IMACHI NKWU: HOW COMMERCIALIZATION OF NATURAL RESOURCES CAN CREATE COMMON PROPERTY

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Abstract. Conventional wisdom suggests that, as the value of a natural resource rises, private property will emerge. The Ngwa and other Igbo groups of Nigeria, however, curtailed private rights over palm trees in response to the palm produce trade of the nineteenth and early twentieth centuries. I present a game between property owners and potential thieves in which an increase in the price of a natural resource makes it possible to introduce regulated communal tenure. This makes all parties better off than under private property. I use this model along with colonial court records to explain the political economy of property disputes in interwar Igboland.

“Palm cutting always cause palaver.”
Obuba of Ububa, Nkwo Udara Civil Suit 111/37

1. Introduction

Economic institutions are important and persistent determinants of worldwide differences in living standards (Acemoglu et al., 2001; Greif, 2006). In particular, property rights matter for long-run economic growth, investment, and financial development (Acemoglu and Johnson, 2005).¹ For the majority of poor farmers in Africa, rights over land and trees are central to their economic decisions and to their well-being. In many African societies, group rights exist over land and trees. While there is debate over the efficiency of African tenure systems (Brassele et al., 2002; Bruce and Migot-Adholla, 1994; Feder and Noronha, 1987; Platteau, 1996), there is considerable evidence that where rights to land are secure this promotes investment and efficiency, both in Africa (Besley, 1995; Goldstein and Udry, 2008) and in other parts of the world (Feder and Onchan, 1987; Shaban, 1987). Why, then, do group rights persist? In this paper, I explain the adoption of communal palm harvesting in a single African society. I argue that rising palm oil prices increased the incentive to steal, making the defense of private property more costly. Communal harvesting simplified the act

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Date: July 1, 2010.
I would like to thank my advisors Timothy Guinnane, Benjamin Polak, and Christopher Udry for their guidance. Thank you as well to Achyuta Adhvaryu, Prashant Bhadra, Rahul Deb, Carol Heim, Frank Lewis, Marjorie McIntosh, Maher Said, and the participants of the Yale Graduate Student Workshop, the NEUDC, the University of Massachusetts Economic History and Development Workshop, and the World Economic History Congress for their comments and advice. Archival research for this project was made possible with support from the MacMillan Center at Yale University, the Gilder Lehrman Center, and the Georg Walter Leitner Program. I would also like to thank Anayo Enechukwu, Joseph Ayodokun (victoria005@yahoo.co.uk, http://www.toperesearchnigeria.com/) and the staff of the National Archives, Enugu, for helping with the logistics of my research.
JEL Codes: K11, N57, O13.
¹For a contrary view, see Lamoreaux (2006).
of monitoring theft, lowering its cost. This made both the elders who owned the palm groves and the youths who stole from them better off.

The historical evolution of property rights is not yet well understood. Legal theorists since Henry Maine have tried to explain “the gradual disentanglement of the separate rights of individuals from the blended rights of a community” (Maine, 1861, p. 261). Demsetz (1967) influentially argues that private property emerges to internalize externalities when the gains outweigh the costs. Boserup (1965), similarly, focuses on exogenous population pressure as the root of private property over land. Both of these views assume that trade, if it has any impact, will cause a shift towards more individual claims over productive resources. The conventional wisdom that has built on these views does not allow for other outcomes, such as degeneration into open-access property (Baland and Platteau, 1998). Similarly, writers such as Ostrom (1991) have shown that communities ranging from irrigation users in the Philippines to herders in Switzerland are capable of effectively regulating common property for commercial use.

Few papers have formally modeled the emergence of property rights – notable examples include Grossman (2001), Baker (2003), and Muthoo (2004). I use a simple game with endogenous defense of property to make the counterintuitive claim that commercialization of a natural resource can make a communal alternative to private property viable, leaving both property owners and thieves better off. I then apply the model to one historical example. Colonial and anthropological evidence suggests that many Igbo areas of southeastern Nigeria responded to the export trade in palm produce during the nineteenth and twentieth centuries by limiting their recognition of the exclusive rights held by certain individuals and lineages over palm trees. In their place, Igbo groups such as the Ngwa enacted the practice of *imachi nkwu*, or communal palm-cutting.  

I use the model, Native Court records, and other colonial correspondence to interpret the political economy of conflicts over property rights during the colonial period.

While I look at one society, this study has broader implications. The basic result is that communal property can limit the costs of competition over natural resources. If this competition becomes more intense as the value of the resource rises, communal property will become more attractive relative to private property, not less. The Igbo lived in small, closely knit communities. This facilitated detection of violations of the communal harvesting rules and prevented the costs of communal property from rising with commercialization. This will be true, however, of any scheme that gives the broader community an interest in preserving the communal arrangement. The costs of competition rise with the value of the resource in the model because the effort expended in defending private property rises along with the incentive to steal. Here, the essential feature of Igbo society is that defense of property was largely private. The result, then, is most relevant where state enforcement of private property is weak. This is not true only of small agrarian communities, but of many situations in developing countries (de Soto, 2003; Field, 2007).

Although this is claimed by Allen in both his unpublished “Ngwa Customs” and his Intelligence Report on the Ngwa (SP021 CSE 1/85/3708), with supporting evidence offered by Chubb (1961), Obi (1963), Bridges (1938) and Green (1941), Falk (1920) asserts that the reverse was true; whereas in the past palm trees had been open to all for cultivation, he claims that with population growth harvesting rights became limited to members of the landowning family or compound. Mayne, by mentioning a similar practice in his Assessment Report on the Umualia Native Court Area (Abadist 8/11/12) provides evidence that regulated communal harvesting predated the introduction of direct taxation.
In the next section, I review the literature on the existence of communal property over natural resources. In Section 3, I provide background on Igbo history, land tenure, and the practice of *imachi nkwu*. In Section 4, I outline a repeated game in which a rise in the price of palm oil makes a Pareto-improving communal alternative to private property possible. In Section 5, I describe the primary sources I use to provide evidence supporting the model. I then use these sources to show that the model is a good description of the larger palaver over palm cutting in colonial Igbo society. In Section 6, I extend the model to evaluate how the introduction of direct taxation under colonial rule altered property rights over trees. I compare the predictions of the model to evidence from the primary sources. In Section 7, I conclude.

2. Common property

In this paper, I use the standard division of property regimes into four types (Berkes et al., 1989). First, under open access, no property rights exist and unrestricted use of the resource is available to all. Second, under state property, the government owns the resource and has exclusive control over its use. Third, under private property, an individual, corporation, or, other small group can exclude others and regulate use of the resource. Fourth, under common property, an identifiable community of users can exclude others and regulate use.

The literature on the evolution of property rights usually assumes that common rights predate private property (Ostrom, 2000). Most explanations of common property, then, do not describe its emergence, but instead account for its persistence. This literature has focused mainly on two questions. First, what are the benefits of common property? Second, what factors facilitate regulation of the commons? In this section, I enumerate a few of the most influential answers to these questions. I then outline some of the results from studies that have used formal models to describe property rights in the state of nature.

The two most cited sources of inefficiency associated with common property are the failure to externalize externalities (Hardin, 1968), and reduced incentives for private individuals to expend effort in raising their private returns (North, 1990). Given these costs, the standard view argues that common rights will cease to exist when the value of division rises due to population pressure or trade. Pressure for division will be particularly irresistible when investment and regular maintenance are needed for conservation of the resource (Baland and Platteau, 2003). Boserup (1965) suggests, for example, that population growth makes land scarce; as families are forced to reduce their fallow periods, they become more conscious of their rights to specific plots.

Against these disadvantages, the literature (e.g. Baland and Francois (2005); Baland and Platteau (2003); Beck and Nesmith (2001); Grantham (1980); McCloskey (1991); McKean (2000); Netting (1976); Ostrom (1991); Runge (1986)) has named three main benefits that make collective property attractive relative to private property, and that help explain why the commons survives:

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3Although a standard critique of Hardin (1968) is that he is implicitly criticizing open access and not common property, rent dissipation and resource depletion can still result if the community is constrained in its ability to regulate users.
(1) **Scale economies.** A minimum scale may be necessary to effectively use a resource, and the cost of infrastructure can be spread out over a greater area if it is left undivided. Scale economies may also come from pooling use of the resource.

(2) **Risk pooling.** Privatization can reduce welfare by exposing users to greater risk. Uncertainty makes centralized management of the resource more desirable. This is particularly important in poor countries.

(3) **Equity.** Access to the commons may be an important coping mechanism for the poor. Distributive rather than efficiency considerations often drive resource management.

This literature also emphasizes several problems with division that limit its benefits. Partition of the resource can be physically difficult. This is particularly true of hunting and fishing rights, when the underlying resource is mobile. Costs of division may include fencing or enclosing individual plots, defining rights, overcoming legal restrictions, registration, survey, title search, and construction of new paths. Monitoring common property may be cheaper than defending private enclosures, since users can band together to monitor each other and exclude outsiders. If there are limited returns to investment, the benefits of division may be low.

