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Understanding livelihood changes in the charcoal and baobab value chains during Covid-19 in rural Mozambique: The role of power, risk and civic-based stakeholder conventions

Judith E. Krauss [a,*], Eduardo Castro Jr. [b], Andrew Kingman [c], Milagre Nuvunga [c], Casey Ryan [d]

[a] University of York, Department of Politics/Interdisciplinary Global Development Centre, Derwent College, Heslington, York YO10 5DD, UK[1]
[b] Universidade Eduardo Mondlane, Mozambique
[c] Micaia Foundation, Mozambique/UK
[d] University of Edinburgh, UK

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ABSTRACT

Non-pharmaceutical interventions (NPIs) to reduce the transmission of Covid-19 had different repercussions for domestic, regional and global value chains, but empirical data are sparse on specific dynamics, particularly on their implications for value-chain stakeholders' local livelihoods. Through research including weekly phone interviews (n = 273 from May to July 2020) with panellists in six Mozambican communities, our research traced firstly how the baobab and charcoal value chains were affected by Covid NPIs, particularly in terms of producers' livelihoods. Secondly, we ask how our findings advance our understanding of the role of civic-based stakeholder conventions and different types of power in building viable local livelihoods. Our conceptual lens is based on a synthesis of value-chain and production-network analysis, convention theory and livelihood resilience focusing on power and risk.

We found that Covid trading and transport restrictions considerably re-shaped value chains, albeit in different ways in each value chain. The global baobab value chain continued to provide earnings particularly to women, when other income sources were eliminated, with socially oriented stakeholders altering their operations to accommodate pandemic restrictions. By contrast, producers involved in the domestic, solely market-oriented charcoal value chain saw their selling opportunities and incomes reduced, with hunger rising in charcoal-dependent communities. Our paper argues that local livelihoods were more resilient under Covid NPIs if civic-based conventions and collective, social power were present.

1. Introduction

Non-pharmaceutical interventions (NPIs) such as social distancing and travel restrictions were implemented 2020–2022 to reduce the transmission of Sars-CoV-2 (hereinafter Covid for short). Covid NPIs have been argued to entail significant consequences in terms of equity (Leach et al., 2021) and especially threaten livelihoods and groups that were vulnerable pre-Covid (FAO et al., 2020; Ravallion, 2020). Equally, Covid and Covid NPIs affect global, regional and domestic value chains in diverse ways (Oldekop et al., 2020). However, empirical data on how these dynamics have affected specific value chains and particularly local producers within them are sparse. Through weekly phone interviews May to July 2020 with panellists in six Mozambican communities involved in the baobab or charcoal value chains (n = 273), our research traced the diverse repercussions of Covid-related restrictions on trading and transport for value-chain stakeholders' local livelihoods, which affected both value chains, albeit differently. In a wider study on livelihood impacts of Covid NPIs (Krauss et al., 2022), baobab and charcoal stood out because the two value chains entailed opposite effects on local livelihoods: while women baobab collectors, thanks to adjustments by socially-minded value-chain stakeholders, maintained baobab earnings, small-scale charcoal producers saw their volume and prices diminish. The two cases involve different types of stakeholders based on the distinction convention theory makes between civic-based regimes, which emphasise socio-environmental production conditions, and market-based mindsets which prioritise solely price (Krauss and

* Corresponding author.
E-mail addresses: judith.krauss@york.ac.uk (J.E. Krauss), andrew@micaia.org (A. Kingman), milagre@micaia.org (M. Nuvunga), casey.ryan@ed.ac.uk (C. Ryan).
[1] Original research while at the University of Sheffield, UK.

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Barrientos, 2021; Renard, 2003). This matters particularly in light of diverse power asymmetries (Phillips, 2017) shaping experiences of risk (Franz et al., 2018; Lanari et al., 2021) and livelihoods (Eriksen and Silva, 2009; Quandt, 2018; Smith et al., 2019). A conceptual lens building on value chains, convention theory and livelihood resilience allows us to query how stakeholder conventions affected building resilient livelihoods, i.e. local livelihoods that withstood the shock of Covid. While our empirical contribution thus fills a gap on different value-chain-based livelihoods early in the pandemic, our conceptual contribution builds a framework for investigating local livelihood and risk experiences in value chains in light of different stakeholder conventions, power and risk asymmetries. This framework, we suggest, will be useful for further research into advancing environmental changes and their implications for local livelihoods.

