Universe International Journal of Interdisciplinary Research
(Peer Reviewed Refereed Journal)

© UIJIR | ISSN (O) – 2582-6417
MARCH 2022 | Vol. 2 Issue 10
www.uijir.com

THE WELFARE EFFECTS OF MARKET PARTICIPATION: EVIDENCE FROM AGRARIAN REFORM BENEFICIARIES IN MULTIPLE OUTPUT MARKETS IN AGDANGAN, QUEZON PHILIPPINES

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DOI No. – **08.2020-25662434**

Abstract

This research analyzed the welfare impact of Agrarian Reform Beneficiaries' (ARBs) participation in multiple output markets. It used qualitative methods such as semi-structured interviews, focus groups, observations, and documental analysis to analyze the context and capture the complexities of ARBs' market participation using descriptive information. ARBs' market participation impact in multiple output markets on income and welfare is negative. They characterized the effects of intermediate indicators such as yield per cropping season, net annual farm income, travel time, and transportation cost. The negative result is attributed to unequal benefits generated by landowner-subcontractor and traders, low bargaining power of ARBs, and high transaction costs, and such challenges should receive attention in agricultural market participation impact research. Specifically, it demonstrated that market participation's 'infrastructure-enhances-agricultural productivity and economic-growth formula must be taken prudently. Equitable benefits are feasible by addressing ARBs' needs in agricultural extension services needed to level the playing field. The long-term prospects entail re-examining the market participation processes to ensure that its benefits will be allocated fairly between the poor and the non-poor sectors. The findings may help policymakers decide how to facilitate equitable market participation via customized agricultural support services agenda. They can also test and compare qualitative findings in other contexts. Finally, they should be accountable while rethinking alternatives to address ARBs' income and productivity.

Keywords*: Market Participation, Agrarian Reform Beneficiaries, welfare impact, Philippines, Farm-to-Market Road*

INTRODUCTION

Commercialization rests on the trade theory that states that individuals that participate in the market through surplus selling on a comparative advantage benefit from the direct welfare and economies of scale production. (Siziba & Kefasi, 2011). It pertains to the shift of production from subsistence level to market-oriented process (World Bank, 2008). It involves funding in agricultural development intending to generate favorable conditions for smallholder farmers and transform them from subsistence to market-oriented farming (Abdullah et al., 2019). It requires strong dedication, detailed planning, sufficient investments, and speed to catch up with the commonly moving environment ("The Future of Small Farms for Poverty Reduction and Growth," 2007). It entails market participation (sales of output) among smallholder farmers due to the promise of economic productivity and efficiency. It is considered the essential route towards economic growth and development for countries inclined towards the agriculture sector (Timmer, 1997). It is the central policy agenda and strategy intervention for policymakers to reduce poverty, increase productivity and income among smallholders (Muriithi & Matz, 2015) and facilitate agricultural structural transformation towards a specialized production system based on the comparative advantage framework. Interventions, such as infrastructure related to irrigations and farm-to-market roads

(FMRs), enhance the connection between the input and output sides of agricultural markets and influence smallholder farmers' welfare regarding productivity, incomes, and assets.

Market Participation

Market participation pertains to proactive involvement in the market of goods and services.It is measured by the involvement of the commodities sold (Gerbremedhin & Moti, 2010) and intended to reduce poverty and enhance growth in the long run (Barrett, 2008; Ouedraogo, 2019). Some scholars stipulated its significance as it allows smallholder farmers to efficiently use resources, goods, and services to derive benefits regarding income and accessible opportunities for rural employment (Alene et al., 2008). In addition, it helps the smallholder farmers to move out of poverty and increase income by commercializing their farming activities to generate surpluses. (Alene et al., 2008; Barrett, 2008; Ifad, 2010). It can also allow smallholder farmers to access cheap production inputs, ensuring productivity and food security (Kirimi et al., 2013). Moreover, it can also absorb those unwilling to participate in the farming sector by participating in other related sectors such as transportation, production, and retail (Singh-Peterson & Iranacolaivalu, 2018).

One of the usual interventions to promote market participation is by providing technical factors (i.e., transportation facilities and FMR infrastructure) that allow input and output markets to be manageable, efficient, and diversified (Jari & Fraser, 2009). For example, improved road access decreases asymmetric information on input and output quality and prices (Jouanjean, 2013) and encourages agricultural development (Ulimwengu & Funes, 2009; van de Walle, 2002). It is expected to reduce marketing costs, thus encouraging market participation (Gerbremedhin & Moti, 2010). In the Philippines, policymakers are focused on providing adequate infrastructure to promote agricultural convergence strategy among smallholder farmers (Limbo, 2018). The Philippines launched Agrarian Reform Community (ARC) Strategy into a development strategy in 1993 using a beneficiary development approach. ARC pertains to a village or a cluster of adjacent villages with many smallholder farmers or farm workers wherein agricultural interventions are consolidated and implemented (Department of Environment and Natural Resources 2022). Hence, ARC Strategy promotes a holistic approach in instituting agrarian reform measures, facilitating agricultural industrialization, and improving the ARBs' productivity under the Philippine Program Beneficiaries Development into productive and economically viable ARCs (Borras, 2007).