For common property to work, communities must be able to effectively regulate the commons. The literature (cited above, also Baland and Platteau (1999); Meinzen-Dick and Gregorio (2004); Olson (1965); Wade (1987)) suggests several conditions for successful collective action. **Group cohesiveness** provides past experiences of cooperation, existing arrangements, punishment systems, networks of mutual obligation, shared norms of reciprocity, trust, clear and stable group membership, and low rates of exit, all of which facilitate collective action. **Feasibility** demands that inexpensive means of conflict resolution and clear boundaries exist, so that intruders and violators are readily detectable and easily punished. **Information**, in particular about the limits of the resource and sustainable yields, convinces users to participate in regulation. **Resource value** makes regulation vital and worthwhile. In theory, inequality and population have ambiguous effects. Richer agents may contribute more to provision of a public good, while poorer agents will contribute less. In an appropriation model, population growth will increase resource use, while in a public good model it will increase provision if the marginal propensity to consume the public good is high.

In the Igbo case, there were no economies of scale in palm harvesting, and there is no evidence that communal harvesting served as insurance. Rather, equity (ensuring all members of the community could pay their tax), political considerations, and, most significantly, the costs of maintaining private property relative to those of monitoring collective harvesting drove the adoption of *imachi nkwu*, as discussed below.\(^4\) I argue that the rising value of palm oil spurred collective action among the Igbo. The Igbo implemented collective palm-cutting in relatively small, homogenous communities, using already-existing institutions of local governance. Below, I show that difficulties

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\(^4\)Monitoring here refers to members of the community and, to a lesser extent, neighboring communities. Protection of palm-groves from encroachment by in-migrants did not drive the adoption of communal harvesting. Udo (1975, p. 69-71) stresses that most migrants who established themselves in Igbo territory in order to harvest palm fruits did so in areas such as Ahoada and Nike that were less-densely settled, or areas such as Asa, where “the oil palm receives little attention from the local male population which concentrates on producing *garri*, a local staple from cassava, for sale to the nearby urban centres.” Udo (1975, p. 126-137) does not list centralization of control of palm trees among the strategies adopted by local communities for dealing with conflicts between themselves and migrants.
in defining the boundaries both of private groves and those areas belonging to specific communities made this regulation more difficult.

Studies that have formally modeled defensive activities over resources have found, contra Boserup (1965) or Maine (1861), that there is not necessarily an inexorable evolution towards private property, nor are outcomes necessarily efficient. Gonzalez (2007) discusses a dynamic model with exogenous institutional parameters in which individuals divide their effort between expropriation and defense; here, an equilibrium with more secure rights and faster growth may be Pareto-dominated by one with less secure rights and slower growth. While Hafer (2006) presents a model in which property becomes more secure over time (because ownership reveals information about the owner’s fighting ability), Tornell (1997) provides a neoclassical growth model in which the equilibrium moves from common to private property and then back to common property, with an associated hump-shaped growth path. Some of these models have been explicitly tied to land – Hotte (2001) shows that the remoteness of a plot of land from the market center can discourage appropriative activities over it. De Meza and Gould (1992) find that private decisions to enclose land need not be socially efficient.

I extend a general class of models that have been discussed by Grossman (2001). In these, conflict over resources results in each individual receiving a share of the resource given by some variant of the following:

\[
\frac{1}{1 + \theta \frac{g}{d}}
\]

Here, \(g\) is effort expended in offensive activities, \(d\) is effort in defense, and \(\theta\) determines the effectiveness of appropriative activities. Grossman and Kim (1995) show that the social cost of appropriative activity may be a hump-shaped function of \(\theta\). A relatively well-endowed agent is always better off with lower level of \(\theta\), while the poorer agent may not be. Baker (2003) has used a variant of this model to explain why hunter-gatherer groups divide their land endowments between open access, partially-defended “home ranges” and “stable” exclusive territories. I add heterogeneous agents, repeated interaction, and tax-payment constraints to this class of models.

3. The Igbo, palm oil, and property rights

3.1. The Igbo. The Igbo are third-largest ethnic group in Nigeria, and under colonial rule they were divided mostly between the Owerri, Ogoja, Onitsha and Calabar provinces (See Figure 1). The Ngwa are the largest of the Igbo “clans,” and numbered approximately 300,000 in 1963 (Oriji, 1991, p. 11). Divided under colonial rule between the Aba and Bende divisions of Owerri province, I focus on the Ngwa because of their size, and because they practiced communal palm harvesting. The Igbo lived during this period mostly in communities ranging from half a square mile to over six miles in extent, with populations between a few hundred and over two thousand (Gailey, 1970, p. 23). Authority was highly decentralized in pre-colonial Ngwa society with power divided between the amala (village council), the Escala (Earth priest), umokpara (the ofo-holders, or compound heads), the okonko secret society, and the age grades (Oriji, 1991, p. 31-42).
British power was established on Ngwa territory in 1896 with the erection of a station at Akwette (Nwaguru, 1973, p. 43). Serious opposition to the British was overcome during the Aro Expedition of 1901-1902. From roughly 1900 until 1929, British rule was carried out in Igboland using a system of “warrant chiefs,” who sat as members of local Native Courts. These courts had executive, legislative, and judicial functions, and received only minimal supervision (Afigbo, 1972, p. 109). Before the introduction of direct taxation, the Native Treasuries took their revenues from fees and fines collected by these courts, and the warrant chiefs could requisition labor for public works and carrier services. Both of these powers were systematically abused (Afigbo, 1972, p. 193).

Forced labor was replaced in 1928 with annual poll taxes on adult males ranging from 4 shillings (s) to 7s. Though the tax was collected in 1928 without violence, rumors spread in 1929 that women too would be taxed. Late in the year, the “Women Riot” against taxation, the warrant chiefs, the native courts and the depressed state of trade prompted a re-examination of Indirect
Rule in Igboland (Martin, 1988, p. 106). Reforms were introduced that separated the administrative and judicial functions of the warrant chiefs. Native Courts were created, comprised in each village-group of a “massed bench of elders,” while Native Authorities were established that included the eldest man of each ezi (compound) and any young men they chose to co-opt (Martin, 1988, p. 121). Records from these reformed Native Courts are the principal sources for the study.

Palm products were the most important Igbo exports during the nineteenth and twentieth centuries, and they were leading suppliers of this produce (Lynn, 1997, p. 34). Figure 2 gives prices and quantities in the palm oil trade between Britain and West Africa from 1790 to 1938.\(^5\)

\(^5\)Although time series for specific regions of West Africa are not readily available for the nineteenth century, the bulk of this trade was from what later became Nigeria. Lynn (1997, p. 20) reports that roughly 80% of British palm oil imports in 1849-51 were from Biafran ports, and a further 5% came from the Bight of Benin. Similarly, no time series of local prices are available for the nineteenth century. Dike (1956, p. 50) states that, while the price in Liverpool was roughly £28 per ton in 1832, the local price averaged £14, though it could be as low as £5 in the less frequented rivers of the Niger Delta.

**Figure 2. British Palm Oil Trade with West Africa, 1790-1938**

Sources: Prices (Liverpool) and imports to 1898 are from Lynn (1997). Prices (U.K., c.i.f.) and exports from 1906 are from Martin (1988) and Usoro (1974).
major periods are apparent. First, prices and quantities rose together until the middle of the nineteenth century. Falling prices of British goods further bolstered the terms of trade for Nigerian producers (Hopkins, 1973, p. 132-33). Second, prices stagnated in mid-century, but did not lead to a reduction in output until they plummeted during the 1880s. Third, a second boom in both prices and quantities lasted from roughly 1890 until the onset of the Great Depression, the fourth period, during which prices crashed but production continued to expand. The increase in palm oil prices was not uninterrupted, but the rise in Igbo purchasing power was; Allen (2011) shows that the ratio of palm oil to cotton textile prices rose continuously over the nineteenth century, which helps explain why exports were steadily increasing. These dramatic changes in the West African pattern of trade are what McPhee (1926) called the “economic revolution” in British West Africa.

Generally, palm trees were not planted. Rather, they grew wild on land that had been previously cleared, such as fallowed farmland and near compounds. One official estimated in 1907 that there were 6 palms per acre in the vicinity of Aba (Martin, 1988, p. 46). Palm fruits could be harvested year-round, though the greatest yields were achieved between January and May (Martin, 1988, p. 34). Though palm products were the most significant Igbo export crops, they were not the principal sources of household income. Table 1 breaks down the estimates of the typical income per adult male that were given in the Assessment Reports for Aba and Bende Divisions. Produced for the purpose of assessing taxable wealth, these were colored by the fact that a tax of roughly 7s had been decided upon to correspond with 2.5% of annual income even before local officials had begun their investigations (Gailey, 1970, p. 84). Even still, these provide a reasonable guide to the standard of living and income-generating activities of Igbo agricultural households during the late 1920s.

Leeming estimated that 96% of the population of the Aba Native Court Area (NCA) was made up of “agriculturalists with approximately equal areas of land at their disposal, with equal rights over the communal palm trees, and with equal opportunities for acquiring money” (Abadist 9/1/1362). He put the average land cultivated by a man, his wife, and two or three children between 1 1/8 and 1 1/2 acres. For the Aba NCA, yams provided the bulk of income, as each household produced roughly 3000 lbs at a value of £7/10/0. This was supplemented with corn, cassava, and cocoyams. Palm nuts were cut every 24 days, and on each occasion a man would cut approximately 5 heads of fruit – enough to produce 3 tins of oil (worth 18s) and 400 lbs of kernels (worth £2/4/0) over the course
of a year. The accuracy of these estimates should not be overstated, and their variation is more likely to reflect measurement error than actual differences in the availability of palm produce. Weir believed that other officials had grossly overestimated this due to the coexistence of communal and individually owned trees and to the high proportions of trees not bearing fruit (Abadist 8/11/12). Even if they were not predominant, palm products were a central component of Igbo economic life (Usoro, 1974, p. 1-3), and depressed prices were a key factor motivating the Women Riot (Martin, 1988).

