

Rural livelihoods and the Chinese timber trade in Zambia's Western Province

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SUMMARY

In recent years, the increase in China's timber demand has brought increased sourcing by Chinese logging companies worldwide. In Africa, Chinese companies have established both timber buying and logging operations. Although Zambia is not a major producer, it is a repository of several valuable wood species, attracting several Chinese logging companies. The presence of these export-oriented companies is potentially a matter of concern in regards to rural livelihoods and the environment. Using a comparative approach to understand the differences in effect between Chinese and non-Chinese companies, we ask how the timber trade affects rural livelihoods. The results of household and community-level fieldwork in Western Province suggest that the activities of both Chinese and non-Chinese logging companies bring limited benefits to rural communities. Meanwhile, non-Chinese logging companies provided more local employment opportunities. In contrast, Chinese logging companies outbid their non-Chinese counterparts in the local timber market, providing greater opportunities to small-scale loggers.

Keywords: Chinese timber trade, rural livelihoods, Zambia

Subsistance rurale et commerce de bois Chinois dans la province occidentale de la Zambie

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Ces dernières années, l'augmentation de la demande du bois en Chine s'est traduite par un accroissement des importations chinoises à travers le monde. En Afrique, les sociétés forestières chinoises ont mis en place des centres d'achat et d'exploitation du bois. Bien que la Zambie ne soit pas un grand producteur, il regorge néanmoins plusieurs espèces de bois précieux, attirant plusieurs sociétés forestières chinoises. La présence de ces sociétés est un sujet de préoccupation pour le bien-être des populations rurales ainsi que l'environnement. À l'aide d'une approche comparative mesurant les différences entre les sociétés chinoises et non-chinoises, nous essayons de comprendre les effets du commerce du bois sur le bien-être des populations rurales. Les résultats des recherches effectuées aux niveaux des ménages et des communautés dans la Province occidentale suggèrent que les activités des deux sociétés forestières chinoises et non-chinoises apportent des avantages limités aux populations rurales. Cependant, les sociétés forestières non-chinoises fournissent plus d'emplois aux populations rurales. En revanche, les sociétés chinoises offrent des possibilités aux petits exploitants forestiers en achetant le bois sur le marché local.

Medios de vida rurales y el comercio de madera chino en la Provincia Occidental de Zambia

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En los últimos años, el incremento de la demanda de madera en China ha provocado un aumento del suministro de compañías madereras chinas en todo el mundo. En África, las empresas chinas han establecido operaciones de compra y de aprovechamiento de madera. Aunque Zambia no es un gran país productor, es un repositorio de varias especies valiosas de madera, que atrae a varias empresas madereras chinas. La presencia de estas compañías exportadoras es potencialmente un asunto preocupante en lo que respecta a los medios de vida rurales y el medio ambiente. Utilizando un enfoque comparativo para comprender las diferencias de los efectos entre empresas chinas y de otros países, preguntamos cómo afecta el comercio de madera a los medios de vida rurales. Los resultados del trabajo de campo a nivel de hogares y comunidad llevado a cabo en la Provincia Occidental sugieren que las actividades de las empresas chinas y de otros países aportan beneficios limitados a las comunidades rurales. Por una parte, las compañías madereras no chinas brindaron más oportunidades de empleo local. En cambio, las empresas madereras chinas ofrecieron precios superiores que sus homólogas de otros países en el mercado local de la madera, proporcionando mayores oportunidades a madereros de pequeña escala.

INTRODUCTION

China’s growing demand for Zambian Timber

In recent years, China’s trade in forest products with the rest of the world has dramatically increased, positioning the country among the most significant markets in the global forestry industry. China has emerged as the largest global importer of timber, mainly in the form of raw logs, sawn woods and wood pulp. In addition to that, the country has also become the leading world exporter of processed wood products including furniture, paper and plywood, among others (Canby et al. 2008, Huang et al. 2012, Northway et al. 2009 and Sun & Canby 2010). Timber supply chains supplying this burgeoning market now extend beyond Asia to Africa and Latin America. Although Africa’s share of China’s total imports of timber remains comparatively low, to some countries on the continent, China represents the largest single market for timber (e.g. Canby et al. 2008, Putzel 2009, White et al. 2006).

While the majority of timber shipped from Africa to China is from the Congo Basin, the miombo woodlands of Southern and Eastern Africa have emerged as a source of specific valuable hardwoods used to produce antique style furniture and other luxury goods (Huang et al. 2012, Wertz-Kanounnikoff et al. 2013). Chinese imports from the miombo woodlands largely come from Mozambique, thus, much recent research revolves around that country (German & Wertz Kanounnikoff 2012, Mackenzie 2006, Mackenzie & Ribeiro 2009 and Wertz Kanounnikoff et al. 2013). However, most recently, Chinese demand for timber from Zambia has begun to take off (Figure 1).

Forests and rural livelihoods in Zambia’s Western province

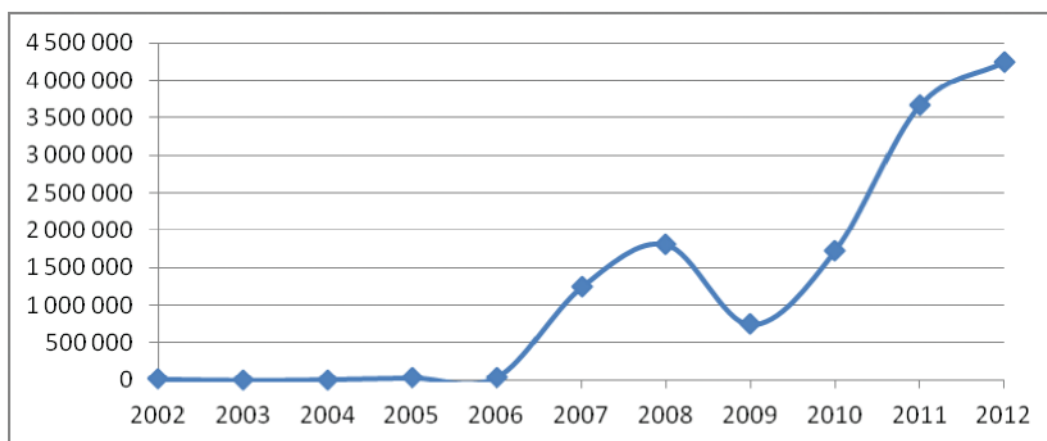
While the per capita area of Zambia’s forestland is superior to most of its neighbours (excluding the Democratic Republic of