One of the most prominent Philippine agricultural interventions under ARC strategy is the Agrarian Reform Infrastructure Support Program (ARISP) III, funded by Japan International Cooperation Agency (JICA). It is among the big-ticket projects related to several agricultural interventions. It is the first comprehensive agricultural and rural development program consisting of several components such as rural infrastructure (i.e., irrigation facilities, FMRs, postharvest facilities, rural water supply systems, and bridges) (Kawahara et al. 2015), institutional development, and other agricultural support services to enhance ARBs' productivity and income (Interview with Department of Agrarian Reform Staff, April 9, 2021). As of 2017, the ARISP III FMR provision target was 754 kilometers nationwide (National Economic and Development Authority (NEDA), 2017).

The primary project beneficiary of the ARC strategy is one kind of smallholder farmer called agrarian reform beneficiaries (ARBs). They are poor smallholder farmers whom the Philippine government conferred lands. Hence, they are susceptible to economic and social shocks, getting measly income. Yet, despite such investments, a baseline survey prepared by the University of the Philippines Los Baños in 1997 indicated that most live in poverty and experience underproductivity while 70 percent live below the poverty line (Sethboonsarg, 2008). Moreover, National Anti-Poverty Commission (NAPC) recognized that they still have the second-highest poverty incidence (46.6%) as of 2006 (Interview with NAPC Staff,April 9, 2021).

i. The FMR Development

The FMR is an access road that connects major road arteries to agricultural production areas where valuable crops and other high-value commercial crops, and livestock, are being assembled and transferred to the market. It is an intervention that creates economic linkages and facilitates market participation among its project beneficiaries in rural areas, including ARBs.

The ARISP funded FMRs due to its perceived multiplier effect and strong growth prospects. FMR intends to focus on the last-mile challenge[1] to market access by constructing a linkage between ARC and local markets. It is given to ARC, which has a limited and poor rural road network suffering from agricultural bottleneck and requiring an adequate response to infrastructure needs. It is intended to increase ARBs' market participation by delivering primary agricultural commodities and creating accessible markets. Hence, it is associated with clear economic gains for project beneficiaries.

This study explicitly considers only ARBs engaged with multiple-output markets (i.e., vegetables, corn, and coconut markets) because of the dual role of these crops for consumption and market sales. ARBs produce vegetables, corn, and coconut as the source of income, regardless of their level of market integration. Corn is usually intercropped with coconuts and remains a staple food to several Filipinos and a significant livestock feed. Vegetables serve as an additional source of income, while coconut is the leading exporting agricultural commodity in the area. Therefore, it focused on the broad meaning of ARBs' market participation, regardless of the channels they participate in the export market, the domestic market, or both jointly.

I. The Research Site

The research site is the Sildakin ARC. It was created in 2000 in Agdangan, Quezon Province, Philippines. It has 2,087.27 hectares of agricultural land comprised of 177 land acquisition and distribution ARBs and 89 leasehold ARBs occupying 27 percent or 564.75 hectares of the land area. Due to its exportable commodities, it is an agricultural and food base area classified under the Resource-Based Area Development Cluster of the Philippines. Hence, residents depend on their market participation in agriculture for their livelihoods.

The Sildakin ARC is catering to ARBs engaged with multiple-output markets. However, it remains predominantly in the coconut industry sector with one (1) existing coco coir plant on site that has been operational since 2016 through the management of Tropical Palm, Inc. The production volume ranges from 10-15 tons of coco coir per day and other baled coir, geonet, and coco peat products. It also has a coconut hub facility to strengthen the coconut industry within the locality. Moreover, landowners and traders are engaged with exporter companies such as JNJ Oil industries, Peter and Paul as partner organic coconut farms, and Tropical Prime as the coir supplier (coconut fiber) used for fishing and erosion nets.

In 2009, the Philippines' Department of Agrarian Reform (DAR), through ARISP III, funded a 5.1-kilometer FMR with a 6.4-kilometer bridge subproject in the SIldakin Arc. DAR representatives shared that its primary purpose was to catalyze market participation among ARBs to reduce poverty and accelerate rural development. However, seven years after FMR completion, the poverty index in the site has remained double-digit, despite FMR investment (Philippine Statistics Authority, 2019). ~~Hence, it serves as a typical government infrastructure that failed to achieve its objectives despite project beneficiaries' market participation.~~

While there are comparative studies of existing literature on smallholders' market participation and its welfare impacts, this contributes to identifying factors that inhibit them from benefitting from

[1] indicate the complexity of obtaining commodities from those who are geographically diffused and poorly linked by low-quality roads

market access (Hlatshwayo et al., 2021; Ingabire et al., 2018). Therefore, it attempted to fill the research gap on the welfare impact of Philippine smallholder farmers' (i.e., ARBs) participation in multiple output markets in terms of average yield per cropping season (ton/ha), net annual farm income (pesos/year/household), travel time, and transportation cost by employing qualitative data on a more general definition of market participation that includes all marketing channels. It also aimed to explore evidence on the inequalities in the Philippine agricultural market, facilitating the need to revisit agricultural support provision policies. Therefore, it generated new information on the ARBs' interaction and their most influential factors on market participation.

