
プロジェクト報告

インドネシアにおける医療ボランティアの 報酬に対する選好と行動変容 —ジョグジャカルタ市郊外での経済実験 による実証研究—

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The historical work in development economics has progressively revealed the importance of community in ensuring sustainable economic development and achieving poverty alleviation. For instance, if relying on market-oriented mechanisms alone, local public goods that have positive externalities tend to be undersupplied compared to the socially optimal level. Utilizing community mechanisms can contribute to a solution to this problem through cooperation within the community. In Indonesia, to overcome the undersupply of public health services, community health volunteers (CHVs or *Kader* in the Indonesian language) who have experiences of child-delivery and -rearing devote their time to provide basic healthcare services in local villages. CHVs, however, conduct their regular activities receiving no payment or only a modest stipend, and thus how to maintain high motivation in their work has been a challenge. Existing studies examining CHVs' preferences towards activity rewards and policy interventions that affect their motives and behaviors remain scarce. Hence, this research project conducts original field experiments targeting CHVs and explores 1) what kinds of reward packages are preferred by CHVs for raising their motivation to carry out their regular responsibilities, 2) what types of information interventions effectively encourage hygiene practices among CHVs, and

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3) what forms of incentives stimulate the efforts of CHVs in preventative health for infectious diseases. The significance of this research project can be found in four themes that examine how the utilization of community mechanisms can overcome market and government failures, the importance of women's group activities in the context of social and economic development, whether monetary incentives do improve work motivation and prompt behavioral changes in those who are engaged in pro-social activities in which intrinsic motives are regarded as the main driver, and the effectiveness of nudge-based information interventions and incentive-based interventions with real money in behavioral economics.

This research project begins with an argument on the important role of community in providing local public goods, particularly public health services. Public health services should be promoted by a variety of individuals, organizations, and institutions across different sectors. Solely relying on medical professionals limits its reach, effectiveness, and sustainability. Thus, motivating CHVs who can be recruited with lower costs than medical professionals is crucial to address the local health challenges. In Indonesia, CHVs play an essential role in providing basic health services, such as consultation for pregnant women and new mothers, and regular health checkups for children, even though they do not have any formal medical qualifications, unlike medical professionals, such as doctors, nurses, and mid-wives. It is broadly believed that CHVs are intrinsically motivated by purpose and action, such as altruism. In many cases, monetary incentives are a popular and effective means to improve one's motivation and performance; however, providing monetary incentives to those who are engaged in pro-social activities might crowd out their intrinsic motivation. Therefore, whether monetary incentives do improve their work motivation and can prompt behavioral changes is an important empirical question.

Before examining this empirical question, this research project collects basic information on Indonesia, including the healthcare system and regular activities conducted by CHVs. Figure 1 shows the map of Indonesia gradated by population density.

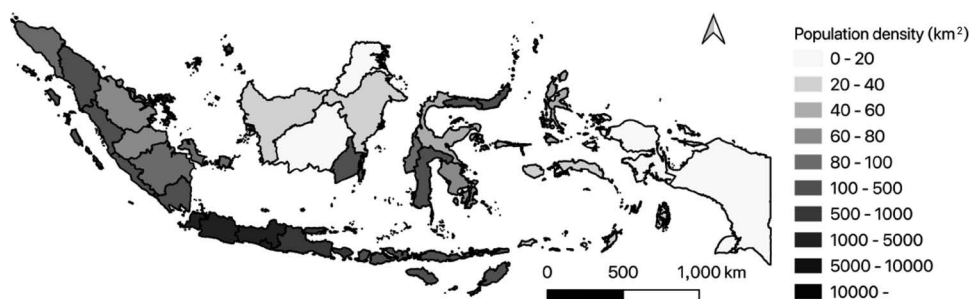


Figure 1 : Map of Indonesia

Sources: Created by authors based on the data from Statistical Yearbook of Indonesia 2024 (*Badan Pusat Statistik Indonesia*).

Indonesia has a vast land area made up of numerous islands with a large population, which poses great challenges for the authorities in establishing an efficient, equitable, and sustainable healthcare system. The central government and local municipalities often suffer from high costs and budgetary shortages for educating, training, and allocating medical professionals, which results in the poor supply of public health services, particularly in local villages. To address these challenges, the central government officially launched the CHVs program nationwide in the 1980s, supplying basic public health services to local communities. This program has been developed through cooperation among multiple stakeholders including government agencies, health institutions, community organizations, and international partners. CHVs' regular activities (also known as *Posyandu*) are supported and supervised by local municipalities or village (*Desa*) offices and technical assistance is provided mainly from primary health centers (*Puskesmas*).