Congo), the annual rate of deforestation in the country has been relatively significant in the last two decades (FAO 2011). In part this can be attributed to demographic change associated with the structural adjustment programmes of the 1980s, which limited government spending on key development programs and led to the economic hardship that spurred an exodus of unemployed urban dwellers to rural areas (Culas 2006, Hansungule 1998, Holden et al. 1998, Palmer 2001, Saasa 2003). The growing population in the rural areas of Zambia increasingly rely on the market for forest products for their livelihoods (Jumbe et al. 2008).

Rural life in southern Africa is characterised by high levels of poverty and limited livelihood opportunities (e.g. Shackleton et al. 2007). A significant proportion of household livelihoods is derived from forest products (Ellis 1998, Kaimowitz 2003, Shackleton et al. 2001 and Shackleton et al. 2007). In Zambia, rural dwellers depend on forests for energy, in the forms of charcoal and firewood and for non-timber forest products including wild fruits, caterpillars, flying termites, honey and medicinal plants (Mutamba 2007, Puustjarvi et al. 2005). Finally, a fraction of them are involved in the trade of forest products, especially firewood and timber, which constitute an important source of income (Chidumayo & Mbata 2002, Mulemga et al. 2011, Sileshi 2007).

In Zambia’s rural Western Province the poverty rate is around 84%, compared to a 64% nationally (IRIN 2011). Western Province is underdeveloped in basic services, infrastructure and employment (IRIN 2011). Logging, both by timber companies operating with concession licenses and small-scale “pit sawing” permits, is therefore an important economic activity despite the lower degree of tree cover compared to North Western province, which is less populated and accessible (Figure 2, Schoneveld et al. in press, Mukosha and Siampale, 2008). As in Mozambique, (Wertz-Kanounnikoff et al. 2013) the large-scale vs. small-scale cutting regimes likely come with different environmental effects related to enforcement. Moreover, these two regimes may have different effects on the livelihoods of local communities, with

FIGURE 1 China’s imports of wood products from Zambia between 2002 and 2012 (In US\$). These commonly available figures indicate the beginnings of a new market, albeit starting from a very small base



Source: UN Comtrade 2013: authors’ analysis

market connections to small-scale actors bringing greater economic opportunities to local people (Putzel *et al.* 2008, Weng 2013).

The overall aim of this article is to assess the effects of the Chinese timber trade on the livelihoods of rural communities of Zambia's Western Province through a comparative analysis between Chinese and non-Chinese companies. Building on a growing literature on China-Africa aid, trade and investment, this article is one of the first to assess the comparative effects of Chinese and non-Chinese trade in timber on the livelihoods of rural communities in Africa. It specifically intends to 1) investigate the extent and nature of jobs generated by Chinese and non-Chinese logging companies; 2) examine the extent to which Chinese and non-Chinese logging companies contribute to the delivering of services and infrastructure to rural populations; and 3) to evaluate the extent of market opportunities provided by Chinese and non-Chinese logging companies to rural communities and the manner in which the establishment of logging concessions affect rural communities' access to forest products.

METHODS

Study sites and logging companies

Based on a rapid scoping visit in 2011, we selected the districts of Kaoma and Sesheke in Zambia's Western Province as

study sites. The bulk of timber harvested in Zambia is sourced from this province, which comprises seven districts. In 2010, the population was 881 524 inhabitants occupying a territory of 163 170 square kilometres, with a population density of 5.4 inhabitants/km². Hence the Western province is one of the least densely populated provinces of the country (Zambia 2010). With a population of 178 948 and 7.7 inhabitants/km², the district of Kaoma has the highest share (20.3%) of the total population of Western Province. The district of Sesheke, at 94 323 inhabitants and 3.2 inhabitants/km² is comparatively less populated. Figure 2 below provides a map of Zambia, with the districts of Kaoma and Sesheke highlighted.

Kaoma and Sesheke were selected for two reasons. First, the two districts have a strong presence of Chinese and non-Chinese logging companies. In Kaoma alone, 6 logging companies and 4 pit sawing associations are currently in operation. Pit sawing enterprises comprise of members of rural communities organised into associations. Logging companies consist of 4 Chinese and 2 Zambian companies. Logging companies operate under commercial licences while pit sawing associations evolve under pit sawing permits. Table 1 below provides some fundamental features of both types of licence.