METHODS

Study Instruments

The research site provides an interesting example because of the government's inclination for FMR investments in rural communities. As a result, it was selected as most of its ARBs participate in multiple output markets while highlighting their primary agricultural activity in coconut farming. In addition, it has an emerging coconut fiber industry for export in major countries, such as Japan, the US, Singapore, Hongkong, and the Netherlands. The author purposively sampled two villages, such as Silangang Maligaya and Dayap, directly using the FMR.

This research investigates the impacts of ARBs' market participation. The researcher used combined study instruments such as government sources, semi-structured interview questions, rapid surveys, and FGDs. First, she used documental analysis and semi-structured interview questions to determine aid authorities' discourse in providing FMR with a bridge in the Sildakin ARC. Second, she also used FGDs with various market participants within the area, especially ARBs, to know the impact of their market participation on their living conditions and livelihood activities. Finally, the rapid survey questionnaire contains market participation impacts in terms of four indicators stipulated in the FMR's subproject results matrix such as average yield per cropping season (ton/ha), net annual farm income (pesos/year/household), travel time, and transportation cost enabling them to share their constraints and challenges.

The data collection ran from November 2020 to December 2021, where participants were selected using purposive sampling methods based on their expertise, qualifications, background, involvement, and availability.

STUDY PARTICIPANTS

The researcher adopted two criteria in selecting target participants. The first criteria are those who facilitated Agdangan Quezon's FMR subproject development processes (i.e., meetings and consultations at national and local levels). She conducted fourteen (14) face-to-face and online semi-structured interviews.

The second criteria are those who participate in multiple output markets within the ARC. She conducted rapid surveys among sixty ARBs, while only thirty-two participated in four focus group discussions (FGDs) from August to November 2021. She also conducted FGDs with four landowners, four investors, and eight ordinary citizens to determine the overall picture of the market participation process in the research site while identifying the possible differences in the degree of impact depending on the asset holdings and sociopolitical capital possessed by the market participants.

The research shortcoming is that it is impossible to draw assessments to non-commercializing ARBs as they are not part of the sample. Moreover, its results may not be conclusive as the applicability of recommendations only applies to the particularities of the research site.

RESULTS

Smallholders usually face imperfect input and output markets. They have minimal margins because they have low access to productive assets (Alene et al., 2008). They also face with high transportation costs due to landowner-subcontractor and traders' power monopoly (Key et al., 2000) (de Janvry et al., 1991). Results in the research site are detailed in the following sections.

ARBs' Market Participation Scenario

All ARB research participants in Agdangan Quezon are smallholder farmers. They have land sizes ranging from 1 to 3 hectares, averaging 1.95 hectares. They all use the FMR for personal and work-related reasons.

Findings revealed that ARBs remain in poverty despite the FMR subproject completion last 2014. ~~Some ARBs have a meager yearly per capita household income ranging from PhP 10,000 ($208) - 80,000 ($1,665), averaging at PhP 37 555 ($781), lower than the Philippines' estimated annual poverty threshold of PhP 144 984 ($ 3,018) (Converted using the Annual Philippine Peso Per US Dollar Rate End-of-Period (1 US Dollar= 48.036 PhP) as of 2020) (Philippine Statistics Authority, 2021).~~ They also shared that they consume a part of their production and sell the majority in the market. Most of their produce exchange happens within the ARC, between members of different social classes (i.e., landowner-subcontractor and traders). Their profits depend on landowner-subcontractor and traders who give lowball offers and control product prices, denoting their dependence on market channels (Go, 2021). Most of them are price takers and do not have much power to influence market decisions. Consequently, they struggle to meet their farms' maintenance and input expenses. Thus, based on results, the impact of market participation, facilitated by FMR construction, becomes inequitable. Below are the ARC-based observations that detail market participation impacts among ARBs.

ARB participants shared that due to the market commercialization process brought by FMR, there are three emerging marketing channels to buy commodities from them. First is through the village consumers, a typical neighbor who buys small quantities for personal consumption. The second involves village traders that act as agents of big companies. The third is the landowner-subcontractor who owns a significant size of land. The third intermediary gets ARBs' commodities through subcontracting farming scheme. Specifically, he offered contracts to ARBs with available land for cultivation and was willing to accept the terms. Since he was the only one who offered this kind of business opportunity, he enjoys a monopsonistic position as the only one that sources coconut commodities in large quantities. Only a tiny proportion is sold to village consumers based on interviews, making side-selling a rare phenomenon. Almost the entire sales in all size classes are procured by traders or landowner-subcontractor, as shared:

Maybe 40 percent of the products here are sold to traders, then 45 percent are sold to [the landowner-*= ARBs expressed that their market participation exposed them to further issues and challenges of unequal risks and market power despite the government's FMR investment. Analysis of their responses yielded three significant themes: unequal benefits generated by landowner-subcontractor and traders, the low bargaining power to grow their income profitably, and high transaction costs.