3.2. Property rights and *imachi nkwu*. Three principles guided Igbo land tenure during the late colonial period: all land ultimately belongs to community and cannot be alienated without consent, within the community an individual has security of tenure, and no member of the landholding group is without land (Jones, 1949, p. 313). With some exceptions, the “village group” or “town” of four to five thousand people was usually the relevant landholding unit, and was generally coextensive with the maximal patrilineage (Jones, 1949, p. 309). Despite the principle of communal ownership, reasonably secure, permanent, and inheritable rights to farmland were frequently owned by minor lineages and even by individuals (Jones, 1949, p. 314). Land was held under six prevalent forms of tenure: inheritance, kola tenancy, leasehold, pledge, sale, and attachment to the office of an *ofo*-holder. *Ofo*-holders had exclusive control over *okpara* (ancestral) land, though in theory they acted only as “custodians” of these plots and could not alienate them without consent of other members of the lineage.

The rules governing trees in Igbo society are more ambiguous. Anthropological, legal and historical sources often give only limited attention to tree tenure. Further, regulations varied considerably from place to place. Thomas (1913) outlines tree tenure in Asaba division, giving brief descriptions that differ for each village he visited. Similarly, Leeming wrote in 1927 of the Asa NCA that:

> The nuts are collected upon different principles in different villages of this area. In some there is a day definitely fixed upon which the village will collect communally and competitively. In other villages no such rules exist and people may collect where and when they will. In some cases the fruit of the trees in the immediate vicinity of the village is reserved for the older people (Abadist 14/1/1077).

Obi (1963, p. 93) notes as well that, in some areas, palm nuts could be harvested at will, but in others appointed days were set aside for reaping. In some instances, the entire village met on certain days, pooling their harvests together to be used for public purposes.

Some general principles can, however, be identified. Trees surrounding compounds were “household palms,” and were usually owned by individuals (Chubb, 1961, p. 49). Where wild palms existed in groves, they were usually free to all members of a village, though they were often left un-harvested (Chubb, 1961, p. 50). On farmland, it was actionable to enter a farm for the purpose of gathering palm nuts between the period when it was cleared and when the harvest was reaped (Obi, 1963, p. 49). Where they were scattered on farmland not presently under cultivation, palms...
were generally free to anyone in the kinship group (Chubb, 1961, p. 51). Oil palms, which generally do not survive the clearing of *ala agu* (farmland) by fire, were for the most part located in the inner zone of *ala ulo* (houseland), and not on *ala agu* (Henderson, 1972, p. 160).

*Mgbo* or *ogbo* (groves) were routinely rented to migrants, who settled in small groups apart from both the village and from each other, ensuring they did not compete for palms either with locals or with each other (Udo, 1964, p. 332). When land was pledged or sold, trees may or may not have passed with it, depending on the conditions of the particular agreement (Obi, 1963, p. 122). Chubb (1961, p. 33) notes that at Uburu, in Afikpo Division, trees were pledged at interest rates of over 100% – this was done with the consent of the Native Court members who were, in many cases, wealthy men who owned large tracts of trees. Communal trees were often pledged to another village or a wealthy stranger in order to pay collective expenses such as fines (Chubb, 1961, p. 49).

The rights that existed over palm trees in Igbo society before the adoption of communal palm cutting were not, then, always individual. This has led Northrup (1978, p. 187) to argue that “communal” systems were retained by the Igbo in response to the palm oil trade, but that these became “more closely regulated.” There are two reasons why his interpretation is insufficient. First, groups such as families and quarters that had exclusive rights to certain trees surrendered them to the greater community when communal harvesting was introduced. Second, specific individuals (mostly elders) had individual claims to particular groves that were weakened or dismissed entirely under communal harvesting.

*Imachi nkwu*, or communal harvesting, was one possible arrangement. Allen noted it in his Intelligence Report on the Ngwa (SP021 CSE 1/85/3708), as well as his unpublished “Ngwa Customs,” which is quoted at length by Chubb (1961, p. 48-49):

As soon as the commercial value of palm-oil and kernels was appreciated by the people, new regulations were formulated by the village councils to control the taking of produce from communal trees. Gradually these regulations were tightened up until at the present time strict laws exist governing the ownership of all palm trees in a community. The majority of palm trees in a village are now reserved for the community, no matter whether they are of natural growth or have been planted by an individual... In order that each member of the community shall receive an equal benefit, and to prevent deterioration of the trees through continual cutting, a certain day is set apart generally once in 20 days, when every member of the community may cut as much produce as he desires. On this day a drum (*Nkwa Nkwu*) is beaten... This drum is in the care of an elder of the village, who is specially selected for this duty by the village council. Until this drum has been beaten any member of the community who takes produce from communal palm trees is guilty of an offence for which he may be fined one goat, or the equivalent of £1 by the village council. Since the introduction of general tax this system has been extended to include trees which in ordinary circumstances are privately owned. At the commencement of tax collection an order is promulgated by the village council to the effect that for a

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8The term itself comes from Chuku (2005, p. 51).
specific period, generally three months, the ownership of all private palm trees will be vested in the community.

Similar institutions were employed by the Aro, Umuahia, and in other densely populated areas of Owerri Province (Chubb (1961, p. 49), Chuku (2005, p. 51)). Chuku (2005, p. 51) argues that this was imposed three months a year for men and once for women, with the money being used for community projects such as schools. She infers from this that family and lineage heads used communal harvesting to extend their power to dictate the intervals of harvesting at the expense of women’s freedom of choice.9

Allen explains *imachi nkwu* as a result of the palm oil trade. Morgan (1955, p. 331) links it to the introduction of direct taxation in 1928, after which all members of a village were liable to pay 4-7s cash to the colonial government annually. Here, she draws on the work of Green (1941, 1964). Green (1941) conducted fieldwork during 1935 and 1937 at Umueke Agbaja, in the south of Okigwi Division. Very little land was left under group control, and due to the high population density, the village had developed a “hypertrophied” sense of property (Green, 1964, p. 88). She found rights over palms to be in “an interesting state of ambiguity,” and during her stay “the pendulum swung uneasily between the restriction of rights to those who owned the land on which the palms stood and the extension of rights to anyone to cut anywhere” (Green, 1941, p. 17).

She was told that, in the past, people had restricted cutting palm nuts to trees on their own land, but during a period when the population dwindled, “it was decided that all should cut where they liked throughout Umueke” (Green, 1941, p. 18). With time, the population again rose and cutting was once more limited to land of one’s own lineage. The eldest man in the village had been instrumental in passing the restriction “because he himself had many palm trees on his land. One also noticed that he was an elderly man whose climbing and cutting capacity would be less than that of a vigorous youth” (Green, 1941, p. 17). The rule had been passed, she was told, because “the strongest people cut to the detriment of the less strong” (Green, 1941, p. 17). Further, her informants stated that “it was the coming of tax that caused the swing over from relatively communal to private rights. Some people who were unable to climb saw others climbing the palms on their land and cutting the nuts, but when they asked these people to help them pay their tax they were refused, to their great vexation” (Green, 1941, p. 17).

This was the status quo when she first arrived in 1935, but it was an arrangement that could not last. Towards the end of the year, the young men of the village challenged this law, and through intimidation were successful in demanding cutting be again made communal. In their dealings with the elders, they stated that:

> if the latter had refused to concede what they wanted they would have seized their cows and sheep and sold them, since they must live somehow. As [her informant] said, it is all very well for the old men, they have all got wives, but the young ones

9The circumscription of women’s formal rights over land does not mean that they were unable to find creative means of exercising their claims. In UNC 24/38, the defendants had pledged a piece of land to the plaintiff for £2 when their husband fell into debt. The plaintiff refused to accept the plot without male witnesses. After the defendants encroached on the land and planted yams, he sued. The second defendant turned male authority into a rhetorical device, pleading to the court that “we are women and we never knew what was going on since our husband was in trouble, we consented and they made agreement...we are women how can we pledge *amala*’s bush?”
have still to get together bride price to marry theirs and they need palm oil to sell (Green, 1941, p. 18).

By 1937, when Green returned to Umueke, she found that an “intermediate” position had been reached between the two extremes of communal and private rights over palms (Green, 1941, p. 19). From this, she argues that “anything tending to increase the need for money – the introduction of tax, the increasing demand for European clothing, for schooling and so on” made the definition of rights more important and contentious, by raising the value of the ability to cut palm nuts (Green, 1941, p. 19).

4. Model

In this section, I outline a model of the defense of property. I demonstrate that, as the price of palm oil rises, Pareto-improving alternatives to private property become available. These alternatives are sustained through repeated interaction and the threat of reversion to infinite repetition of the non-cooperative “private property” equilibrium. There were two advantages of common property in the Igbo context, which were made more attractive by a rise in the price of palm oil:

(1) Monitoring under private property was largely undertaken by the property owner or his relatives, was non-cooperative, and required proving that a thief had attempted to steal oil from the owner’s trees. Under communal property, all that needed to be observed was that the thief cut on the wrong day. Any member of the community could catch a thief. Since aggregate monitoring was greater under communal property, the marginal returns to effort in theft were lower, and so the incentive to steal did not rise as quickly with the price of oil as under private property.