Second, logging companies operating from Kaoma and Sesheke sell their timber to diverse markets. While the Chinese market has a strong preference for the African rosewood (*Guibourtia coleosperma*), the South African market demands the more robust Zambian teak (*Baikiaea plurijuga*)

FIGURE 2 Map of Zambia

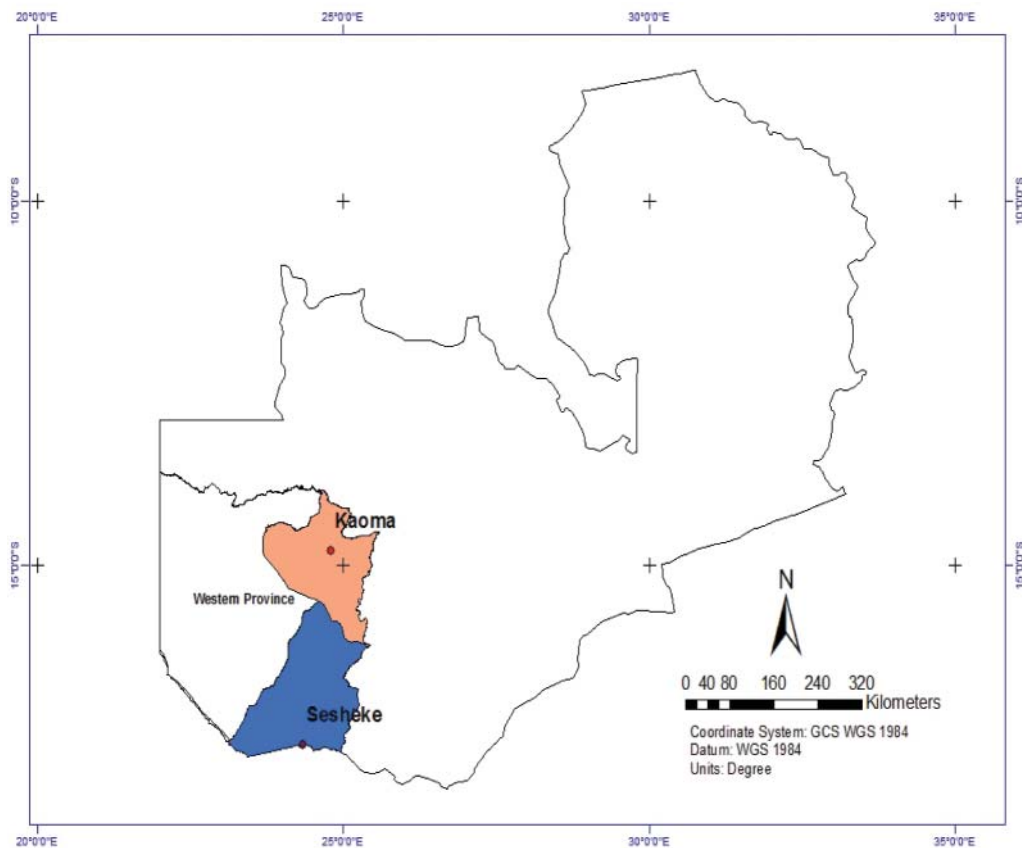


TABLE 1 Main features of commercial and pit sawing licences

Type of licence	Commercial	Pit sawing
Size of concession	5000 hectares	1500 hectares
Nature of the operation	Industrial	Artisanal
Duration of the licence	5 years	3 years
Minimum volumes of harvested timber per month	50 m ³	20 m ³
Maximum volumes of harvested timber per month	600 m ³	100 m ³

Source: Data from interviews with members of pit sawing associations, managers of logging companies and officials from the forest department.

and mukwa (*Pterocarpus angolensis*) species. Because rosewood is comparatively abundant in Kaoma, most of the wood from there is exported to China. In Sesheke, teak and mukwa are more plentiful and the main market for timber from that district is therefore South Africa. In total, four logging companies were included in our study, two Chinese and two non-Chinese¹. Further details on these companies are provided in table 2 below.

Villages were selected during the scoping phase of the study in November 2011. In total, 25 villages in the districts of Kaoma and Sesheke were chosen. In Kaoma, Villages within 30 km of the logging concessions were selected. However, in Sesheke, where logging concessions are generally located farer from human settlements, the nearest villages to the concessions were selected. It was conceptualised that the residents of the targeted villages would have had more interactions with logging companies.

The size of the selected villages varies, with those in Kaoma being, on average, more populated than those in

Sesheke. In addition to that, communities living in these villages are predominantly small-scale farmers. Hence, they strongly rely on subsistence farming for their livelihoods. The major crops cultivated are maize, cassava, groundnut and sorghum. Animal husbandry is also common as a mean of generating additional incomes. Moreover, the collection of forest products are widespread. These include commodities such as timber, mushrooms, wild fruits, honey, medicinal plants and bush meat. Timber, bush meat and honey are collected by men while the rest are gathered by women.

The main ethnic group in the province are the Lozi. The Lozi are headed by a supreme chief: the Litunga. Up to this day, the Litunga enjoys significant power as he is empowered to appoint traditional chiefs throughout the province. The Lozi coexist with the minority Nkoya group. The Nkoya are found in the district of Kaoma and are headed by two traditional chiefs: Mwene Mutondo and Kahare.

Data collection and analysis

Fieldwork was conducted in Zambia between June and July 2012. Both qualitative and quantitative were collected. Qualitative data came from semi-structured interviews and focus groups discussion (FGDs). Twenty interviews were conducted in Kaoma, Sesheke and Lusaka with informants including local authorities, managers of logging companies, retired workers and heads of villages. Three FGDs were conducted in Kaoma. Two of them were held within the Mayukwayukwa area where company CH1 operates and the last one was organised in the Nabowa area where company ZAM1 functions. Each FGD attracted dozens of residents in three villages, of which half were women and half were men. Researchers also conducted open-ended interviews with workers of logging companies, which were transcribed as field notes. As for the quantitative methodology, the study focused on a household survey. Overall, 111 heads of