On the other hand, selected landowner-subcontractor and traders confirmed that their market participation led to greater value chain incomes. Site-visitation showed that landowner-subcontractor and traders were more than willing to transact with the ARBs, thus facilitating more economic activities. Interviews with landowner-subcontractor and traders showed significant business profits and connected market and production areas. As a result, the community's ARC Level of Development Assessment (ALDA) increased from level 1 to level 3 in 2019, indicating its growth. DAR's official response stipulated that

> The market participation, through FMR, catalyzes development, as demonstrated b the increasing number of traders and an active landowner-subcontractor permeating the area to buy ARBs' produce. It gives market access, motivating them to plant more, finally enhancing their production and income. (FGD, August 24, 2021)

UNEQUAL BENEFITS GENERATED BY TRADERS AND LANDOWNER-SUBCONTRACTOR

Based on the survey, 80 percent stated that their market participation resulted in unequal benefits traders and landowner-subcontractor. The current conditions of the community present a monopsonistic or oligopsonistic buying of the product by traders and landowner-subcontractor from the ARBs, as shared:

> We have three big-time traders and one landowner-subcontractor here. They have been really the active buyers ever since, but they became more active in the market when we had an FMR because they have vehicles to collect our crops. They are really benefiting from the FMR because their vehicles pass by the roads while we only walk on these roads. [laughs] (FGD,August 23, 2021)

Unequal benefits were seen due to the perceived opportunistic behavior of traders. They displayed it via the occurrence of weighing losses. The survey shows that 30 % of the research sample's ARBs (18 ARBs) experienced perceived weighing loss. Out of the 18 ARBs, 12 shared the loss of at least 1 ton of output from the start of market participation. Based on the ARB participants' estimation, their average annual loss was at least 40 percent of their intended profit. It was attributed to low offers made by the traders for their produce since they would shoulder the transportation costs. Some ARBs also complained that the traders who came to buy farm produce offered lower prices and resorted to cheating by under-weighing. There were even occurrences where traders claimed some extra corn and coconut to compensate for transportation and marketing losses. Due to various issues, some ARBs have minimized their business engagements and connected with only one trader. One ARB shared his bad experience dealing with traders:

> They are swindlers. Either they will deduct our unpaid loans or cheat on the weight of products. When we catch them, they will say that we should just give in to compensate for the high price of gas and meals for their laborer. I can't do anything about it because I was under a contractual agreement. I do not want to trade with the other one since [he/she] is a cheater and has no remorse for farmers. So I concentrated with one trader as my only transaction partner. He also cheats but is not as rampant as the other (FGD, August 25, 2021).

On the other hand, the landowner-subcontractor incurred benefits by displaying opportunistic behavior too, to wit:

> The [landowner-subcontractor] has big earnings. The buying price is okay compared to a trader, but there is a huge credit interest, around 20 percent. So I got surprised when [he] told me about my payables. [He] is really greedy. Yes, I have many issues in my business transactions with him, but I will still transact with him because he is the only one who would give credit without collateral (FGD, August 23, 2021).

Depending on the ARBs' requests, the landowner-subcontractor assists with planting materials and inputs during the planting phase. Hence, the credit size depends on the actual use by an ARB. In addition, ARBs are legally bound to the contract until the credit is repaid in full, reinforcing the subcontractor's market power in the ARC.

ARBs can request inputs such as fertilizers from the landowner-subcontractor throughout the contract period also on credit. The former can decide on input use and intensities, while the latter supplies those inputs on credit that ARBs demand. Relatively, an ARB cited that landowner-subcontractor and traders display and participate in unequal business engagements, denoting his

unwillingness to interact with them, as shared:

> All I have are our coconut, corn, and vegetable produce. Our local authorities do not offer any assistance [to enhance our harvest]. Only one trader and my neighbors buy my crops because our harvest is just a few. I should sell it before it gets spoiled. I have only dealt with one trader ever since because he displays less opportunistic behavior than others. I refuse to sell it to other traders and even engage with the landowner-subcontractor because they pay low due to supposed low market prices. I do not believe them. They are scoundrels (FGD, August 23, 2021).