Figure 2 shows the map of the Special Region of Yogyakarta gradated by population density. This study focuses on sub-urban areas of Yogyakarta City, which is one of the largest cities in Indonesia and currently experiencing rapid economic, social, and demographic transformation due to urbanization. In these transition phases towards modernization, examining incentive preferences and the behavioral changes of CHVs is particularly worthwhile to extract essential policy implications to solve the poor supply problem of public health services in local communities.

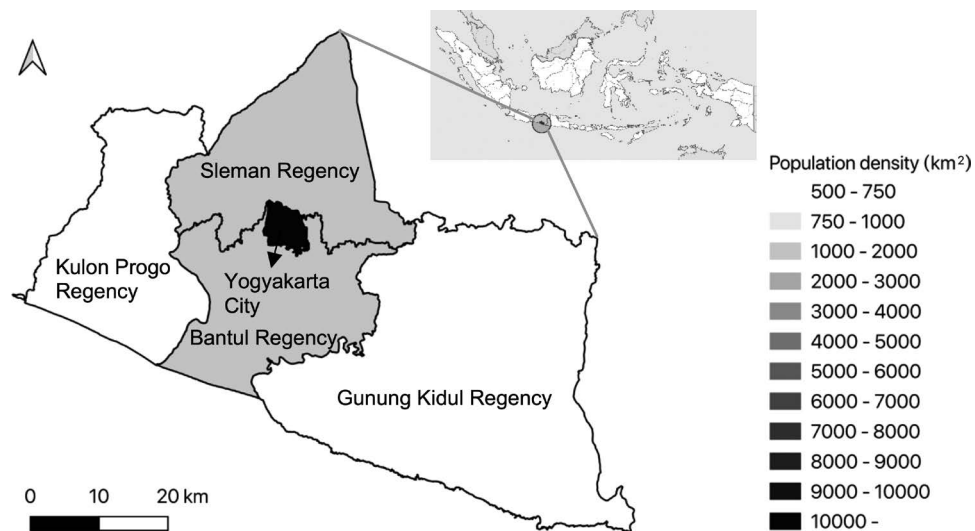


Figure 2 : Map of the Special Region of Yogyakarta

Sources: Created by authors based on the data from Statistical Yearbook of Indonesia 2024 (*Badan Pusat Statistik Indonesia*).

Let us provide background information of the field experiments employed by this research project and data obtained from field surveys. A series of the field experiments were undertaken in two districts of Sleman Regency, located in the northern suburbs of Yogyakarta City. Prior to the field experiments, a baseline survey was conducted in January 2023 at 108 community health posts, which were randomly selected from the list of 200 existing community health posts in the two districts. Figure 3 shows the location of the surveyed community health posts. The baseline survey revealed that, on average, seven to eight CHVs are engaged in regular activities at each community health post and about 25 mothers with their children participate each time. At the selected health posts, there were 833 active CHVs in total. The average age of CHVs was around 48 years old, and most of them were married and had given birth. In addition, the baseline survey employed a hypothetical dictator game (HDG) to measure the level of altruism among CHVs, which can be regarded as a primary motive of their behaviors. Since this study undertook three different field experiments, five visits including the baseline survey were conducted to implement the experiments and collect data from the same CHVs during a four-month period completing an end-line survey in April 2023. This study

analyzes the data from the 692 CHVs who responded to all five rounds of interviews.

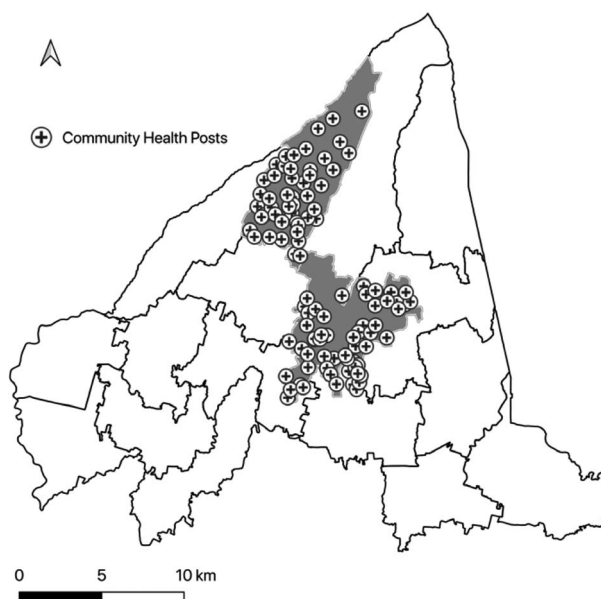


Figure 3 : Location of the surveyed community health posts (*Posyandu*)

Sources: Created by authors based on field survey data.