TABLE 2 Overview of the logging companies selected in the study

Companies	Nationality of the owner(s)	District	Type and number of concessions	Main species harvested	Market of destination
Company CH1	Chinese	Kaoma	One commercial concession (5000 hectares) Luena forest	Rosewood	China
Company ZAM1	Zambian	Kaoma	One commercial concession (5000 hectares) Nabowa forest	Rosewood	Local market (Chinese logging company) and South Africa
Company SA1	South African	Sesheke	One commercial concession (5000 hectares)	Teak	South Africa
Company CH2	Chinese	Sesheke	Three commercial concessions (each of 5000 hectares) in Kasenu, Shokosha and Ngweshi forests	Mostly rosewood, some teak and mukwa	China and to a limited extent, South Africa

Sources: From interviews conducted in Zambia

¹ It should be noted that we classify a company SAH1 according to the nationality of its owner or owners, and not necessarily in term of the location of its headquarter.

household, amongst which 33 widows and divorced women, were interviewed in 25 villages in Kaoma and Sesheke districts. Nevertheless, given that the sample size of the household survey is small – mainly because of the low density of population in Sesheke – the analyses drawn from its results need to be considered in perspective.

Data obtained from the household surveys were analysed through SPSS in order to generate simple descriptive statistics. Semi-structured interviews conducted in the field were transcribed and analysed through the qualitative data analysis software: atlas ti. Atlas-ti facilitated the identification and assemblage of related concepts into broader categories that were subsequently compared.

Analytical approach

Our approach adopts a small-scale perspective to a topic often covered from using a macro angle, i.e. the effects of foreign direct investment (FDI). The direct impacts of FDI are usually assessed through the productivity of firms – usually measured as change in total factor productivity (TFP) or labour productivity (Hanousek *et al.* 2010). Indirect impacts are the diffuse effects of FDI on economies of host countries (Enderwick 2005, Jenkins 2005, Hanousek *et al.* 2010 and Prasanna 2010). However, such macro approaches do not shed light on the manner in which FDI affects household livelihoods. Therefore, a micro approach is needed to investigate the manner in which investment influence the welfare of individuals in society. This article will rely on a micro approach to study the effects of Chinese and non-Chinese imports of timber on the livelihoods of rural populations. This perspective is also grounded in the growing interest in corporate social responsibility (CSR). The greater emphasis by non-governmental organisations (NGOs), international organisations and Western international development agencies on CSR in developing countries follows a shift in development priorities – with more emphasis on social dimensions – and the low capacity of African states to provide for the basic needs of rural communities (Jenkins 2005).

In Zambia as well, the state has a limited capacity to adequately provide key services to rural communities. As a result of that, there is a growing consensus within the country on

the need for local and foreign firms – including logging companies – to provide more services to rural communities. Indeed, in a bid to encourage firms to engage in community development projects, the Zambian government made proposals for the development of a policy on public-private partnerships in 2006 (Noyoo 2007). Despite such move, the country still lacks a clear legislative framework governing the implementation of CSR by local and foreign firms. In particular, the government has not yet formulated guidelines regarding the scope and nature of community development projects (Noyoo 2007). In this context, using a micro approach, we identify three channels through which logging companies can possibly affect the livelihoods of rural communities: 1) creation of employment; 2) provision of basic services and infrastructure; and 3) access to forest products and market opportunities.

Figure 3 below provides a conceptual map explaining the channels of effect we assess in our analysis. The effects of Chinese and non-Chinese timber trade on rural livelihoods are assessed through the following means: 1) the extent of jobs provided to local communities and the working conditions prevailing within the logging companies; 2) the scope of provision of infrastructure and basic services such as clinics and schools to rural communities; and 3) the changes in access to forest products and access to new market opportunities by rural communities resulting from the establishment of logging concessions.

FINDINGS

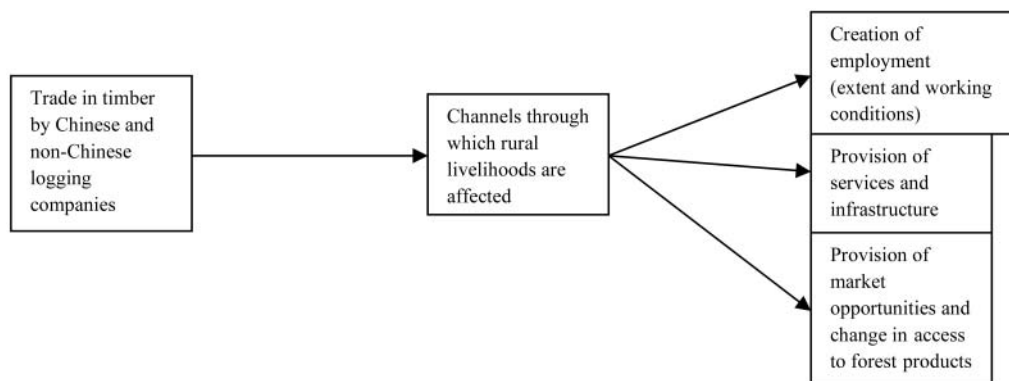
Provision of employment

Extent of employment

The perception of informants, which was borne out by figures obtained from company managers, is that the Chinese companies employ fewer permanent workers than the non-Chinese companies (Table 3).

Three of the four logging companies selected in this study directly provide permanent and casual jobs to rural communities adjacent to the forests in which they extract timber. This is with the notable exception of company CH1 that sub-contracts its operations to a local businessman based

FIGURE 3 Assessment of the effects of Chinese and non-Chinese trade on rural livelihoods in Zambia’s Western province



in Mayukwayukwa (Kaoma). Company CH1 provides equipment – such as tractors and chain saws – to the subcontractor and in return purchases timber from him. The subcontractor employs members of the local community, including Angolan and Congolese refugees residing in a nearby refugee camp. However, despite the apparent separation in the chain of production between company CH1 and its subcontractor, the latter operates in the former's concession under its production licence. In this perspective, it is our assessment that the subcontractor's labour practices should be attributed to company CH1.