Traders and the landowner-subcontractor still play a significant role in the village despite these complaints, maybe because they still have enough ARB partners because they can purchase large quantities at a given point in time. Moreover, most ARBs still prefer to sell to them for two reasons. First, ARBs have secured sales to sell the output on scheduled dates and in large quantities, minimizing spoilage. Second, they receive accessible credit assistance for farm maintenance. These are particularly important because coconut, corn, and vegetables are capital-intensive crops, while ARBs are financially constrained. On the other hand, an ARB even currently engaging with a landowner-subcontractor shared that given a choice, he would not engage with him:

> Given a choice, I do not particularly appreciate engaging with the landowner-subcontractor because he will withhold the money I owe him from my earnings. He offers me little payment for crops because he knows I am not that educated. Also, he added huge interest to my loan. Due to subcontracting scheme, I am already in debt, but I cannot do anything because I have children [to support]. We should have our own market [communal trading post], paved roads without humps [laughs], and financing from the [local] government. Those would be reasonable provisions. I wonder when I will experience that (FGD, August 23, 2021).

This scenario manifests that ARBs' income depends on traders and landowner-subcontractor. Their preference for cash crops cultivation subjected them to commodity price fluctuations, leaving them unable to diversify to other income sources. Though the prices offered by traders and landowner-subcontractor are generally low than that of village consumers (although with small price differentials), ARBs do not have a storage facility or proper skills to prevent product spoilage. In this regard, traders and landowner-subcontractor were better off getting commodities at low prices and taking advantage of the economies of scale in transporting a large quantity. On the side of traders and landowner-subcontractor, the FMR significantly benefitted the ARBs. One trader answered,

> We bought their products at a market price. As a result, ARBs did not need to talk to other traders outside the municipality. In addition, they did not need any transportation to deliver their products to outsiders. So, we bought their products and received compensation at a market rate. (FGD, September 2, 2021).

Thirty percent of the ARB participants revealed that average yield (ton/ha) improved due to their market participation as facilitated by FMR. During FGD, they shared that it increased by 20- 30 percent due to their inclination to plant cash crops, as suggested by the traders. However, though they admitted that their market participation made them pursue cash crops cultivation to earn an average annual income of PhP 19,000 ($395) to PhP 23,500 ($489) per hectare, they still could not feel an increase in their income. Most of them shared that current landowner-subcontractor and traders have low offers. For instance, though their production increased, the selling prices were unchanged due to lowball offers to mention the excess supply. One shared, "We have minimal profits

due to low selling price. The subcontractor and traders control prices, and we cannot do anything about it since we have an existing contractual agreement with them." (FGD last August 23, 2021)

The landowner-subcontractor enjoys ARBs' market participation by expanding his farming business to contract farming agreements with big companies. For instance, he shared that he is currently engaging with big businesses exporting coconut commodity and coconut products (e.g., copra meal, Refined Bleached and Deodorized coconut oil, glycerin, coconut shell charcoal, coconut water, desiccated coconut, liquid coconut milk, coconut milk powder, virgin coconut oil, and nata de coco). He also shared that some ARBs should be thankful to him for maximizing the FMR benefits and reducing poverty for the whole community. Specifically, because of their income from subcontract agreements, some ARBs were able to pay their debts, to wit,

> I paid the ARBs reasonably using the prevailing market prices. They receive their fair share after deductions of loans they made in the past. My ARB partners should be thankful because I allowed them to earn income and access improved coconut variety, fertilizers, and other complementary inputs at a fair price (FGD, September 2, 2021).

Lastly, 80% of the ARB participants recognized their products' average travel time reduction of 40 minutes. Landowner-subcontractor and traders could quickly get their crops via FMR. As a result, their products efficiently reach other areas. However, most of them shared that travel time reduction did not affect their overall income as some rarely travel to conduct business engagements. Based on project site observation, ARBs usually transact with only one (e.g., trader or landowner-subcontractor), depend on family labor, rely on inadequate information, receive minimal support services, and connect with less significant market players. One participant shared:

> I have an engagement with one landowner-subcontractor. I earn just enough money for our family's daily living. I do not have to transport my copra[dried coconut meat-producing coconut oil] because they pick it up directly from my farm. If you ask me, the FMR helped us somehow because we walk on roads now. It did not help my farm income but gave me something to walk on [laugh] (FGD, August 25, 2021).

Most ARBs further shared that only those who owned a vehicle would feel the impact of travel time reduction. They continued to walk despite the rough roads because their profits were insufficient to pay for transport. They have accepted that only landowner-subcontractor and traders could carry their products to the local market or food processing centers and benefit from the FMR.

Low bargaining power or capacity to profitably grow their income

Few smallholder farmers can take advantage of their market access (Gneiting & Sonenshine, 2018). A significant number of studies conducted in developing countries confirmed that they lack adequate market information and equitable contractual arrangements that allow them to participate in the market formally (Sebatta et al., 2014)(Alene et al., 2008)(Omiti et al., 2009)(Minot & Sawyer, 2016). This scenario is consistent with the low bargaining power of the ARBs within their contractual agreements. Bargaining power pertains to considering advantageous terms of exchange (e.g., support services, conformity with standards, payment modes, etc.). Specifically, of those ARBs with subcontracting agreements, the researcher investigated the information and understanding about their subcontract agreement upon signing. The contract document written in English included several lengthy clauses and a cost and repayment schedule. However, only 30 percent of those engaged can read and speak English, meaning that 70 percent could not read and understand the contract before signing it. The challenge of inadequate or inaccessible information manifested as only 20 percent of the ARBs reported that they completely understood the contract prior to signing it. Those who cannot read English themselves and still indicated that they understood the contract

revealed that they asked the landowner, friends, or family members for translation. For instance, one ARB shared:

