.38***	-0.35**	-0.41*	0.07	-1.11**	-0.16	-0.59***
	(0.000)	(0.011)	(0.000)	(0.022)	(0.054)	(0.828)	(0.029)	(0.512)	(0.000)
South Kalimantan	-0.13	-0.42*	0.13	-0.00	0.06	-0.67**	-0.82***	-0.55**	-0.49***
	(0.211)	(0.068)	(0.355)	(0.969)	(0.772)	(0.047)	(0.002)	(0.011)	(0.000)
North Sumatra	0.45***	0.73***	-0.26**	0.00	-0.06	-0.39	-0.84***	-0.78***	-1.08***
	(0.001)	(0.005)	(0.029)	(0.971)	(0.808)	(0.300)	(0.009)	(0.002)	(0.000)
West Sumatra	0.22***	0.03	0.45***	0.66***	-0.13	-0.26	0.00	-0.32*	-0.09
	(0.008)	(0.874)	(0.000)	(0.000)	(0.716)	(0.386)	(0.996)	(0.097)	(0.452)
South Sumatra	0.55***	0.53**	-0.05	-0.21	0.09	0.05	-0.66	0.01	-0.52***
	(0.000)	(0.048)	(0.719)	(0.102)	(0.646)	(0.877)	(0.281)	(0.978)	(0.000)
Lampung	-0.38***	-0.73***	-0.62***	-0.25**	0.21	-1.17***	0.16	-1.18***	-0.79***
	(0.000)	(0.009)	(0.000)	(0.032)	(0.232)	(0.000)	(0.671)	(0.000)	(0.000)
Other Controls									
Probability of Knowledge (from Knowledge Regressions)	1.16***	1.18***	1.22***	1.11***	1.02***	0.34	0.48	2.27***	0.14
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.438)	(0.349)	(0.000)	(0.650)
Year 2000	-1.06***	-0.76***	-0.94***	-1.31***	-0.23*	-0.74***	-1.01***	-0.97***	-0.82***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.058)	(0.000)	(0.000)	(0.000)	(0.000)
Year 2007	-1.15***	-1.00***	-0.88***	-1.20***	-0.55***	-0.44**	-0.61***	-1.28***	-0.49***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.032)	(0.009)	(0.000)	(0.000)
Constant	-4.62***	-2.99**	-0.84	0.56	0.08	2.99	-2.52	-6.59***	-1.31*
	(0.000)	(0.033)	(0.156)	(0.386)	(0.953)	(0.166)	(0.257)	(0.000)	(0.096)
Observations	31285	9252	26584	19066	8705	1815	1470	15720	22444
Individuals	20017	7318	17941	14672				9935	12699
Average Obs. per Individual	1.563	1.264	1.482	1.299				1.582	1.767
Rho	0.243	0.397	0.282	0.092				0.557	0.235
Pseudo-R2					0.125	0.100	0.168		

RE Logit Regression. Conditional on activity prevalence at village level. Longitudinal personal weights used.

P-values in parentheses. * significant at 10%; ** significant at 5%; *** significant at 1%.

[a] Reference category: Age Group 15-24 Years, [b] Reference category: Primary education;

[c] Reference category: Individuals not working, [d] Reference category: 2nd and 3rd Quantile.

[e] Reference category: Central Java

APPENDIX

Table A1: Activity Prevalence at Village Level

Activity	Obs.	Information from the Village Head		If not: Villages where no individual reports…		Villages with "inconsistencies"	
		(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
		Existent	*Not Existent*	*Knowledge*	*Participation*	*Number*	*Participants: Ø*
Community Meeting[*]	303	244	59	1	5	54	12.1 (21%)
Cooperative	915	412	503	31	252	251	3.1 (5%)
Voluntary Labor	915	772	143	1	7	136	12.9 (19%)
Neighborhood Improvement	915	462	453	13	51	402	8.9 (13%)
Neighborhood Security	915	748	167	24	49	118	4.9 (17%)
Water Systems	915	176	739	317	542	197	2.9 (10%)
Garbage Disposal	915	179	736	420	560	176	2.4 (9%)
Women's Group	915	912	3	0	0	3	1.0 (4%)
Posyandu[**]	612	609	3	1	2	1	5.0 (21%)

[*] Not asked for in the 2000 and 2007 village head interview – we assume universal prevalence.

[**] Not asked for in the 2007 village head interview – we assume universal prevalence.