From Table 3, it is observed that an insignificant proportion of 4.7% of households in Mayukwayukwa area reported that company CH1 provides employment to members of rural communities. All this information tends to suggest that company CH1, or preferably its sub-contractor, employs very few people in Mayukwayukwa. Company CH2, meanwhile, is perceived by 8.8% of informants to provide local employment. In reality, this company has 20 full-time and 14 casual workers in the rural areas.

The proportions of households associated with company ZAM1 and SA1 who reported that the logging company provides local employment were 16.7%, and 18.2%, respectively. In reality, companies ZAM1 and SA1 employ 27 and 56 full-time and 12 and 14 casual workers, respectively, in the rural areas.

As far as the scope of employment is concerned, it appears as if company SA1 and ZAM1 provide more jobs to rural communities, followed by company CH2. The assessment of the scope of employment alone is not sufficient to evaluate the overall effects of employment on rural livelihoods. In order to acquire a comprehensive understanding on the manner in which the provision of jobs influences the welfare of rural communities, we also need to assess the quality of the jobs provided. By quality, we refer here to the level of salaries and the general condition of work, such as safety, medical insurance and other entitlements enjoyed by workers.

Quality of jobs provided

Table 4 below provides basic information on monthly salaries associated with certain positions provided by companies ZAM1, SA1 and CH2.

The figures in table 4 show that the salaries offered by company ZAM1 and company SA1 appear to be, on average,

TABLE 4 Monthly salaries¹ per logging Company in Zambian Kwacha (ZMK)

Salaries (Kwacha)	General worker	Supervisor	Tractor driver	Chainsaw operator
Company ZAM1	500 000	900 000	1200 000	2 000 000
Company SA1	773 999	965 743	1066 273	700 720
Company CH2	480 000	750 000	840 000	690 000

Sources: Synthesis obtained from data acquired from Interviews with managers of logging companies and local workers

¹At the time of the fieldwork research, US\$ 100 was equivalent to 500 000 Kwacha.

higher than those paid by company CH2. However, it does not appear clearly – at least from table 4 – which logging company offers better salaries between company ZAM1 and SA1. This is because for some positions company ZAM1 tends to offer better salaries, while company SA seems to provide better salaries for others.

As far as the conditions of work of employees are concerned, company CH1 does not directly employ workers from the Mayukwayukwa area. However, information collected from rural communities suggests that the working conditions provided by the subcontractor are not satisfactory. According to these sources, workers employed by CH1's subcontractor do not possess the necessary equipment and protective clothing (uniforms and boots) to protect them from injuries. As a result, many workers, especially loaders, are involved in accidents. According to a health report received from a specialist at Mayukwayukwa clinic, at least 2 to 4 cases of injuries are reported per month at the local clinic. When the cases are extremely serious, patients are referred to Mangango clinic. At least two referrals are made per month.

Company ZAM1 appears to provide better working conditions to its workers. According to the manager, Company ZAM1 provides its workers with safety clothes such as work suits and gum boots. Moreover, it also provides its workers with other advantages including meals – although the money is deducted from their salaries. However, the company does not offer social security benefits to its workers.

TABLE 3 Proportions of respondents who acknowledged the provision of employment by each company and number of permanent and casual jobs provided by each company in the rural areas

Companies	Total number of respondents associated with the company	Proportions of respondents who reported that the company provides employment to local communities	permanent workers employed by the company	Casual workers employed by the company
CH1	40	4.7%	0	15
ZAM1	12	16.7%	27	10
SA1	22	18.2%	56	12
CH2	34	8.8%	20	14

Source: household survey and data collected from interviews with managers of logging companies

Company SA1 seems to provide the best working conditions compared to all the other logging companies included in this study. Company SA1 provides safety clothes and boots to its workers and does offer food and travel allowances, which are deducted from their salaries. The manager of company SA1 explains that 18 workers operate every week in the bush. Thus, his enterprise provides them with 300 000 Kwacha per week for food. In addition to that, the same manager argues that his workers are entitled to a maximum of 21 days of sick leave per year. This is according to the Zambian labour law. More importantly, company SA1 pays medical insurance for its workers. Documents obtained from the company show that the company pays to Workmans Compensations – a local insurance company – around 36 000 000 Kwacha a year. In addition to that, company SA1 contributes a sum equal to 5% of salaries of permanent employees under the age of 55 to the National Pension Scheme Authority (NAPSA). The employees also contribute 5% of their own salaries to NAPSA.

Company CH2 appears to provide poorer working conditions to its employees. In interactions with workers as some rural households, it emerged that there have been frequent delays in the payment of salaries to workers. In some instances, workers have been physically abused by a local company manager for raising queries about their delayed salaries. Also, other workers have been physically assaulted by the same manager for allegedly reporting to work under the influence of alcohol. The assistant manager of company CH2 operating from Lusaka claims that local workers usually abandon work to go drink when they get paid. At least four cases of physical abuse of local workers by the management were identified. All of these involved casual workers and their employment was terminated as a result of these disputes. According to two former workers who were reportedly abused, the cases were reported to the police. However, no investigations were opened against the local manager of company CH2. Furthermore, based on the statements of management, company CH2 does not provide safety clothing to its workers. This should not be surprising given the high turnover of its workers. Also, the company neither provides insurance nor pays a pension.