> I really do not know what I signed up for. When I was told that it was a business utilizing my land, I agreed right away. Later, I realized that I was on the losing end due to the high cost of fertilizer loaned by that subcontractor. I felt that my family and I, who truly worked, were taken advantage. After two years, I will not sign any contractual agreement right away. One instance shows how our market participation can be utilized for personal interest. It would be better if we go directly to the companies/suppliers than to the landowner-subcontractor and traders. The FMR helped that landowner-subcontractor and traders to facilitate market engagements among us. I am angry because it turned ARBs into cash cows. (FGD, August 26, 2021).

The researcher further examined the ARBs' knowledge about particular contract clauses. First, the contract indicates that after a specific delay in the output supply (more than three weeks), the landowner-subcontractor has the right to use the farm. This scenario indicated 'take-over' implies that the ARBs lost their power while the landowner-subcontractor decides on all input applications and provides the required labor to cultivate the plot. Specifically, the ARB loses his decision-making power, is no longer allowed to use the plot, and gets no payment until the debt is refunded. One hundred percent of the ARBs were aware of the consequences of the contract breach at the time of the survey. However, further discussions with the ARBs suggest that this was not widely understood when signing the contract. Instead, they realized it through experience. Several ARBs faced such expropriation.

Concerning ARBs' debts with the landowner-subcontractor, only 70 percent of the contracted ARBs are informed of the initial credit they are paying off. As explained previously, most ARBs incurred debts to pay farm maintenance and input supplies; hence the credit is not a fixed amount as it depends on the interests, types of assistance, and inputs required by an ARB. 30 percent of the sample were unaware of the credit amount. For those who reported their initial amount of credit, the researcher cannot check whether the amount was estimated correctly as the landowner-subcontractor withheld the information to cross-check.

Overall, ARBs have been negatively affected by their market participation. Though they all agreed with FMR's social benefits, some openly expressed that FMR facilitated inequitable market participation. Notably, it only facilitated market participation with unequal distributive consequences such as opportunities for landowner-subcontractor and traders to expand their businesses within the ARC while with low-bargaining power of ARBs.

HIGH TRANSACTION COSTS

Based on the survey, 70 percent stated that their market participation in cash crops exposed them to increase transaction costs in farming. The transaction costs denote expenses related to farming's essential factors of production, such as credit, inputs (seeds, fertilizers, pesticides), information, production technologies, and poor access to output markets. Therefore, most ARB participants believe that the government should intervene and mitigate increasing transaction costs by implementing the appropriate intervention needed along with the FMR provision.

According to ARBs, their farm inputs' market prices, such as fertilizers and pesticides, are expensive, ranging from PhP 12,000 ($250) to 17,000 ($353)/cropping season per hectare offsetting gains with minimal technical assistance from the government. They shared that government agricultural extension agents visit the municipal office and landowners more frequently, expecting that information and support services were cascaded to them. However, it barely happened. Most ARBs felt that they did not receive enough government or non-government organizations support services. One ARB shared that he had to access informal credit from a landowner-subcontractor charging exorbitant interest, to wit:

> I always borrow money from a landowner to plant my crops. I will just pay my loan once I sell all my crops/ The subcontractor charges high interest, but I cannot do anything about it because he is the only one available who can lend me that much. There are no government programs that provide credit support services. They should provide complete [assistance], FMR, and support services that ARBs need to continue commercialization. We are really disadvantaged compared to subcontractors and traders because they profit from us. We need fertilizer and credit with low-interest rates. (FGD, August 27, 2021).

Thus, though their yields improved, it did not commensurate with the overall price increases in farm inputs and essential commodities (e.g., coffee, cooking oil, salt, detergents) for their daily sustenance. Unfortunately, the DAR's provision of support services in the ARC is weak and sometimes skewed towards the relatively rich ones, to wit:

> Besides FMR, we need credit facilities and accessible farm inputs. We also need cropping skills and agricultural education. DAR could visit us in the ARC so our children or we could study different seed varieties and cropping skills that we need to grow our produce. I always try to use new seed varieties, but I still need to figure out the process. I wish someone could help me with the appropriate process. I wish someone could teach us while setting up a model village to pilot-test the seed varieties. That is good! (FGD, August 26, 2021).

