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Local community's preferences for accepting a forestry partnership contract to grow pulpwood in Indonesia: A choice experiment study

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ABSTRACT

Forestry partnership schemes have been deployed to integrate industrial plantations' and local communities' interests in forest resource management. However, the unsatisfactory impacts of the scheme lead to both parties reassessing the value of the partnership schemes. This article explores local communities' willingness to remain in or opt-out of the partnership schemes designed to grow pulpwood in Indonesia, and investigates their preferences for accepting the modified contract attributes. The contract attributes include contract length, labor participation, insurance, training, road improvement and income. A choice experiment approach was used to estimate preferences of 287 smallholders, of which half were participating with the timber industry under Company-Community Partnership schemes. The results show that a bundle of the contract attributes that could increase local communities' utility are provision of road improvement, higher expected income, and higher timber production insurance. Greater incentives are required to compensate smallholders' loss of utility due to longer contract length and monitoring planted areas. The preferences vary significantly depending on smallholders' participation status in the scheme but not land tenure status. The continuity of the partnership schemes is challenged by a significant number of respondents always rejecting the contract option. The implication of the findings is that designing a bundle of contract attributes focusing on a promotive social safeguard approach likely keeps the participating smallholders in the schemes.

1. Introduction

Involvement of local communities in forest management in the tropics has increased and shown a significant role in addressing adverse impacts of deforestation (Gilmour and Fisher, 1997; Wiersum et al., 2013). Community forestry is now also integrating with global forest governance, such as forest certification, timber legality and trading system and REDD + (Wiersum et al., 2013). However, the expansion of community forestry is still constrained by many factors, including limited budget of public funding (Szulecka et al., 2015), lack of knowledge in technical and managerial problems (Byron, 2001; de Jong, 2010; Irawanti et al., 2014) and legal framework governing the community forestry for commercial purposes (Foundjem-Tita et al., 2013; Irawanti et al., 2014; Maryudi et al., 2015, 2016).

Economic globalisation in the forestry sectors since 1990s has attracted multinational timber companies to finance commercial forestry

in many developing countries (Mayers and Vermeulen, 2002; Ros-Tonen et al., 2007). However, this has caused land grabbing phenomena and created tension with and displacement of the local communities (Gabay and Alam, 2017). Forestry partnership schemes called a Company-Community Partnership (CCP) have been adopted as a new mode of forest governance for integrating the timber companies' with local communities' interests, reducing the natural resource conflict and enhancing rural livelihood of the local communities (Mayers and Vermeulen, 2002; Pirard et al., 2017). In Indonesia,¹ this CCP instrument is recognized as a community-based forestry functioning to overcome conflict when weak property rights regarding land tenure and trees exist (Kallio et al., 2011; Race et al., 2009). To this end, the CCP schemes follow a social safeguard approach that prevents adverse impacts of industrial forestry activities on rural livelihoods. In international forestry regimes, there are four typologies of social safeguard approaches to prevent adverse impacts of market and/or policy

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¹ Based on Indonesia Government Regulation No. 7/2006 and Ministry of Environment and Forestry Regulation No. 83/2016, Indonesia has recognized several types of community involvement in forest management, i.e., village forest, community forestry, commercial smallholder forestry, forestry partnership, and customary forests.

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interventions, i.e.: 1) preventive safeguards, i.e., ‘doing no harm’ to local communities, 2) mitigative safeguards referring to minimize the negative distributional impact of measures on local communities and their livelihoods, 3) promotive safeguards, that is, ‘doing something better’ to provide opportunities and spaces for local communities to contribute to decision making, improve their livelihoods and benefit from the measures, and 4) transformative safeguards, aiming to pursue a radical shift to increase indigenous peoples’ (IPs) and communities’ access to and control of benefits (Tegegne et al., 2017).

Reviews and case studies of CCP adoption in Indonesia highlight their mixed impacts on timber production, socio-economic and environmental outcomes (Greenhill et al., 2017; Pirard et al., 2017; Ros-Tonen et al., 2007). On one side, timber companies secure their concession forests (public land) – traditionally managed under usufruct rights of the local communities – for long-term investment periods. The local communities also gain returns, such as paid labor and shared profit from plantation activities on the public and private land. Studies report that the partnership schemes improve physical infrastructure development and assure land boundaries between community members (Nawir et al., 2003; Pirard and Mayer, 2008; Pirard et al., 2017; Race et al., 2009; Tyynelä et al., 2002, 2003; Vermeulen et al., 2006). However, studies also report that the CCP schemes have not fully achieved their anticipated socio-economic impacts, such as lifting local communities out of poverty and reducing conflicts with outsiders (Greenhill et al., 2017; Maturana et al., 2005; Nawir, 2013; Pirard et al., 2017; Wibowo et al., 2013). The monocultural forest plantations under the schemes have also suffered from environmental problems, e.g. pest and diseases outbreaks and are prone to forest fires (Arisman and Hardiyanto, 2006; Tarigan et al., 2011), causing declines in timber production and eventually affecting profit sharing for local communities. These adverse impacts cause dissatisfaction among the participating smallholders (Greenhill et al., 2017; Nawir, 2011). Greenhill et al. (2017) report that even though smallholders perceived small but significant improvements to the households’ income, access to food and reduced vulnerability, a high level of dissatisfaction of CCP schemes among the participating local communities was found, leading to an unwillingness to renew contracts in the future. The study suggests increasing community satisfaction in the partnership arrangements to ensure the scheme remains viable into the future.