(2) Communal harvesting gave former thieves incentives to monitor theft that they did not have under private property. First, anything stolen from the property owner was now also taken away from their share of the harvest. The value of this loss rose with the price of oil. Second, theft often occurred before palm fruits were fully ripe. These costs of early harvesting were now borne in part by those who before would have been thieves.

The model simplifies these advantages, focusing on a game between one youth and one elder. While the costs of defending private property rise with the price of palm oil, communal harvesting is modeled here as a restriction on harvest effort, so that monitoring costs do not rise in the same way.

4.1. Setup. There is one elder and one youth. The elder owns a grove of palm trees that yields 1 unit of oil. The market price of harvested oil is \( p \). The youth may attempt to steal the oil. Under private property, the elder and youth move simultaneously. The elder invests effort \( m \) in monitoring his plot. The youth invests effort \( s \) in stealing. The elder’s marginal cost of effort is \( d \), while the youth’s marginal cost of effort of \( c \). The oil is shared by the two parties in proportion to their effort expended – i.e. the youth receives a fraction \( \frac{s}{s+m} \) of the oil. In a static, single-period version of the game, the youth’s problem can be stated as:

\[
V_Y = \max_s \left\{ \frac{s}{s+m} p - cs \right\},
\]
while the elder’s problem is given by:

\[ V_{E} = \max_{d} \left\{ \frac{m}{m+s}p - dm \right\}. \]

Both (2) and (3) are concave, and so they can be maximized from their first-order conditions.

4.2. **Equilibrium in the static game with private property.** From the first-order conditions of (2), the youth’s best response function is:

\[ s^{BR} = \max \left\{ \sqrt{\frac{pm}{c}} - m, 0 \right\}. \]

Similarly, from the first-order condition of (3), the elder’s best response function is:

\[ m^{BR} = \max \left\{ \sqrt{\frac{ps}{d}} - s, 0 \right\}. \]

Substituting this into (4) yields equilibrium theft by the youth as:

\[ s^* = \frac{d}{(c+d)^2}p. \]

Equilibrium monitoring will then be:

\[ m^* = \frac{c}{(c+d)^2}p. \]

The youth, then, will always exert positive effort in stealing, and receive positive expected utility. This demonstrates one reason why the elder cannot simply pay a youth with lower effort costs to monitor for him. If he must pay that youth strictly more than his marginal cost of effort, he will still not be able to drive stealing to zero. The value functions associated with this equilibrium are:

\[ V_{Y}^* = \left( \frac{d}{c+d} \right)^2 p \equiv \theta_{YP}, \]

\[ V_{E}^* = \left( \frac{c}{c+d} \right)^2 p \equiv \theta_{EP}. \]

As these outcomes form the unique Nash pure-strategy equilibrium of the static game, they will also constitute a sub-game perfect Nash equilibrium of the infinitely repeated game. I refer to this as the non-cooperative private equilibrium.

4.3. **Communal harvesting.** Under communal harvesting, the elder offers an effort-limiting arrangement to the youth. The elder promises to only exert \( \bar{m} \leq m^* \) units of effort in monitoring, while the youth only exerts \( \bar{s} \leq s^* \) in stealing. Effectively, the elder offers the youth a share \( \theta_C \) of the oil, so that the remaining \( (1-\theta_C) \) goes to the him. Thus, the value functions for each agent are:
If communal harvesting can make either party better off than under private property, it will do so when the price is high enough that the greater revenues for each party overcome the fixed costs of monitoring. For the elder to be made better off, it must be that 

\[(1 - \theta_C) > \theta_E.\]

Assuming this is the case, the elder will be made better off by communal harvesting so long as:

\[p > \frac{d\bar{m}}{(1 - \theta_C) - \theta_E}.\]

Similarly, for the youth to prefer communal harvesting, it must be that \(\theta_C > \theta_Y\). The youth will be made better off if:

\[p > \frac{c\bar{s}}{\theta_C - \theta_Y}.\]

A Pareto-improving offer of \(\theta_C\) will exist so long as \(1 - \theta_E > \theta_Y\); this is true from the definitions given in (8). The source of inefficiency under private property that makes this possible is that stealing and monitoring intensify in response to a rise in the price. As a result, \(\theta_E\) and \(\theta_Y\) sum to less than 1. While it is not captured by the model, a second source of inefficiency historically was that youth often stole when palm fruits are immature, lowering the total surplus available. For these reasons, a communal harvesting arrangement existed that could make both parties better off if the price of palm oil was great enough.

4.4. Equilibrium with trigger strategies. It may be the case that the youth is not able to commit to not cheat by stealing more than his allotted share of the oil. In particular, if the elder exerts \(\bar{m}\) units of effort in monitoring, the youth’s optimal one-shot deviation is to choose \(s\) equal to \(\sqrt{\frac{\bar{m}p}{c} - \bar{m}}\).

\[V_Y^O = p + c\bar{m} - 2\sqrt{c\bar{mp}}.\]

The elder may be able to sustain the regulated communal arrangement by a trigger strategy, in which a single deviation by the youth is punished with an infinite reversion to a level of \(m\) that yields lower utility to the youth. Since this punishment strategy must be sub-game perfect, the non-cooperative private equilibrium is a natural candidate. This will be implementable so long as the youth’s payoff from continuation is greater than his payoff from the optimal one-shot deviation and its associated continuation payoff. If his discount factor is \(\beta\), this condition is given by:

\[\frac{\theta_C p - c\bar{s}}{1 - \beta} \geq p + c\bar{m} - 2\sqrt{c\bar{mp}} + \frac{\beta}{1 - \beta} \theta_Y p.\]

So long as the share \(\theta_C\) offered to the youth is sufficiently large and the youth is sufficiently patient, this reduces to a condition of the form:
(14) \[ \Phi_0 p + \Phi_1 \sqrt{p} \geq \Phi_2. \]

where \( \Phi_0 \geq 0, \Phi_1 > 0, \) and \( \Phi_2 > 0. \) This is equivalent to stating that communal harvesting becomes implementable with trigger strategies when \( p > p^* \), where \( p^* \) is defined by:

(15) \[ \Phi_0 p + \Phi_1 \sqrt{p} = \Phi_2. \]

Thus, commercialization, as represented here by a rise in the price of palm oil, can make implementable by trigger strategies a regulated communal alternative to the equilibrium levels of effort exerted under private property. This alternative leaves both elders and youths better off. There are two reasons for this, as evidenced by the two terms that make up \( \Phi_2 \). The first, \( \bar{c}s \), demonstrates that the cost of effort under communal harvesting does not increase with the price of oil as it does under private property. As the price of palm oil rises, the youth’s share of the physical resource does not increase, but his share of the total available utility does rise, in contrast to the constant share \( \theta_Y \) he receives under private property. Second, the term \( (1 - \beta) \bar{m} \) arises because the youth treats the elder’s monitoring effort as fixed when deviating under communal harvesting. This tempers the youth’s deviation effort, and thus reduces his cost of effort during the deviation in a way that is not dependent on the price. Of these, it is the first effect that captures the key lesson of the model. *The advantage of communal property over natural resources is that it dampens competition; as rising resource values intensify competition, this benefit increases.*

4.5. Credibility of trigger strategies. Communal harvesting in this model is sustained by the threat of a grim trigger reversion to the non-cooperative private-property equilibrium. This is credible insofar as there is a limited menu of property regimes available to the elder. Taking private property as the initial status quo, it is possible to rephrase the offer of a communal alternative not as a contract stipulating a punishment, but rather as an experiment that, if it ends in failure, is permanently abandoned. Still, it is possible that reverting forever to private property imposes too great a cost on the elder, and is not credible. This section explores the implications of two alternative punishment strategies that may impose lower costs on the elder, making the threat of punishment more credible – temporary exclusion of the youth from palm harvesting, and temporary reversion to private property.

4.5.1. Temporary exclusion. If the elder responds to a one-shot deviation by the youth with a punishment level of monitoring that completely discourages theft by the youth for \( N \) periods, the youth receives no utility for \( N \) periods. The elder will receive less utility during the \( N \) periods of punishment than under private property, but if this then reverts to the communal arrangement, he may prefer this over a permanent return to private property. This arrangement will be sustainable so long as:

\[ \Phi_0 = \theta_C - \beta \theta_Y - (1 - \beta). \] This is positive if \( \theta_C > \beta \theta_Y + 1 - \beta \). A \( \theta_C \) that meets this restriction as well as the constraint that \( \theta_C < 1 - \theta_E \) will exist so long as \( \beta > \frac{\theta_C - \beta}{c - 2d}. \)

\[ \Phi_1 = (1 - \beta)2\sqrt{\bar{c} \bar{m}}. \]

\[ \Phi_2 = \bar{c}s + (1 - \beta)\bar{c} \bar{m}. \]
\[
\frac{\theta CP - c\bar{s}}{1 - \beta} \geq p + c\bar{m} - 2\sqrt{cmp} + \frac{\beta^{N+1}(\theta CP - c\bar{s})}{1 - \beta}.
\]

So long as \( \theta_C \) is large enough and the youth is sufficiently patient, this reduces the condition that:

\[
\Phi_A^0 p + \Phi_A^1 \sqrt{p} \geq \Phi_A^2,
\]

where \( \Phi_A^0 \geq 0, \Phi_A^1 > 0, \) and \( \Phi_A^2 > 0. \)

Again, commercialization makes communal property sustainable. The intuition here is the same – as costs of effort under communal property do not rise with the price of palm oil, this increase makes compliance more attractive relative to deviation.