On the other hand, information scarcity of adaptable varieties is primarily due to weak extension service delivery of the government, relative to the numerous unfamiliar varieties released onto the market without adequate agricultural education on the types and economic benefits of improved varieties, to improve their adoption decisions (Langyintuo & Setimela, 2007). Therefore, one ARB suggested the local government unit (LGU) institute mechanisms that could improve the farm-related livelihood of its constituents, to wit:

> The LGU, focused on requesting FMR maintenance funding, should also request other resources to improve agricultural land here in Agdangan. They should not merely follow the policies or approaches being advocated by DAR and PCA (Philippine Coconut Authority). They should create innovative programs, facilitate the creation and strengthening of ARB associations and cooperatives, and promote the development of coconut, vegetables, and livestock industries. All these should be included along with FMR. The focus should be given to helping ARBs overcome poverty. Hence, the government should consider the FMR, agricultural support services, and livelihood activities at the national and local levels. Yes, we already have a walkway, and we can walk quickly, but when it comes to farming, it did not help. Only traders benefit from it. (FGD, August 26, 2021).

Based on the survey, 90 percent stated dissatisfaction with the insufficient agricultural extension services by the government. Since ARBs undergo market commercialization processes through FMR, they suffer from asset access asymmetry, low market information, and low extension services. One ARB participant shared,

> They involved us in the commercialization process through FMR. However, they exposed us to the landowner-subcontractor and traders who are greedy for profit. The government should have supported us to compete with them from the start, but they neglected us. Like they said, oh, there is an FMR, your lives will get better. But it is not the case. The road is rough and uneven [laughs]. Honestly, we just need to participate without traders to distribute our marketable surplus. During the pandemic, there were no traders. Many vegetables became rotten. We could have given these away for free. At present, we really rely on traders and landowner-subcontractor. (FGD, August 25, 2021).

ARBs' claim is consistent with the idea that asset holdings can help alleviate any production and market shocks. Assets such as social, political, financial, and human capital and farm implements are crucial for marketable surplus production. (Jayne et al., 2010)

40 percent of participants recognized their net annual farm income improved **(**pesos/year/household**) due to their market participation**. During FGD, most of them shared that it increased by 5 percent but did not correspond with the increasing prices of overall production costs. Therefore, some of them engage with the cultivation of short-term subsistence crops such as banana, cassava, and other root crops for subsistence needs. One participant shared their need for crop and livestock-specific intervention:

> New variety seeds are expensive, but it would be great if DAR could provide it. Then, once we can afford it, we will purchase it ourselves. I hope they provide us with assistance so that we can bountifully farm. They should include financial assistance so we can develop hog-raising here in ARC. We can benefit and utilize the FMR if we earn the same as the traders. The [government] should provide overall assistance, not just a rough and uneven FMR. [laugh] (FGD, August 25, 2021)

As coconut farming is not labor-intensive, others were into alternative income generation strategies outside agriculture, such as babysitting and offering faith healing services. However, they all agreed that they save money by veering away from house renovation and reducing meal intakes from three to two times per day. In this way, they could at best satisfy the basic survival needs of their family and improve their basic food security. However, they could not increase their asset holdings or production assets due to a lack of funds. One ARB mentioned that he accessed credit to buy a motorcycle not because his income improved, but he needed it to pursue alternative jobs outside ARC, to wit:

> I bought a motorcycle because I used it to get alternative job opportunities outside Agdangan while expecting the harvest season. To be honest, farming alone will not help us buy our daily needs. We still must get alternative jobs outside the community to get a reasonable income and cover the farm's inputs and credits. If they really want to help us, provide accessible and affordable inputs and credit facilities. Because of debt, we will lose our farm (FGD, August 23, 2021).

Hence, through FMR, market participation expanded ARBs' income source to off-farm activities but did not directly affect farm productivity. This scenario shows how an FMR access can cause agricultural diminution. Since ARBs can choose the job they want to pursue, they may decide to seek employment in the industrial and services sector as the agriculture sector offers little compared to others.

40 percent of the participants recognized that market participation, using FMR, reduced transportation costs by PhP 50 ($1.04). Yet, obscured behind transportation cost reduction, ARBs continued to contend with other symptoms of 'uneven development' (Bebbington, 2004; Smith, 2008). For example, most of them cannot buy their transportation. Hence only those who own vehicles benefitted significantly. An ARB emphasized that apart from FMR provision, they need financial support to enhance their livelihood activities. He also mentioned that this would create multiplier effects as he could hire other people in the community to keep his farm going.

ARBs recognized that though FMR reduced transportation costs, they consider the high-interest rates from informal creditors offsetting their gains. For example, an ARB shared that his subcontractor gives credit and inputs provision but gives a 20 percent interest payable in a year, to wit:

> My subcontractor saved on transportation costs. Since we do not have a vehicle, I did not experience that convenience. I think the trader pities us that when transportations costs are low, they give us some incentive. However, I could not accept that the interest rate for loans that informal creditors give us is pegged at 20 percent. It's really steep. It will take time to pay off (FGD, August 26, 2021).

