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Understanding motivations for violation of timber harvesting regulation: The case of chainsaw operators in Ghana

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A B S T R A C T

Despite regulations introduced about two decades ago to prohibit the use of chainsaw machines for milling logs into lumber for commercial purposes in Ghana, the practice still persists in clear violation of the law. This empirical case study in the Ashanti Region of Ghana seeks to understand the motivations for such violation. The study finds that low deterrence, economic gains to be derived, high patronage of chainsaw milled lumber on the domestic and the West African sub-regional markets, apparent lack of social sanctions for violators, weak morals of the actors involved, perceived unreasonableness of the regulations that prohibit chainsaw milling and low legitimacy of the regulators have all contributed to the violation behaviour. It also highlights the importance of contextual factors particularly poverty and political support in shaping the violation behaviour. The implications of these findings for policy are discussed and recommendations put forward.

1. Introduction

Illegal logging causes environmental degradation, loss of biodiversity, social conflicts and destruction of areas of cultural significance/heritage as violators do not comply with environmental standards or best logging practices. Illegal logging and illicit trade in timber products are also noted to be depriving developing economies of billions of dollars in lost revenues and development opportunities (World Bank, 2009). In Ghana, the government estimates the annual loss of revenue from illegal logging at between USD 8 and 13 million, equivalent to 2% of the country's gross domestic product (GoG, 2012).

Research suggests that chainsaw milling of logs is the most common form of illegal logging in Ghana (Birikorang et al., 2001; Hansen and Treue, 2008; Marfo, 2010). Chainsaw milling refers to the use of fuel-powered chainsaw machines for harvesting timber species and converting the logs in-situ into lumber (Odoom, 2004). Chainsaw machines were introduced into Ghana in the early 1960s by the licensed logging firms to replace manual saws and felling axes for harvesting and cross cutting trees. Later farmers came to employ chainsaws for harvesting large trees during land preparation for agricultural crops. However, the practice of using chainsaw machines to mill logs into lumber for commercial purposes commenced from the economic crises in the 1970s where the formal timber sector nearly collapsed but became pervasive in the mid-1980s following the repatriation of about a million Ghanaians from Nigeria (Marfo and Mckeown, 2013).

Ever since, the practice has become widespread within the country, employing about 97,000 persons along the entire production and marketing chain (Marfo and Acheampong, 2011). Recent study by Marfo et al. (2017) using field survey data with 2014 as the snapshot estimated that chainsaw lumber accounts for about 1.102 million m^3 (72%) of the annual national production of timber products (mainly lumber) traded on the domestic market valued at GhC 544.39 million[1] based on the average market price of GhC 494.00/m^3 for all species. The study projected the potential stumpage fee lost, using an average stumpage fee of GhC 29.41/m^3 based on the 2014 revised rate at GhC 32.4 million. This figure is about four times the amount (i.e., GhC 8,961,595.14) collected by the Forestry Commission as stumpage fee from the licensed logging firms in 2014. In terms of marketing outlets, chainsaw lumber is traded across all the ten administrative regions of Ghana and within the West African sub-regional (ECOWAS) market. The major patrons of chainsaw lumber in Ghana include individuals, woodworking artisans, real estate developers, overland exporters and contractors of the metropolitan, municipal and district assemblies (MMDAs).

As part of a broader policy and legal measures to address the problem in Ghana, the Timber Resources Management Act (TRMA, 1997) and its operational instrument, the Timber Resources Management Regulations (TRMR, 1998) were enacted to criminalise the practice of using chainsaws for milling logs into lumber for sale, exchange or any commercial purposes (TRMR 1998, reg. 32). Notwithstanding the above regulations, the practice persists, making it a problem for forest regulators. It is also worrying when viewed against the backdrop of

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[1] Ghanaian cedi (GhC) (3.80 = 1.00 USD) as at July 2014.

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Ghana's obligation under the voluntary partnership agreement (VPA) with the EU that commits her to improve forest sector governance including implementation of measures to ensure that only legal timber products are traded on both domestic and the EU markets.

Earlier studies on illegal chainsaw milling in Ghana could be grouped into three clusters. The first cluster of research investigated the general causes and adverse impacts of chainsaw milling. For the causes, the results revealed flawed policy and legal framework, land and tree tenure problems, poor farming practices and population pressures among others while the adverse impact ranged from environmental through social to economic (Appiah et al., 2007; Blay et al., 2007; Odoom, 2004). The second cluster of studies examined the socio-economic context of chainsaw milling particularly its contribution to the economy in terms of employment, livelihood and infrastructural support to the forest fringed communities (Hansen et al., 2015; Marfo and Acheampong, 2011; Obiri-Darko and Damyang, 2011). They found out that illegal chainsaw milling helps to sustain rural economies and livelihoods, and that the continuous existence of the ban has fuelled illegal practices and conflict in the sector. The third cluster of studies considered chainsaw milling production and the extent of illegal logging by the chainsaw operators. The results estimated the annual timber harvest at between 1.7 million m^3 and 2.5 million m^3 (Birikorang et al., 2001; Hansen and Treue, 2008; Marfo, 2010).