4.5.2. Temporary reversion to private property. If temporary exclusion of the youth is too severe a punishment for the elders to impose, a return to private property for \( N \) periods may be more palatable. In this case, the youth will not deviate so long as:

\[
\frac{\theta CP - c\bar{s}}{1 - \beta} \geq p + c\bar{m} - 2\sqrt{cmp} + \frac{\beta^{N+1}(\theta CP - c\bar{s})}{1 - \beta}.
\]

So long as \( \theta_C \) is large enough, this reduces the condition that:

\[
\Phi_B^0 p + \Phi_B^1 \sqrt{p} \geq \Phi_B^2,
\]

where \( \Phi_B^0 \geq 0, \Phi_B^1 > 0, \) and \( \Phi_B^2 > 0. \)

The result is the same, and the intuition is unchanged.

4.6. Why not pay a wage? While communal harvesting may have overcome the rising costs of defending private property as the price of palm oil rose, it is not clear that it was the best response. Why did elders not simply pay the youth to harvest for them? While it is possible again to invoke monitoring costs as a possible cause, these are unlikely to explain the result. For example, it is possible that elders must monitor the youths in their employ to discover whether they have kept any oil for themselves. If fixed monitoring costs are lower under a wage contract than with communal harvesting, the elder will always prefer a wage, and the elder will prefer the wage to private property if the price is high enough. Wage contracts might come into existence before communal harvesting becomes sustainable. Alternatively, if the costs of supervising wage laborers rise along with the incentive for the worker to keep some of the oil (just as in the case of private defense against theft), the elder would come to prefer communal harvesting to the wage if the price rises past a certain threshold. There is, however, no historical evidence for or against this assumption.

If monitoring costs are not the answer, why did Igbo elders not simply pay the youths who were troubling them? Three of the dominant explanations for the absence of labor markets in much of Africa are land abundance, seasonal bottlenecks, and cultural factors. These cannot,

\[\Phi_A^0 = (1 - \beta^{N+1})\theta_C - (1 - \beta), \Phi_A^1 = \Phi_1, \text{ and } \Phi_A^2 = (1 - \beta^{N+1})c\bar{s} + (1 - \beta)c\bar{m}. \] \( \Phi_A^0 \geq 0 \) so long as \( \theta_C \geq \frac{1 - \beta}{1 - \beta^{N+1}}. \) This condition becomes easier to satisfy as \( \beta \) rises.

\[\Phi_B^0 = (1 - \beta^{N+1})\theta_C - \beta(1 - \beta^{N})\theta_Y - (1 - \beta), \Phi_B^1 = \Phi_1, \text{ and } \Phi_B^2 = \Phi_A^2. \] \( \Phi_B^0 \geq 0 \) so long as \( \theta_C \geq \frac{\beta(1 - \beta^{N})\theta_Y + (1 - \beta)}{1 - \beta^{N+1}}. \]
however, account for the Igbo experience. Austin (2008), Binswanger and McIntire (1987), and Binswanger et al. (1989) have argued that in a land-abundant environment without economies of scale, potential employers cannot compensate potential laborers for the costs of foregone self-cultivation, particularly during peak periods. The Igbo, however, occupy one of the most densely populated parts of Africa (Nwokeji, 2000). Further, the elders’ need to defend their groves is evidence that the youth had time to spare in gathering palm nuts. Onyeiwu and Jones (2003) and Onyeiwu (1997) have argued that in Igbo society “reciprocal labor exchange was simply an extension of a culture rooted in sharing,” in which people worked “as hard as they possibly could, [and so] there generally was no need for monitoring workers.” This belief in an all-pervasive altruism is difficult to reconcile with the evidence of self-interest and theft prevalent in the Native Court records cited below, and with the multiple layers of exploitation present in Igbo society (Ezeanya, 1967; Harris, 1942; Oyediran and Isiugo-Abanihe, 2005).

Bellemare and Barrett (2003) have suggested that giving too large a share of a resource to a tenant can create a risk of expropriation; it is possible the elders feared that giving up symbolic control of the harvest might have led to them losing control of their palms altogether. More generally, the absence of wage labor in this case is explained by its general absence in Igbo society in the first half of the twentieth century. What wage labor did exist by the end of the colonial period was largely migrant and seasonal, “labor being mostly demanded during such farm operations as bush clearing, hoeing, planting, and staking” (Uchendu, 1965, p. 32). The colonial government also employed Igbo men as clerks, messengers, domestic servants, policemen, soldiers, miners, and railway and dock workers (Ohadike, 1988). However, Martin (1988, p. 87-88) notes that, during the early twentieth century, “[m]arriage rather than contractual wage relationships continued to be the mainstay of labor recruitment.” As Brown (2003, p. 38) notes, hired labor was a minor component of the labor supply in pre-colonial Igboland:

A man could exercise several options when he needed additional labor. He could either use slaves, employ itinerant labor, or call upon his age mates or work group. If he were the head of an Obi, or lineage group, he could appropriate the labor of all men and women one day in the eight-day Igbo week. Or he could also trade labor among the age grades, ohe oru, on a rotating basis, “paying” them with food or drink. Thus prominent men were able to appropriate labor through clientelistic relationships with the poor.

Pre-colonial labor systems disappeared only slowly during the twentieth century, in part because of the persistence of slavery. The British relied on the powers of chiefs to provide forced labor for the construction of roads and railways, and were afraid to undermine the influence of traditional authorities (Ohadike, 1998). Efforts to abolish slavery were modest until the 1930s, when the maximum penalty for slave-holding was raised from seven to fourteen years imprisonment, and a police task force established (Nwokeji, 2004). The explanation of the elders’ failure to pay wages was historical, and is not explained by the model.
5. Evidence

5.1. Sources. The primary sources used for this paper are taken from the collections housed in the National Archives of Nigeria at Enugu. The documents consulted fall into three categories.

1. **Native Court Records**: A selection of Civil Judgment Books from the Aba-Na-Ohazu (ANO), Nkwo Udara (NU), Obohia (ONC), and Ugba (UNC) Native Courts were used based on their availability. These are the principal sources for this study.\(^{15}\)

2. **CSE**: Central Secretary’s Office, Nigeria, 1906-1940. This contains a variety of correspondence, including Intelligence Reports.

3. **Abadist**: This series contains documents and correspondence relating to Aba Division, including Assessment Reports. A *Special List of Records on Land Dispute Cases in Aba Division of Imo State, 1918-1955*, compiled in 1988 by B.M.O. Nwaime was used in addition to the simple list to identify records relevant to the present study. Land dispute records in these files generally contain facsimiles of the relevant court proceedings as well as petitions to colonial officials about the judgments rendered and correspondence between officials concerning these cases. A sample record from this series has been included in the Web Appendix.\(^{17}\)

The Native Court records that are available date mostly from the 1930s and later; Afigbo (1972) and Adewoye (1977) both outline the history of the courts from which these records are taken. Generally, these are rough transcripts handwritten in English by the court clerk during proceedings. Each record begins by stating the names and home villages of the plaintiffs and defendants; in cases involving violations of palm-cutting regulations, it is not uncommon to see more than ten defendants in a single case. The statement of grievance and any claim for damages are also given. Parties each make opening statements and call witnesses. Cross-examination by the opposing party and the court is common. Cases are often adjourned for further witnesses, inspection of the land, or swearing of juju.\(^{18}\) The court’s decision is recorded, along with any statement by the president. Despite the difficulties with these sorts of records (see Roberts (2005) for a more thorough discussion), they provide a direct window into disputes over property during the colonial period that is often lacking in official correspondence.

This section validates the assumptions that drive the results of the model above, noting that conflicts over palm harvesting in Igbo society largely pit elders against youths as interest groups, that defense of property rights was costly, and that when “communal” harvesting was enacted, it generally took the form of restrictions on harvesting effort. The evidence discussed, then, supports the assumptions of the model rather than its predictions. This is due to the nature of the evidence. Communal palm harvesting was instituted in response to commercialization before concerted efforts

\(^{15}\)This series contains judgments from the Mvosi (MGC), Ovuku (OVU), Ovuoko (OVO), and Ovokwu (OVW) Group Courts.

\(^{16}\)Citations of these cases are abbreviated for legibility. For example, Nkwo Udara civil suit 140 of 1935 is cited as NU 140/35.

\(^{17}\)Specifically, this is Abadist 9/1/268. I was not able to copy a sample native court case from the National Archives in Enugu, since these are contained in bound volumes, but the transcript of Umuaro Native Court Civil Suit 283/33 contained in this record is of the same format as the cases in these books.

\(^{18}\)An object supposed to have magical properties, or the power associated with it. The word is of Hausa origin.
were made to understand Igbo institutions, and this change is observed only in the retrospective oral testimony received by officials such as Allen, discussed above. Where observable transitions to communal harvesting occur in the court records, they came about in a world of Native Courts and direct taxation – evidence supporting the implications of this extension to the model are discussed in Section 6.