The government lacks situational awareness to see the ARBs' real plight. As a result, ARBs had minimal benefits or were even affected negatively during their market participation. For instance, they cannot maximize the FMR's market opportunities because their market participation depends on their endowment in productive assets, which shapes their production. Some also complained that they lack working capital and turn on the informal credit market despite high-interest rates. Some even shared that the cost of their informal credit is more than double compared to the formal sector (e.g., offered in rural banks). Hence, though FMR intervention exists, ARBs cannot access the market participation benefits despite possessing an asset.

DISCUSSIONS

The results presented have several important implications. First, FMR catalyzed the market participation of all project beneficiaries within the ARC. However, some indication that the benefits were not asset neutral as landowner-subcontractor and traders benefitted significantly.

Most ARBs felt that their market participation would positively impact if the government (i.e., national and local levels) provided sufficient agricultural extension services. They are diverse economic units of agricultural production. Their characteristics and challenges change according to geography, the influence of historical institutions, and the political and socio-economic conditions in which they are situated. Therefore, addressing their farm productivity challenges and designing potential solutions must be aligned and customized. Specifically, they face several challenges in access to essential factors of production, such as credit, inputs (e.g., seeds, fertilizers, and pesticides), information, production technologies, and poor access to output markets (Pingali, 2012; Poulton et al., 2010).

Despite FMR investments, nothing significant has changed in the agriculture sector. As the Philippine economist once said, 'small farmers in the Philippines remain the poorest in our society, unable to bring their produce where it may fetch the best price' (Habito,2019).

The government credit facility is a recurring need facilitated by ARBs. With the current Philippine Development Plan (2021) encouraging credit guarantee use (NEDA, 2021), it would be worthwhile to consider the credit guarantee scheme in the ARC as a pilot test area. In this way, the credit guarantees could have been used to cover part of the ARBs' default risk, confirming secure repayment of all or part of the loan in case of default (Levitsky 1997). Moreover, it is also helpful in addressing the issue of ARBs' lack of collateral and poor credit history and improving credit terms. Additionally, enabling loans to them who would otherwise have been excluded from the lending market allows them to prove their repayment reputation in the future (De Gobbi, 2002) and benefit from lower transaction costs which will help raise their productivity (Navajas, 2001).

Agriculture is the predominant activity in the Philippines, yet most of its accompanying interventions entail significant transaction costs. For instance, banks could not comply with the mandated credit for the agricultural sector, and ARBs citing lack of functioning collateral, high transaction costs due to clients' inaccessibility, peculiar demand for financial instruments, the lag between investment needs and expected revenues, pests, and diseases, underdeveloped communication, and transportation infrastructure and high covariate agricultural risks due to variable rainfall and price volatilities. Most ARBs realized that their market participation subjected their farm to higher transaction costs. The government should create initiatives to reduce transaction costs since these

costs are high on small farms. ARBs could find it challenging to take advantage of the economies of scale, negatively affecting their development. Based on interviews, capital market imperfections (e.g., limited access to formal credit for ARBs with lowland endowments because they have limited value as collateral (Besley, 1995a; Besley, 1995b) could exacerbate their situation, which in turn restricts other ARBs' needs such as access to inputs, extension services, equipment, and inputs such as machinery. Due to a restricted production volume, ARBs often do not have bargaining power, leading to their poor price realization (Hazell et al., 2010; Johnson & Ruttan, 1994; Poulton et al., 2010).

Lastly, ARBs also denoted that their market participation resulted in unequal benefits generated by the non-poor sector (i.e., landowner-subcontractor and traders). The non-poor sector disproportionately captured project benefits as they have better asset holdings via stable access to capital to take advantage of the opportunities provided through market participation. As a result, they are better equipped to take advantage of the opportunities and gain unlimited access to resources. John Harris (2001) suggests that this scenario will likely lead to elite capture and anti-poor outcomes. In line with this, efforts should be made to prevent unfair practices, including price-fixing and market segmentation. In addition, public policies should address inputs sourcing and distribution costs. Adequacy of supply chain coordination mechanisms could also improve the fertilizer value chain.

FMR is a critical enabling condition for market participation in isolated agricultural areas. However, the allocation of socio-economic benefits resulting from market participation catalyzed by FMR is distinct and needs theoretical and empirical attention. Although it is always described positively for landowner-subcontractor and traders, the story is much more complicated for ARBs. For ARBs, the market participation facilitated by FMR is insufficient to improve their economic status due to the contextual situation, inequitable asset holding concentration in the community, and inadequate agrarian support services.

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FUNDING DETAILS
This study was made possible through Graduate School Thesis Grant, ASEAN Scholarship, Support of Overseas Research from the Graduate School and Faculty of Political Science of Chulalongkorn University, Bangkok, Thailand.

ACKNOWLEDGMENT
The author wishes to thank her professors from the Faculty of Political Science of Chulalongkorn University, especially Prof. Teewin Supputikun, Ph.D., Professor Naruemon Thabchumpon, Ph.D., Professor Carl Middleton, Ph.D., Prof. Bhanubhatra Jittiang. Ph.D., Prof. Antoinette Raquiza of University of the Philippines, and Sarah Grace L. Candelario.

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