Provision of basic services and infrastructure

The figures from the household survey in table 5 below indicate that 85%, 55.6%, 47.6% and 84.8% of respondents associated with companies CH1, ZAM1, SA1 and CH2, respectively, reported that the concession provides nothing

to local communities. Conversely, only 7.5%, 22.2 %, 23.8% and 3% of respondents associated with companies CH1, ZAM1, SA1 and CH2, respectively, reported that the concession provides off cuts or planks to local communities. While these results suggest that logging companies operating in Zambia's Western province generally provide limited services and infrastructure to local communities, they also highlight a significant difference. Indeed, they tend to infer that CH1 and CH2 provide less services and infrastructure to local communities than ZAM1 and SA1, especially as far as the provision of off cuts and planks are concerned. However, results obtained from discussions with local communities, interviews with key stakeholders and field visits tend to produce a somewhat nuanced picture. Indeed, it emerged from these later interactions that the contributions of companies CH1 and CH2 are not significantly lower from those provided by companies ZAM1 and SA1.

Starting with company CH1, when it established its logging concession in the Mayukwayukwa area (Kaoma), it was asked by local communities to build a clinic, a school and a bridge for local communities. However, according to rural communities, company CH1 refused to provide any of the three services. On the contrary, local communities as well as a local teacher hold that the quality of roads in and around Mayukwayukwa has reportedly deteriorated as the result of the movements of the trucks operating by company CH1, as well as another Chinese logging company operating in the same area.

While local informants accused company CH1 of providing no services to local communities, the company claims that it has been working with the local government in Kaoma as well as with the traditional chief to offer services to local dwellers in the Mayukwayukwa area. In particular, the local manager of company CH1 holds that he often provides money and planks to the local government or the traditional chief as contributions for services in Mayukwayukwa. However, he refuses to provide more information regarding the amount of money or the volume of planks provided to the local government and chief as well as the frequency of such donations.

Interview with the head of company ZAM1 confirmed that the company neither provides significant services to local communities. Still, it transpired from discussions with local communities that company ZAM1 often provides rejects of timber to the former. The head of company ZAM1 acknowledges that he provides timber to the traditional chief of Nabowa and members of his family upon request. However, local communities are seldom informed about such donations.

TABLE 5 *Percentage of households who reported that the logging concession provides no services to local communities*

Company	Number of respondents	The logging company provides nothing	The logging company provides off cuts or planks	Provide other services such as employment or markets for timber
CH1	40	85%	7.5%	7.5%
ZAM1	12	55.6%	22.2%	22.2%
SA1	22	47.6%	23.8%	29.2%
CH2	34	84.8%	3%	12.2%

Source: Household survey

As for company SA1, interviews with the manager and rural households confirmed that the company does not provide significant services to local communities. The manager of the company holds that he would like to build a school for the community at Mangambo but cannot take such decision without the authorisation of the board of directors. Nevertheless, interviews with the manager and some local residents confirmed that company SA1 provides off cuts to communities living in the vicinity of its concession. Finally, while the manager of company SA1 argues that his enterprise does not provide money to traditional chiefs, it is important to note that the local chief of the area as well as a local prince, are both shareholders of company SA1, each owning 20% of the company's shares.

Discussions with rural households associated with company CH2 confirmed that the enterprise does not provide significant services or infrastructure to communities. However, the local manager of company CH2 holds that he regularly provides rejects of timber to local communities. The same manager holds that the company often contributes for the building of a school or church in the areas where it operates. For instance, in 2011, company CH2 donated 400 planks to produce school desks. In May 2012, it donated again 200 planks for the construction of a church². Furthermore, the local manager of company CH2 holds that the chief from Kulombo often comes to ask money. The company provides him with money or planks at least three times a year.

Access to forest products and market opportunities

Market opportunities

In general, the Chinese logging companies offer opportunity to local producers of timber, both formal and informal. In contrast, non-Chinese companies do not purchase timber from local producers.

In Mayukwayukwa, company CH1 purchases timber from members of the Kalukundwe pit sawing association. Besides company CH1, others timber merchants are also involved in purchasing timber from pit sawyers in Mayukwayukwa. Hence, members of the Kalukundwe pit sawing association have several options as far as trade of timber is concerned. For instance, they can sell timber to merchant companies operating from Mayukwayukwa or travel to the capital Lusaka to sell timber to merchants operating from there. Another option is to trade timber to the two main Chinese logging companies operating in the area, one of them being company CH1. The preference for one of the options described above tends to vary with each member of the pit sawing association. The more affluent and well-connected members of the association are in a position to cover the high costs associated with transportation and the purchase of licences, and hence, are capable of transporting timber to the distant market of Lusaka where they can negotiate better prices. For the less fortunate ones, they can barely cover the high costs of transporting timber to Lusaka. In addition to that, they have little bargaining power in relation to timber merchants operating from Lusaka. As a

TABLE 6 *Estimated revenues collected by pit sawyers from trade with different merchants*

Timber merchants	Estimated revenues in Kwacha per m ³	Estimated revenues in US\$ per m ³
Lusaka merchants	136 364–409 091	27–82
Merchants companies operating from Mayukwayukwa	159 091	32
Company CH1	272 727	55
Chinese logging company	280 000	56

Source: Data compiled from interviews, focus discussion groups with rural communities and field notes.

result, these pit sawyers prefer to sell their timber in Mayukwayukwa or in the nearest town of Kaoma. Table 6 below provides estimations of the revenues pit sawyers expect to collect, depending of the type of the timber merchant they are dealing with. We can see from table 6 that those who possess linkages and more resources are better off selling their timber in Lusaka. While the less resourceful ones might obtain a better deal by trading with company CH1 or the other Chinese logging company.

Like company CH1, CH2 also provides relatively significant market for local timber producers operating in proximity to its logging concessions. According to managers of CH2, the company struggles to operate efficiently because of frequent breakdowns of its machinery. This constitutes its main challenge. Thus, in order to honour orders from its clients, company CH2 is obliged to purchase timber from local pit sawyers in order to compensate for the shortcoming in its production.