Recent changing in national forestry governance that supports and recognizes local communities’ rights to control their forests, which are previously controlled by timber companies and state agencies, enables local communities to renegotiate the existing contract of forestry partnership arrangements with timber companies (Gabay and Alam, 2017). Accommodating communities’ preferences in designing management plans that affect their willingness to remain in or leave their participation could improve the scheme (Pirard et al., 2017). For forest managers to implement fairer and more equitable contract mechanisms that represent local communities’ views the following questions remain fully or partly un-answered in the recent literature about CCP schemes:

- Which attributes of the CCP contracts can be effectively modified and renegotiated?
- How much change (in monetary value) is required to increase the willingness of local communities to continue or accept the modified scheme given changes in the attribute level?
- Which group of local communities remain unresponsive to the proposed schemes and what are their socio-economic characteristics?

This paper aims to investigate local communities’ preferences for accepting modified CCP contracts and how forest managers can utilize this information to develop policy scenarios for enhancing CCP schemes. To achieve the aims, *firstly*, we estimate the values local communities place on individual contract attributes, *secondly*, we identify the effect of socio-economic factors determining local

communities to accept proposed contracts, and *lastly*, we evaluate policy scenarios that could increase the probability of local communities adopting the CCP schemes. The recent qualitative studies on CCP schemes provide limited information to answer such questions, so this study employs a quantitative approach to address the above questions. It is assumed that the preferences of local communities to accept the contract depend on a bundle of the contract attributes being offered. We use a choice experiment (CE) approach, which is an economic stated preference method for imputing the value of non-market or prospective goods (in this study a contract) for policy analysis. The results of this study can contribute to help timber companies and forestry agencies design more appealing, flexible and effective contracts for communities. To our knowledge this study is the first attempt to employ CE approach to estimate opinions of local communities who currently involve in the CCP schemes to continue growing pulpwood trees (acacias or eucalyptus).

In addition to investigating perceptions of local communities who have already participated in the CCP scheme (CCP group), we explore a broader acceptance of the CCP schemes by non-participating smallholders (non-CCP group), who are unfamiliar with the schemes but who could potentially join the scheme in the future. We also consider land tenure differences, including public forest and private farmland,² which likely affect choices of land investments (Abdulai et al., 2011; Rolfe and Windle, 2014). The next section reviews the contract mechanism of CCP schemes in two forest concession areas in Indonesia. The subsequent section describes the approach and procedures to conduct a choice experiment survey and data analysis. We then present the results followed by discussion on challenges of CCP schemes and the policy implication. The paper concludes with conclusions.

2. CCP contract mechanism in the industrial plantations

Following Indonesia Government Regulation No. 7/1990, about 10.1 million ha of forest (28% of national production forests) have been allocated for industrial forest plantations with 234 forest concession holders (MoF, 2012), 75% of them producing pulpwood from acacia plantations about 19.8 million m³ in 2011 (Arisman, 2014).³ The proportion of logs produced from plantation forests reached 27.4% of the total log production in 2000 and increased to 69.7% in 2010 (Arisman, 2014). Two significant concessions holders contributing to the national pulpwood production and adopting CCP schemes are selected for this study, i.e., Finnantara Intiga (FI) in West Kalimantan and Musi Hutan Persada (MHP) in South Sumatera (see Fig. 1). Each timber company is granted a maximum 300,000 ha of forest concession areas for 45 years with the possibility of renewal. Not all land could be utilised for pulpwood plantations due to various reasons, e.g. poor soils, overlapping with existing community plantations and areas for specific purposes, e.g. conservation and agroforestry. Thus only about 17–30% of the concession areas could be planted (Marjokorpi and Otsamo, 2006; Purnomo et al., 2014). The most common planted species are for *Acacia mangium*, which is now partly replaced by *Eucalyptus* sp. (Arisman and Hardiyanto, 2006). The following paragraphs briefly explain implementation of the CCP scheme in each company.

2.1. FI’s CCP scheme

FI was founded in 1996 aiming to establish acacia plantations for pulpwood with concession areas of 299,700 ha across three districts in West Kalimantan, i.e., Sintang, Sanggau and Sekadau. FI was originally managed by the Finnish company Nordic Forest Development (a

² Property rights in land refers to four types: public, common property, toll goods, and private land (Gershon and Feeny, 1991). State forest land is intermingled with public land in this study.

³ Excluding plantation forests in Java.

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