5.2. Intergenerational conflict. A typical civil suit over palm harvesting in the court records involves an elder, either alone or on behalf of the amala (village council), bringing action against a youth or group of youths either for trespass on a private okpulor (private grove) or for violating the village’s rules concerning communal palm-cutting. This division between youth and elders is captured by the model above. Even the language of statements in court reflects the fact that disputes over property were largely conflicts between generations. In NU 195/37, Ovumoegbu, representing the elders, told the court that “Our village palm cutting is not in order... We never put a law for the young ones to stop cutting the palm nuts.” In some of the records, the statement of claim itself is for “cutting the elders’ palm nuts.” UNC 62/35 pitted 35 youth against the elders of Amandara, including the defendants’ “father,” who had become “greatly annoyed” with them for not answering the summons of the amala (village council) after “all the elders came out with the wooden bell to know whether the defendants [were] guilty.” In NU 55/25, the plaintiff Onwunka sued in his capacity as “the elder.” The defendant had been summoned by the amala (village council) through his father, but had refused to come.

The facts of the cases further show the desire of youth to harvest more from trees under either the ownership or control of elders. In UNC 115/35, the village youth had gone to view the palm nuts before cutting them, and reported that people from a neighboring village had cut them. The next day, while the elders were away investigating a separate dispute, the defendants harvested the fruits. One of the defendants, who admitted in court that the drum had only been rung for street-sweeping and after he had finished cutting, referred to the plaintiff as his “father.” The plaintiff of a different suit told the court that a specific day had been appointed for only the elders to cut palm fruits; the defendant, who he said “respects no elder,” cut on that day. The defendant, in his own defense, argued that he had given the stockfish necessary to become an elder, but had not been permitted to join the amala (village council) (NU 140/35).

The model emphasizes the distinction between elders and youths on the basis of their differing endowments of resources, and the consequent interests of elders in limiting the harvest effort of youth. To this must be added their differing needs for cash (stressed by Green (1941)), motivations of spite, and struggles for political power. The fragile authority of some elders is revealed by MGC 161/36. Osuenyieke, the eldest man in his village, told the court that he had been forced by the young men to join a “tax meeting.” When he hired two men to cut palm fruits from his trees, he had been fined 10s.

Insofar as conflicts over palm trees revealed fissures between generations within Igbo society, they were motivated not only by divergent economic interests but also by contests over political power. Whether palm trees were harvested communally or privately, control over them was a tool with which to wield political authority. Leeming reported that a common perquisite of office for headmen

\[19\] See OGC 405/35 for an example.
and *ezealas* (Earth priests) in the Aba NCA was “the custom which widely maintained that on certain days palm kernel heads should be cut and collected by the townsmen in clearing the bush for his farm.” (Abadist 9/1/1362). Oriji (2007) argues that these privileges were a consequence of the taboos needed to maintain the sacredness of authority in Igbo society; since the *ezealas* (earth priests) and *okparas* (elders) were not permitted to engage in mundane economic activities they were dependent on tribute. The plaintiff in NU 313/38 told the court that, as the oldest man in his compound, “every family right has been invested to me, all jujus and family lands are in my care.” The palm nuts for the *onumara* (quarter) Umuegheregbe, he claimed, were “given to me by my family to cut and to offer sacrifice to the jujus.” Similarly, the court found in OVW 11/37 that the eldest man Wogu was “entitled to monopolize the whole palm groves.”

Where reaping was communal, elders retained symbolic control of the harvest. A witness for the defence in one case told the court that before the village began cutting, all the men met together to “see if we are correct and then the elders will instruct us to go and cut” (NU 256/35). Even when the rules were violated, the *amala* (village council) sought to direct the process of settlement. The plaintiff in NU 55/35 told the court that if the defendant had come to “beg” the *amala* (village council), no action would have been taken in court. In several of the records, at least one defendant had already settled in the *amala* (village council) before the case reached court, weakening the position of the other defendants who refused to do so.\(^{20}\) In OVO 148/36, the court found that the defendant had been “heady and very bad” for refusing to comply when the case had been heard by the *amala* (village council); his father testified against him, and he was fined an additional 10s for his behavior.

As political authority was diffused outside the *amala* (village council), other interests also exercised social control through regulation of palm cutting. In some villages, the *okonko* (secret society) had days specifically reserved for its members to harvest. In one suit, the defendant claimed that he had left the *okonko* (secret society) after converting to Christianity and had since been denied any rights over communal palms, stating that “my town people generate this rule to draw me from following my Lord’s way.” This was part of a larger reaction on the part of traditional authorities against the spread of Christianity. Faced with Garrick Braide’s iconoclastic evangelism during the 1910s, Igbo authority holders had “responded by banning those involved from farming in their communal land, harvesting its oil palm trees, and even nominated them for forced labor on Sundays. *Okonko* [secret society] leaders dispatched their executive arm to burn Christian churches and punish the evangelicals” (Oriji, 2007, p. 277).

Town authorities, similarly, used their control of palms as leverage. In NU 115/35, the defendant was a stranger who had lived in the town for 10 years, but six months previously had committed adultery with his half-sister. The elders wished to expel him from the village, but were unable to do so, and instead fined him £1, denying him the right to harvest palm nuts until the fine was paid. Palm trees were a source of cash income, but also a fount of ritual and political authority.

5.3. **The costs of defending property.** When private rights over palm groves were recognized, they had to be defended. The costs of maintaining private property could, as in the model above, be such that a regulated communal harvesting arrangement was preferred. The quarters of Ukomadu

\(^{20}\)See ANO 244/41, UNC 132/38, and OVO 148/36 for examples.
and Umuokiri had united in their palm cutting “because,” as the defendant in NU 111/37 told the court “at first we were suing against each other in the court here.” Monitoring effort was costly – thieves had to be caught in the act. In the sample of court cases, there is no evidence of cooperative defense of private property.

Witnesses in the court records do not systematically report what they were doing when thieves and violators of the communal cutting rules were caught, but isolated examples support the hypothesis that monitoring was more costly with private than communal harvesting. Landowners often had to depend on their own kin to detect violators. One of the plaintiff’s witnesses told the court in a 1935 case\textsuperscript{21} that it was his children who had caught the defendant. The nature of communal harvesting allowed monitoring to be carried out by the village as a whole. The witnesses in NU 256/35 indicated that they gathered together before harvesting; this would make supervision easier. In a 1924 case,\textsuperscript{22} the plaintiff Orji had not yet rung the wooden bell when one Uboaja reported to him that he had seen a palm tree cut; Orji then ordered that no one should reap until the perpetrator was found. In OVO 148/36, the amala (village council) had found the party guilty of violating the communal harvesting rules by making everyone swear juju – the defendant was the one who had refused. One of the witnesses in a 1933 dispute\textsuperscript{23} told the court that he and the other youths of Obette had been ordered by the elders to go into the bush to see if men from neighboring Osa were reaping from trees on their land. They knew when to lie in wait when they heard the Osa drum being rung, to signal that harvesting had begun there.

Even when a thief was caught infringing on rights of private property, enforcing judgment was costly, as cases were easily extended by questions of fact or points of law. Factual disputes most commonly centered around the boundaries on which the trees stood; this was a central issue in MGC 222/36. Proving facts before the amala (village council) and in the Native Court required either witnesses or oathing. A party who failed to bring supporting witnesses, such as the plaintiff in ONC 713/21, could lose on this ground alone. A witness might not be enough – the reviewing officer in MGC 256/35 only accepted the evidence of the plaintiff’s witness because one of the defendants had contradicted his own story. Physical evidence was of no use; in UNC 199/38, the plaintiff brought to court one bunch of nuts he alleged had been cut by the defendant, but it would have been impossible from these to tell who had harvested them and from what tree. Inspection of the land by the court was possible, but also costly and potentially indeterminate.

Even with witnesses, oaths were frequently used to prove facts. In NU 217/38, the plaintiff volunteered to swear on a Bible that the defendants had cut palm fruits on his people’s land. The court found in his favor when the defendants refused to provide a Bible. The case was later reopened, and an inspection revealed that the defendants had in fact harvested from their own trees, and the plaintiff had been motivated by malice. Fear of supernatural punishment was not sufficient to induce truth-telling; the plaintiff of a land dispute that had been settled against him protested that “after one month from the time of such swearing of the said juju produced by me,

\textsuperscript{21}Abadist 9/1/794: Mbutu Umu Ujima Group Court Civil Suit 142/35.  
\textsuperscript{22}Abadist 13/8/50: Aba Native Court Civil Suit 10/24.  
\textsuperscript{23}Abadist 9/1/268: Umuaro Native Court Civil Suit 283/33. This case is included in the Web Appendix.
the deft and his people went to the man from whom I brought the juju, bribed him with £8 plus
a fowl, and the man pronounced that the juju should not kill them again.”

Often litigants feared that their opponents, given the opportunity to swear falsely, would do so. The plaintiff in a 1935 case had caught the defendant reaping nuts on his land on three occasions. Five elders testified that they had inspected the land, and that the trees belonged to the plaintiff, but believed it was noteworthy that the defendant was willing to swear that he had never reaped from the trees in question. One of the plaintiff’s witnesses clearly feared the court would allow the defendant to take an oath, and told the court that “I do not want the Court give judgment on juju. The trees in question really belong to Plff [plaintiff] I know that very well because I am the elderly man in Deft’s [defendant’s] compound. Let Court give judgment accordingly.”