However, little scholarly attention has been devoted to compliance-violation behaviour and motivational factors that shape such behaviour (Hansen, 2011; Ramcilovic-Suominen and Hansen, 2012). Hansen (2011) examined law compliance in the case of on-farm timber extraction with rules that require timber operators; to obtain prior and informed consent from the farmers, to pay appropriate and timely compensation for crop damage during timber extraction and chainsaw milling. The study documents low level of compliance in all the three domains. In another study, Ramcilovic-Suominen and Hansen (2012) investigated farmers' compliance with rules that regulate timber harvesting on farmlands, farming in forest reserves and use of fire on farmlands. The findings indicate high levels of compliance with farming and fire rules but low compliance for timber harvesting rule. None of these studies primarily focussed on violation motivations of chainsaw operators. This study, therefore, makes an exploratory study to understand the noncompliance behaviour of chainsaw operators in Ghana with respect to forestry regulations that prohibit them from harvesting timber and milling in-situ into lumber for commercial purposes and, conditions that foster such behaviour.

The present study in Ghana is relevant because a better understanding of noncompliance behaviour and associated motivations could help design responsive policy interventions in Ghana and lessons learnt shared with other developing countries where compliance with enacted laws in natural resource management remains a challenge.

2. Theoretical framework

The socio-legal literature on what shapes individuals and regulated entities compliance behaviour points to three main theories namely, deterrence, normative and social norms (Kagan et al., 2011; Thornton et al., 2009; Winter and May, 2001).

The deterrence theory is based on standard economic conception that regulated actors behave rationally to maximize their utility and would comply with a given regulation when they estimate that the benefits outweigh the costs (Becker, 1968; Ehrlich, 1972). With this theory, the key variables that determine compliance are perceived detection risk and sanction severity. Empirical evidence suggests that perceived detection risk and sanction severity are important for regulatory compliance (Harrison, 1995; Thornton et al., 2009). This means that, at least in theory, compliance can be elicited through enforcement (i.e., detection and sanctions). It could also mean ensuring that sanctions for noncompliance always exceed the illegal gains. According to Young (1979), compliance can also result from inducement (i.e., lower compliance costs or higher benefits for compliance).

However, the basic deterrence theory does not provide satisfactory explanation to all instances of compliance when perceived detection and/or sanctions are low or even nonexistent, For instance, Sutinen and Kuperan (1999a) report that many fishers in Malaysia comply with fishing regulations despite large potential illegal gains and small expected sanctions. Again, research has shown instances where some regulated actors actually go beyond compliance, in the sense of doing more than what is specified under a given regulation (Hutter, 1997; Thornton et al., 2009). The normative theory or perspective of compliance behaviour attempts to provide answers to some of these shortcomings in the standard deterrence theory.

From the normative theory, regulated actors consider what is the right thing to do (personal morality or civic duty), reasonableness of the rule and, the legitimacy of the authority or institution that made the rule (Levi et al., 2008; Sutinen and Kuperan, 1999a; Tyler, 1990). Personal morality refers to an internal obligation to follow one's own sense of what is right or wrong. Here, compliance is based on the internalized values of the regulated actor and not on material rewards or cost-benefit calculations. Studies have shown that appeal to actors' civic duty has helped increase tax payment (Kagan et al., 2003) and as a factor in success of anti-littering campaign in the US (Grasmick and Bursik, 1990) Again, empirical evidence shows that, regulatory rules that become or are internalized into morals produce the deepest form of compliance, in the sense that violating such norms means violating one's own morals (Grasmick and Bursik, 1990; Vandenbergh, 2003).

The second component of the normative perspective is reasonableness of the rule regulated actors are supposed to comply with. Levi et al. (2008) have shown that regulated actors generally comply with rules they deem reasonable when even those rules offer them no direct material benefits. This is further illustrated by Raakjaer Nielson and Mathiesen (2003) in studies of Danish fisheries regulations. They found that fishers were reluctant to comply with regulations they perceived as unreasonable. On this, Tyler (1990) explains that non-compliance stems from a principled disagreement with regulations or orders actors regard as arbitrary and unreasonable. To elicit compliance, therefore, Sutinen and Kuperan (1999a) suggest that regulators and/or policymakers must ensure that regulations appear reasonable and make sense to actors.

The third component of the normative perspective is legitimacy- which refers to a feeling of obligation to obey law and defer to the decision made by legal authorities (Tyler, 1990). Prior studies suggest that most people obey regulations emanating from authorities and institutions that they trust (Levi et al., 2008; Tyler, 1990). In the view of Sutinen and Kuperan (1999a), legitimacy is a stock of loyalty that regulatory authorities can draw upon to ensure compliance. Here, compliance depends on actors being satisfied with the law-making processes (including participation, openness and accountability), the content and the outcomes of the decisions made by the authorities, in terms of consistent interpretation and fair application of the law (Honneland, 1999; Tyler, 1990). They suggest measures that include procedural fairness, joint or co-management, negotiation and other forms of cooperation between regulators and regulated actors to improve legitimacy.

In addition to deterrence and normative theories, sociological scholars have long documented the powerful influence that social norms have on the behaviour of individuals and regulated entities (Cialdini, 2007; Grasmick and Bursik, 1990). Cialdini (2007) defines social norms as rules and standards that are understood by members of a group/society, which guide and/or constrain social behaviour without the force of laws. For instance, in their Danish agro-chemical regulations studies, Winter and May (2001) find that social norms are influential in enhancing compliance among farmers. Some research including Grasmick and Bursik (1990) and Cialdini (2007) indicate that social norms, in general, strongly influence compliance decisions even when the imagined others are not friends and family members but are generalized society members. They also observed that even in poly-ethnic societies, the group's views may be compelling enough to influence the behaviour of others.