By utilizing the data obtained from the first experiment, a discrete choice experiment (DCE), this research project explores the preferences of CHVs for monetary and non-monetary activity rewards for improving retention rates and ensuring the sustainability of their activities. To design the DCE, five attributes were identified through a literature review and qualitative interviews with various stakeholders during the baseline survey, aiming to capture trade-offs between monetary and non-monetary incentives. The estimation results, based on the respondents' choices, show that CHVs are willing to receive both monetary rewards, i.e., monthly salary, and non-monetary rewards, i.e., activity certificates. The estimates further reveal that the certificate offered by the village office is the most valuable and valued at 70,000 IDR (around 4.6 USD) and the certificates from the primary health centers and university (*Universitas Gadjah Mada* located in Yogyakarta) are both valued at 56,000 IDR (around 3.7 USD). Moreover, by combining the level of altruism measured by the HDG, it is revealed that CHVs with a higher level of altruism value the certificates, regardless of the institutions offering them, at around 60,000 IDR. In contrast, CHVs with a lower level of altruism put a slightly lower value

(55,000 IDR) on the certificates offered by the primary health centers and the university; however, they put a higher value (77,000 IDR) on the certificate from the village office. The certificate from the village office might be useful for seeking a new employment opportunity in their community, which probably stimulates an extrinsic motivation of CHVs with a lower level of altruism.

By employing the data from the second experiment, a randomized control trial (RCT) of nudge-based messages, this research project examines the types of information interventions that effectively enhance preventative health behaviors of CHVs. After the COVID-19 pandemic, maintaining the practice of individual preventative health behaviors is crucial to curtail the incidence of new infections and deaths from infectious diseases. Therefore, it is worth exploring effective nudge interventions. The analytical results suggest that a loss-framed message, which stresses the unexpected outcomes of not conducting preventative health behaviors, a gain-framed message, which emphasizes the positive outcomes of adopting preventative behaviors, and a simple message, which uses a simple sentence to convey information concisely, effectively increases the frequency of wearing face masks when talking with strangers. Unexpectedly, an altruistic message, which emphasizes the positive outcomes of only others, is not effective, particularly among CHVs with a higher level of altruism. Overly emphasizing altruism in nudge interventions may discourage CHVs.

This research project, based on the data from the third experiment, investigates the types of incentives that effectively motivate CHVs to distribute high-performance face masks in their local communities to prevent infectious diseases. An RCT, in which a small monetary incentive, a large monetary incentive, or a contribution to their community as a social incentive was randomly assigned to the participants, was conducted. Furthermore, half of the participants were randomly assigned to one group whose sales information was kept confidential, whereas sales information was disclosed to their colleagues among the other group with the intention of stimulating competition. The analytical results firstly show that, compared to a small monetary incentive, a large monetary incentive and a social incentive promote more sales under information confidentiality. The results secondly show that only a large monetary incentive significantly increases the sales of face masks under information disclosure. Thirdly, information disclosure itself significantly promotes the total sales only when

a small monetary incentive is received. Providing too many monetary incentives and expecting too much altruistic behavior in publicly visible circumstances might carry the risk of discouraging CHVs, with this effect being more pronounced for CHVs with a higher level of altruism.

Let us summarize the main findings of the three experiments and present the key discussions. The main finding of this research project is, although CHVs are considered to be those who are mostly intrinsically motivated by purpose and action, such as altruism, relying on altruism alone is not a suitable option to improve their work motivation. Expecting impractical levels of self-sacrifice would raise the risk of threatening the sustainability of their regular activities. To fulfill their regular responsibilities and to enhance additional tasks in preventative health, both monetary and non-monetary incentives are favored by CHVs, although overcompensating them with excessive monetary incentives may have adverse effects. In summary, to overcome the poor supply problem of public health services in local villages, incentive systems need to be properly designed by taking into account both the traditional background of the community, such as the heart of mutual assistance, and modern economic transition towards materialism that shape the personal characteristics of CHVs including their motives to voluntarily shoulder responsibilities to provide basic healthcare services in contemporary Indonesian society.