In contrast to companies CH1 and CH2, Company ZAM1 does not buy timber from local producers. Rather than buying timber from smallholders, company ZAM1 sells around 60% of its harvested timber to a Chinese logging company that possesses a logging concession in the area. As far as company SA1 is concerned, it does not provide a timber market to local communities. Actually, from all the logging companies surveyed, company SA1 appears to be the most resourceful one, possessing larger amount of equipment and more personnel. The relative advantage in capital and labour allows company SA1 to harvest a significant volume of 50 m³ of round log and 12 m³ of branch wood per week from its concession. In this context, the manager of company SA1 argues that his company does not need to buy timber from local producers.

Access to forest products

In the case of Zambia, access to forest products located in the forest reserve is restricted to Non-Timber Forest Products (NTFP) (e.g. honey and mushrooms). However, in practice, rural communities are able to illegally access timber products

² The research team visited the church and could confirm the contribution made by company CH2.

from the forest reserve. Given that logging concessions are established within the forest reserve, their activities are likely to impact on local communities' access to forest products. The findings below suggest that the effects of logging activities on access of local communities to forest products seem to contrast depending on the location. While logging companies operating from the Kaoma district seem to alter the access of local communities to the forests, those running from Sesheke do not appear to have such effect.

In Mayukwayukwa (Kaoma) where company CH1 operates, the access of local communities to forest products was affected by the establishment of company's concession. In the course of the FGDs, local communities held that they were not consulted by the local government or the traditional chief before the decision to allocate the concession to company CH1 was made. Consequently, local communities did not have a say in the demarcation of the boundaries of company CH1's concession. As a result, areas of the forest reserve where local used to collect forest products such as timber, honey and mushroom subsumed into the concession. Company CH1 often prevents local dwellers from entering its concession to access forest products. Therefore, local communities are unable to access forest products such as timber (rosewood). Yet, rosewood is important to them, not only in light of its commercial value, but also because it is used in the making of canoes and poles. Furthermore, local communities claim that the intensity of fire in the forest has increased as a result of the branches of trees left by company CH1 after harvesting timber. They further hold that fire damages the soil and smaller trees, therefore leading to a decrease in the availability of products such as wild mushrooms, wild fruits and honey. Finally, residents from the communities in Mayukwayukwa attested that the establishment of company CH1's concession had reduced the area of pasture for their cattle. They claim that company CH1, as well as the other Chinese logging company, do not allow cattle to enter their concessions. Hence, cattle have less food and this reportedly translates into less milk for the community. Children are supposedly the most affected by the scarcity of milk.

The establishment of company ZAM1's concession in the Nabowa area has also affected local communities' access to forest products. It emerged from the FGD held in the area that local communities were not consulted prior to the demarcation of the boundaries of company ZAM1's concession. In addition to that, company ZAM1 often prevents local communities from entering into its concession to access forest products. This situation has led to conflicts between local communities and company ZAM1. Therefore, the establishment of company ZAM1's concession has led to a decline in local communities' access to forest products.

In Sesheke, the boundaries of companies SA1's and CH2's concessions were also established without prior consultations with communities living in proximity of those concessions. However, unlike the cases related to CH1 and ZAM1 reported above, the establishments of SA1's and CH2's concessions have barely affected local communities' access to forest products – albeit the fact that the latter are not allowed to access forest products inside the concessions of both companies. The regularity in access by local communities to forest products is

due to the lower population density in Sesheke, and hence, the fact that company SA1's and CH2's concessions are distant from surrounding villages.

DISCUSSION

Analysing the different dynamics observed in the 25 villages surrounding the active areas of two Chinese and two non-Chinese logging companies in Western Province, Zambia, we can draw a certain number of comparisons in relation to employment effects, CSR as it pertains to provision of infrastructure and services, and market opportunities at the local level. We recognize the small sample size (of companies) which was unavoidable given our resources and the relative low frequency of cases in any given geographic region; this means there is a need to relativize our findings against the growing literature on this topic. Nonetheless, our interesting findings, summarized in Table 7, are that 1.) Non-Chinese companies performed better in terms of number and quality of jobs provided to local people; 2.) All companies performed poorly in terms of improving local services and infrastructure (which may be in part a failure of local authority); 3.) Chinese companies brought better market opportunities to local (mostly small-scale) producers; and 4.) Access to forest products by local communities differed according to location, but not according to the nationality of senior management of the companies.

On the employment front, the poorer performance of Chinese companies might be due to many factors. The finding may be related to previous findings on the corporate culture of Chinese companies. In their study on foreign investments in Africa, for example, Henley *et al.* (2008) argues that managers representing Chinese invested firms bring with them high growth expectations from China, where annual growth figures are very high. Haglund (2009) holds that managers of Chinese companies are aggressive in maximizing production in order to generate more revenues. He argues that Chinese managers seek to minimize costs by downgrading expenditures in the non-core production areas, such as social benefits, safety and environment. Other scholars such as Alden (2007) and Carmody and Taylor (2009) have accused Chinese companies – especially mining companies operating in Zambia – of replicating in Africa a corporate culture that prevails in China, that results in unsatisfactory treatment and even occasional abuse of workers.