Points of law were equally pernicious for landowners attempting to defend their rights. The claim that palms were harvested communally was a common defence; this was the point of issue, for example, in NU 154/35. Some of these assertions were outright lies. In one case, it was noted that Umuokoro had originally had a common day for reaping palms, and that the plaintiff had later sworn juju that “everyone should cut palm fruits from his land.” He had come to court, however, accusing the defendants of cutting on the wrong day, and stated that “according to our custom we have no private palm groves since from origin palm groves planted by anyone in our town are cut in general.” His claim failed when his duplicity was exposed (OVO 318/36).

In some instances, however, the customary law was legitimately unclear. In NU 610/37, the plaintiff’s late brother had pledged land to the defendant’s late father, on which either the defendant or his father had planted coconut trees. The plot had since been redeemed by the plaintiff. The defendant told the court, “I am a boy. I want the court to decide whether I am entitled to use them, or not.” The case had to be adjourned so that the court could consult other Ngwa elders who “all agreed that pltf [plaintiff] is entitled to whatever thing on his land.” Further, the procedure for redress was complicated by the diffusion of political authority, as disputes could be alternately settled before the amala (village council), by the okonko (secret society), inside the ezi (compound), within the age-grade, or with the help of the oke amadi, the wealthy members of the community who Allen labeled “the true de facto rulers of the village” (SP 021 CSE 1/85/3708).

The Native Courts added an extra layer to this complexity and made their own procedural demands. In UNC 150/35, the plaintiff had brought his claim as a criminal suit two months previously but been ordered to take a civil action. Though he won the latter, the costs of defending his property in terms of time, effort and cash had increased. Political concerns also interfered with the working of the Native Courts. In one dispute, the District Officer ordered that the proceedings from an earlier and related case be read to the court. The plaintiff, writing for an appeal, complained that this had not been done, “because the clerk himself would have been assaulted by the then sitting chiefs in the attempt to have it read openly to them as he was instructed.”

This is not to imply that regulation of effort when palm trees were harvested communally was costless. Where the rules were clear, however, monitoring need only detect that a violation had

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24Abadist 9/1/26: Omuma Civil Suit 25/29.
25Abadist 14/1/504: Arungwa and Amavor Group Court Suit 81/35.
26Abadist 9/1/26: Umuma Native Court Civil Suit 35/29
occurred, not on whose land, and could be effected by any member of the village. Whereas defense of private property was a largely private act, maintaining the rules of communal harvesting was in the interest of the whole community. This is the critical distinction between the costs of monitoring under private and communal property in the model; while under private property the costs of monitoring rise with the price of oil, they do not under communal harvesting.

Where difficulties arose was when the law itself was ambiguous. In NU 42/35, the plaintiff claimed that his people and those of the defendant had decided to harvest separately, and that the matter had been related to the defendants’ elder Ehuwa at the okonko (secret society) meeting. The defendants denied this, and their spokesman told the court that “from the beginning of the creation, we cut palm fruits, brushing roads and do every thing together.” The case had to be resolved with the swearing of juju. Similarly, the palms under dispute in UNC 49/35 were owned in common by four towns, while both privately and commonly owned trees coexisted. Twelve years before, the elders of Umuala had made regulations concerning the use of these trees and killed a goat to mark the occasion, but the meat had been refused by the defendants’ elders, who did not inform their youth of what had occurred. The youth, then, had no means of knowing what the rules were. The defendant in another case pleaded to the court that “we have no common day for general palm nut cutting. This law had not been instituted in our place” (OVW 35/37).

Much as difficulties in monitoring private property could spur a transition to communal tenure, conflicts during communal harvesting might lead to fractioning of the larger group’s rights. In the model above, these can be understood as a failure to satisfy the inequality given in (13). Because of offenses against cutting regulations, Umueteghbe decided to no longer cut together, each onumara (quarter) keeping to its own land (NU 243/35). The defendant in NU 192/27 similarly told the court that his village had cut communally in the past, but a year ago, after a dispute where “Emereole had wanted to kill Nwaekw,” the amala (village council) had “decided that we should cut palm nuts from each compound’s bush.” The representative of the amala (village council), however, told a different story, informing the court that “[w]e said as it is the tax payment season that no one should cut palm nuts again… We got a writer and a book and put the law in writing.”

5.4. Communal harvesting. The model above abstracts away from the methods used to regulate harvesting. Those communities that practiced imachi nkwu attempted to maintain strict controls over when and how their members could cut. While reaping palm fruit did not cause permanent damage to the trees, the village stock of palms was like a fishery insofar as the gathering of fruits by some individuals could leave others without the means to pay tax when it came due. Where there were restrictions, specific days were set aside at regular intervals during which individuals could cut palm fruits at will. The beginning of the communal harvest was signalled by the beating of a drum, and cutting when it had not been rung was punishable by a fine. Violators were often dealt with by the amala (village council), and cases were only brought to court when they refused to settle at “home.” As is evident from the examples above, however, these limits on effort were not always sustainable, and communal property in many cases degenerated into open access.

Within these outlines, regulations differed by village. In NU 284/37, it was stated that the grown men had been divided into two groups, each with separate turns. Some villages ceased completely to recognize private rights over trees while others did not – the defendant in one suit listed for
the court some individuals who used to have private rights but stated that “since 12 years we have deprived them of their Okpulor [private] palm trees” (MGC 161/36). Consistent with the interpretation that these restrictions were imposed to reduce the negative externalities of harvest effort, some villages permitted cutting to be suspended if one of its residents was under arrest or away at court (ANO 281/38).

Whether individuals could hire helpers or sell their own turns varied. Mayne noted that among the northern Ohuhu of the Umuahia NCA, those individuals who could hire the greatest number of laborers from neighboring towns collected the most fruit (Abadist 8/11/12). In the village of Umuoke-nnumu, people were permitted to sell their turns, as was revealed when one of the defendants of ANO 308/42 was charged with selling his turn to each of the three other defendants at once. The defendant in NU 82/35 claimed that hiring of up to three reapers was permitted at Umuejea; while the plaintiff disputed this assertion, he took action against the defendant, and not against the man to whom the defendant had sold his turn (and who had sold his harvest to the plaintiff’s wife). At Ndiegora, a stranger living in the town was brought to court because, on the orders of his host, he “joins us in palm cuttings and he has been severally warned to go to his town to join” (ANO 109/41). Similarly, at Umumpakara Mkpuru it was said that a person who “cut palm nuts by two persons” was made to pay a fine. The defendant in a subsequent case from the same village claimed that he had hired a man to cut nuts for his brother who was away at school, but the plaintiffs protested that he should have called a boy to cut, as “an adult can not be called to cut palm nuts for a young boy” (ANO 167/43).

6. Direct taxation

Green (1941) suggests that direct taxation under colonial rule intensified the conflict between elders and youth over palm harvesting, leading to communal property in places where it had not already occurred. In this section, I extend the model to predict the impact of imposing a head tax on the youth, and check these predictions against evidence from the court records.

Suppose now that the youth must pay a tax of $\tau$ from the sale of palm oil, so that he faces the constraint $s_{TAX} > \tau$. If this is binding, it implies that his optimal effort does not yield enough oil to pay the tax, and so he will invest only enough effort to just meet this constraint, i.e.:

$$s_{BR}^{TAX} = \frac{\tau m}{p - \tau}. \tag{20}$$

This will be the case when $s_{BR}^{TAX} > s_{BR}$, or:

$$\frac{\tau m}{p - \tau} > \sqrt{\frac{pm}{c}} - m \Rightarrow m > \frac{(p - \tau)^2}{pc} \equiv m(\tau). \tag{21}$$

Thus, if $m^*$ is greater than $m(\tau)$, i.e. if $\tau > dp/(c + d)$, the equilibrium will change. In this case, equilibrium stealing by the youth will be:

$$s^*_{TAX} = \frac{\tau^2}{dp}. \tag{22}$$
while equilibrium monitoring will be:

\[ m^*_\text{TAX} = \frac{(p - \tau)\tau}{dp}. \]

The value functions associated with this equilibrium are:

\[ V^\text{TAX}_T = \frac{s^\text{TAX}}{s^\text{TAX} + m^*_\text{TAX}} p - cs^*_\text{TAX} - \tau = \frac{-c\tau^2}{pd}, \]
\[ V^\text{TAX}_E = \frac{(p - \tau)^2}{p}. \]

Once the youth’s tax constraint is binding, the elder can receive no more than \( p - \tau \) from the plot, since any additional defensive effort will be offset in its benefits through increased stealing by the youth. Consider again the communal harvesting arrangement. The elder will prefer this so long as \( V^\text{C}_E \geq V^\text{TAX}_E \), i.e. so long as the tax imposed on the youth is large enough:

\[ \tau \geq p - \sqrt{pV^\text{C}_E} \Rightarrow V^\text{C}_E \geq V^\text{TAX}_E. \]

The youth will prefer communal harvesting so long as \( V^\text{C}_Y - \tau \geq V^\text{TAX}_Y \). This is equivalent to stating that he will prefer communal harvesting if:

\[ V^\text{C}_Y \geq \tau - \frac{c\tau^2}{dp}. \]

Supposing the constraint \( \tau > dp/(c + d) \) still applies, the right-hand side of (26) is non-monotonic in \( \tau \), rising to a peak of \( dp/4c \) when \( \tau = dp/2c \), and declining thereafter, turning negative once \( \tau = c/dp \). If indeed the youth ever prefers the private equilibrium with direct taxation over communal harvesting, he will come to prefer communal harvesting so long as \( \tau \) is greater than a cutoff \( \tau^* \) in the interval \((dp/2c,c/dp)\). The model predicts then, that the imposition of a head tax on the youth will lead encourage the elder to instigate the regulated effort scheme described in Section 4. If the tax on the youth is great enough, both parties will prefer it.

Poll taxes were introduced in Igboland in 1928, in order to bolster the power of the Warrant Chiefs through the creation of Native Treasuries.\(^{27}\) The heart of disputes over palms was that they were a valuable source of cash income that could be used to pay tax. Usoro (1974, p. 60) makes a rough estimation\(^{28}\) that 20% of the palm oil exported in 1931 was collected as tax. At the time

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\(^{27}\)Both Afagbo (1966, p. 550) and Gailey (1970, p. 76) cite this as the prime concern that motivated the extension of taxation to the Eastern Provinces. Ikime (1966, p. 559) also notes that British officials felt it was inequitable that the East should remain immune from direct taxes, when these were already in existence in the North and West. While in other parts of British Africa, poll taxes were introduced as a means to increase the labor supply (Arrighi, 1970; Perrings, 1979), there is no indication this was a deciding factor in the Igbo case. Direct taxes were not a major source of revenue; rather, the British fiscal interest in palm oil was in export duties, which had been imposed in 1916. Customs and excise duties formed 46% of the government’s revenue from 1922-27, and excise taxes on palm oil averaged 7% of the value exported (Martin, 1988, p. 112). Produce inspection fees of 9d per ton of kernels and 1s per ton of oil were introduced in the Eastern Provinces in 1928 (Martin, 1988, p. 58).

\(^{28}\)0.25 adult males per person X 2,563,148 taxable population in the palm oil belt X 7/6 tax per adult male X 10.28 per ton estimated producer price X 118,133 tons exported = 19.9%
taxes were introduced, the value of the tax was roughly equivalent to one four-gallon tin of oil, though this physical burden doubled within a year due to falling prices (Martin, 1988, p. 113-117). Where palm oil was harvested privately, the receipts were put to uses for which cash was similarly necessary; the defendant in one case told the court that he had harvested palms to pay his younger brother’s school fees (ANO 167/43). In another suit, one party had pledged an okpulor ika (private grove) belonging to the ofo-holder on behalf of the onumara (quarter) in order to pay the collective fine levied after the Women Riot (OVU 461/36).

It was difficult for youth to pay their taxes by means other than palm harvesting. Allen wrote that palm produce was the only means of obtaining cash with which to pay tax or purchase imports. There is little indication in either the literature or archival sources how individuals that did not have access to palm produce or paid employment were able to meet their tax obligations. Afigbo (1966, p. 551) writes that, when taxation proposals were discussed with the Igbo, district officers were asked if they would prosecute people who pawned their children to pay the tax. It is clear that men did pawn themselves to pay tax (Afigbo, 1966, p. 553), and that women sometimes had to use their savings to pay their husbands’ tax the first year it was collected (Gailey, 1970, p. 98).

Even where there was no conversion from private to communal property, the introduction of direct taxation raised the incentives for youth without groves of their own to steal from others. In a 1939 case, the defendant admitted that the plaintiff owned the trees from which he had harvested and accepted his contention that “the palm trees known as Okpulo [private] palm belong to the elderly man of the family. And that it is not lawful for any other person cut it.” Even still, he had reaped from these trees because he had no other means of paying the tax (UNC 17/39).

Supporting the predictions of the model, in several cases the communal controls imposed on palm cutting are stated directly by witnesses to have been linked to the payment of tax. In UNC 62/35, the witness Waeke stated that the palms had been reserved for paying tax. In another suit, the plaintiff argued that, four weeks previously, a rule had been made that no-one was to cut palm fruits until notice was given, so that the fruits could ripen and yield enough oil for the payment of tax. This rule had, however, become unenforceable, and when an attempt was made to renew it a goat was sacrificed to solemnize the decision (OVU 418/35).

The difficulty of enforcing regulations made when palms were made communal for tax payment is a persistent theme of the court records. This is a complication not directly captured by the model. The defendant in OVO 440/36 told the court that “since the tax payment the palm nuts had been set free for anyone to cut to pay tax,” but because of violations, the rule had become ignored. In some instances intermediate solutions between communal and private property were attempted. One compound in the Ovuku Group Court Area had given three consecutive turns to the young men to cut from “both private palm and communal palm,” though the law had been “spoilt” by persistent violation (OVU 66/36). In UNC 35/39, it was stated that “the villagers” had asked all persons to whom palm groves had been pledged “to come and cut their palm fruits and leave it to ripe again for Amalas [village council] for general use.” The defendant in the suit objected to this, telling the court that he had not agreed to give the plaintiff “my palm fruits to cut and pay their tax.” The court found in his favor.
Several complexities of the interaction between direct taxation, property, and institutional change are highlighted by the two cases of UNC 89/38 and OVO 344/36. In the first case, the plaintiff had ceased to allow the young men to harvest fruit from his trees after he did not receive his share of the 10% rebate of tax revenues paid by the colonial government as compensation for assistance in tax-collection. By his own estimation, this would have been 15s. The defendants were then compelled to borrow money to pay their taxes. When their creditors troubled them, they gathered oil from the fruits on his land. The plaintiff protested:

I told them that my father never told me that one could take one’s palm trees by force, and that we use to appear in open square and pass a rule that the owners of the palm trees should allow young men to cut nuts for tax.

The witness Akarawolu told the court that Kelly, the British officer, had told instructed the young men to meet with the elders “in discussing of anything,” but had also told the old men to have “one ‘Okpulo Ika’ [private grove] and one only.” The court found for the plaintiff, deciding that he should not be forced to surrender his palms and was free to “carry on with his palm trees and do what he pleases.”

In the second case, the elders of Umuakole had initially responded to the poll taxes by arranging for a time during which young men could cut from private groves. In the past year, the arrangement had collapsed, and palms were being cut in common with no restrictions on the time of harvest. A meeting was summoned and juju administered that no one should cut except on appointed days. The defendants in the case had not adhered to this decision and forced their way into the plaintiff’s land. A tax demand note was then received stating that 24 days remained until payment was due. The first defendant told the court that a meeting was then held and cutting suspended “as payment of tax has come into force.” The defendants, however, were annoyed that, of the eleven persons in Umuakole with private palm groves, they believed only three were entitled to them. Further, the plaintiff and others had “exceeded more than what their ancestors had.” The court initially found for the plaintiff, but on review the defendants were cautioned and discharged. The reviewing officer noted that the “elders take this case much to heart. They say unless the defts are punished, the young men will get out of control. Nonetheless, fiat justia ruat coelum, usurpation of okpulos [private groves] is at the root of the trouble.”

In both these cases, the youth admitted that the palm groves in question were the property of the elders, but were not willing to allow rights of ownership to interfere with their ability to pay tax. While colonial officials tried to uphold the authority of the elders, they also limited their accumulation of property when it interfered with revenue collection and village peace. The aims of Indirect Rule and the means of funding it pulled the men on the spot in opposite directions. Phillips (1989) has described British colonialism in West Africa as a “makeshift settlement.” The initial ambition of importing capitalism came up against the realities of labor costs, land tenure systems, and the need to placate traditional authorities in order to maintain law and order. While she focuses on the conflicting aims that faced individual governors, it is clear these same contradictions also forced local administrators into a balancing act.
7. Conclusion

In this paper, I have discussed a peculiar example of the evolution of property rights which was noted by colonial officials and anthropologists in southeastern Nigeria. Certain Igbo groups responded to the rising commercial value of palm produce by curtailing private rights over palm trees. I have presented a model in which this outcome is in the interests of both those with trees and those without. Because defense of property rights is costly, a regulated scheme of communal harvesting may be preferable to the private-defense equilibrium, and a rise in the price of output can make such an arrangement sustainable. I have extended previous work on the development of property rights by including agents with heterogeneous effort costs. I has also added taxes that must be paid from the contested resource, which is appropriate for cases such as this, in which the output has a limited number of special uses. I have used model along with colonial court records to explain the political economy of disputes over palm trees that occurred in Igbo communities during the first half of the twentieth century. These were understandable as conflicts between the economic and political interests of elders with property and a tenuous grasp on village authority with youth, who had little property, the burden of bride-payments, and aspirations to political power.

This informs both economics and in African history. Within economics, I have described the political economy of property rights part of the dynamics of institutional change. I have also provided a micro-level study of institutional change in a developing-country context, the need for which has been pointed out by Pande and Udry (2006). I have shown that commercialization and integration of an agrarian community into the world economy need not lead to greater definition or individualization of rights over productive resources. Within African history, I have shown that the rational choice model (Austin, 2005) and game theory (Harms, 1987) are useful in explaining African societies. I have added a ground-level perspective to the study of the invention of tradition in colonial Africa outlined by Ranger (1992). I have reinforced the value of court records as primary sources in the study of African history (Hay and Wright, 1982; Mann and Roberts, 1991); these give more detail on property rights in Igbo society than exists in either anthropological accounts or colonial reports. In particular, I have looked at the construction of land law (Berry, 1992; Chanock, 1991; Colson, 1971). Finally, I have provided an integrated analysis of struggles over productive resources, custom, institutions and rural political authority for one aspect of Igbo life under colonial rule.

References


on Collective Action and Property Rights.