By assessing our findings against these sources, we find the profit motive to be a good explanation of the lower employment contribution from the Chinese companies in our sample. Empirically, Chinese logging companies operating in Zambia appeared to be struggling with a narrow profit market because of high transportation costs and low timber prices within Chinese markets. From April to July 2012, the cost of transportation of a small container from Zambia to China increased by 30%. At the same time, the price of timber (i.e. *Guibourtia coleosperma*) in China increased by only 10%. The low price of timber in China is attributed to cheaper prices offered by Chinese companies operating from Mozambique and Gabon. Additionally, logging companies operating from

TABLE 7 Summary of the main findings on the effects of Chinese and non-Chinese timber trade on rural livelihoods in Zambia's Western province

Channels of assessing effects on rural livelihoods	Chinese companies	Non-Chinese companies
Provision of employment to rural households	Provide limited jobs, mostly casual ones	Provide more jobs than Chinese companies, including permanent positions. But the extent of jobs is still limited
Levels of Salaries provided to workers hired in rural areas	Provide rather poor salaries to workers	Provide relatively better salaries to workers than Chinese companies.
Safety and social security	Do not provide boots and uniforms and no social security benefits to workers	Better safety measures and more social security benefits provided to workers
Provision of basic services/ infrastructure	Little provision of services or infrastructure	Little provision of services or infrastructure
Market opportunity to local producers of timber (including informal ones)	Provide better opportunities to the less affluent producers of timber that enhance their livelihoods	Do not purchase timber from local producers. In some cases, provide timber to Chinese companies.
Access of rural communities to forest products	Depending on location of concession – if near to villages, access is restricted. If far, access is open.	Depending on location of concession – if near to villages, access is restricted. If far, access is open.

these two African countries allegedly enjoy cheaper transportation costs. In addition to that, Chinese logging companies operating from Mozambique and Gabon are reportedly able to export unprocessed logs to China. As a result, company CH1 has been unable to make profits in recent months due to low prices of timber within the Chinese market. On its part, company CH2 has decided to suspend the shipment of timber to China due to high transportation costs and lower prices.

As a result of their difficulties to realise profits, Chinese logging companies operating in Zambia are eager to minimize costs. In the case of company CH1, such strategy translates into outsourcing the harvesting of timber. In the case of company CH2, the company avoids employing permanent workers, thus limiting salaries and other social benefits.

In terms of *provision of basic services and infrastructure*, none of the logging companies in our sample provide significant services or infrastructure to rural communities. This shortcoming may be exacerbated by the fact that local chiefs and, in some cases, the local government structures serve as intermediaries between communities and companies. This arrangement is not surprising: local and traditional authorities are expected to be the custodians of the rights and interests of their constituencies. However, local authorities use their positions to build relationships – including with company managers – that profit them. Thus, for example, one company provides planks and money to local chiefs and officials for the construction of road or bridge but those resources are usurped.

These corrupt practices can be termed as a variety of rent seeking behaviour that diverts the allocation of resources accumulated by timber companies that should benefit local communities. This is an institutional problem associated with local customs: the behaviour and actions of local elites are embedded in complex interdependent systems that include political institutions and social norms (Delaiglesia 2006, Levy 2004). This form of corruption is similar to that described by

Haglund (2009) in specific relation to Chinese mining companies in Zambia, but our findings suggest it is not specific to Chinese vs. other companies.

In relation to the provision of market opportunities to actors in the local timber sector, we found that Chinese logging companies operating in Zambia's Western province appear to provide relatively significant markets for timber to local producers. This is in contrast to the non-Chinese logging companies that do not provide any of such opportunities. On the contrary, the case of company ZAM1 suggests that local timber producers are likely to supply Chinese companies with timber. The linkages between Chinese businesses and Zambian logging companies reinforce the increasing merchant posture of Chinese logging companies in the Zambian timber industry. This finding is consistent with those of Weng (2013), who found that Chinese companies in Cameroon brought significant economic opportunity to small-scale local actors operating in the informal sector.

Finally, regarding the effects of logging concessions on local communities' access to forest products, it appears that there are no significant differences between Chinese and non-Chinese logging companies. Rather, the differences relate to the location of logging companies. Indeed, while the companies operating from Kaoma appear to have adverse effects on local communities' access to forest products, those running from Sesheke do not seem to share the same effects. The difference in term of the location is explained by the low population density prevailing in Sesheke. In this context, the ratio of populations to resources appears to be lower in Sesheke and, hence, logging companies operating from that district are unlikely to encroach on areas of the forest reserve that supply products to local communities. In this manner, conflicts between logging companies and local communities over access to forest products are minimised. With greater population density competition over resources between people and companies likely negatively impacts local livelihoods.

CONCLUSION

As levels of poverty and reliance on forest products in Zambia's rural areas remain high, the timber trade is an important potential contribution to local livelihoods. Because of a growing market in China, we were interested in conducting a comparative assessment of the livelihood benefits of Chinese vs. non-Chinese companies in the country. We found that in our small sample, there were some areas in which the categories performed differently (employment; market opportunity) and others in which local conditions and institutions seemed to be more determinant (basic services/infrastructures; access to forest products).

In general, we can conclude that our results support previous findings that criticize the labour practices of Chinese companies operating in Africa. However, we must apply caution to that finding, as our sample is small (74 households in 25 villages around 2 Chinese concessions) and the companies themselves are small. New work by Assembe *et al.* (in revision) suggests that larger companies investing from China could bring CSR practices that reflect a greater adoption of those principles than small-scale actors have been known to do.

It has been found elsewhere that Chinese companies interface with a wide variety of local actors, including small-scale producers, at the local level in value chains (Putzel and Kabuyaya 2011, Weng 2013). These interactions may bring greater profits to a larger number of local people than do the activities of larger scale foreign companies operating their own concessions and avoiding purchasing timber on the local market. Of course, when these local market opportunities exist because of dealings in the informal timber sector, this finding cannot be promoted as a solution to local economic development in isolation from other considerations such as forest management, illegal trade, etc. and their socio-environmental effects over time.

Beyond the national origin of companies, local environments and institutions continue to be determinant factors in some cases. In our study, we found that local resource access depended more on location and probably population density and resulting competition for resources than on firm nationality. Meanwhile corruption of authority remains a problem in Zambia as in many countries; this interferes with the use of benefits derived from the sector to increase the public good.

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