Our paper asks two interconnected questions:

- How were the baobab and charcoal value chains in Mozambique affected by Covid, particularly in terms of local livelihoods?
- Focusing on power and risk, how do baobab and charcoal experiences advance our understanding of the importance of civic-based value-chain conventions for building resilient local livelihoods?

In answering these questions, we firstly build a conceptual lens drawing on value-chain and production-network literature (Horner and Nadvi, 2018; Barrientos, 2019), including risk (Franz et al., 2018; Lanari and Bek, 2022) and power (Phillips, 2017), convention theory (Krauss and Barrientos, 2021; Renard, 2003), as well as the livelihood change and resilience literatures (Eriksen and Silva, 2009; Quandt, 2018; Smith et al., 2019). The reason is that our findings showed the need for value-chain lenses which are more sensitive than conventional analyses to value chains' implications for local livelihoods (Challies and Murray, 2011; Baglioni, 2017; Vicol et al., 2019) in light of asymmetries of power and risk and the types and conventions of stakeholders involved. In the subsequent section, we discuss our methods. We then present our findings, juxtaposing the baobab and charcoal value chains pre-Covid with the implications of Covid NPIs for value chains and livelihoods. Finally, our discussion emphasises parallels and differences between the two value chains with a particular focus on stakeholder conventions, local livelihoods, forms of power and power asymmetries, and risk. Our main impetus in this paper is empirical, yet we also raise conceptual questions about the relevance of collective power and civic-based conventions for shaping livelihood outcomes in value chains. In synthesising a conceptual lens, we build particularly on the concept of risk (Lanari et al., 2021; Lanari and Bek, 2022) to draw more attention to local livelihood outcomes in value-chain research, especially as on-going environmental and climate changes will exacerbate risks and affect rural livelihoods. Based on granular insights afforded by our conceptual framework, our paper argues that the baobab value chain with social, collective power and civic-based conventions safeguarded more resilient livelihoods under Covid NPIs, including for women.

2. Conceptual lens: livelihood resilience in value chains in light of convention theory, power asymmetries and risk

To investigate baobab and charcoal value chains under Covid NPIs in terms of their implications for livelihoods, our study builds a conceptual lens from three key literatures: firstly, the burgeoning literature around global, regional and domestic value chains and production networks (e.g. Henderson et al., 2002; Barrientos et al., 2016; Horner and Nadvi, 2018; Krishnan, 2018; Langford, 2021), particularly in terms of their attention to power and power asymmetries (Phillips, 2017). In analysing power and risk, convention theory's insights on dominant stakeholders' differing conventions between purely market-focused and more ethically-minded understandings play a role, as they have significant repercussions throughout the value chain (Cidell and Alberts, 2006; Krauss and Barrientos, 2021; Raynolds, 2009; Renard, 2003). Finally, the livelihood resilience literature (O'Brien et al., 2007, 2009; Pritchard et al., 2020; Quandt, 2018; Quinn et al., 2011; Vollmer et al., 2017; Tanner et al., 2015) facilitates a much-needed, nuanced focus on local stakeholders and their experiences (Vicol et al., 2019), including of risks (Franz et al., 2018; Lanari et al., 2021) as a result of value chains and disruptions to them. We argue that our synthesised conceptual lens can achieve a qualitative granularity which nuances our understanding of value chains' livelihood implications in light of power and risk asymmetries and stakeholders' dominant conventions, which will be useful for future research on these themes given on-going environmental, climate and social changes.

Regarding value chains and production networks, we will refer to these linked production processes as 'value chains', yet, following many others (e.g. Neilson and Pritchard, 2009), we use elements from both inter-related concepts of global production networks (GPNs) and global value chains (GVCs). We draw from the value-chains literature an attention to the division of labour and value, and the modes of integration connecting lead firms and suppliers in generating products and services (Gereffi, Humphrey and Sturgeon, 2005). Recently, scholarship has highlighted value chains' domestic and regional manifestations, which involve buyers in the same or adjacent countries respectively (Barrientos et al., 2016; Horner and Nadvi, 2018; Krishnan, 2018; Langford, 2021), which is pertinent as the value chains we explore have some links to Europe, but prominently involve local buyers. In addition, we draw from GPNs an emphasis on the relational (Coe et al., 2008), multi-dimensional, multi-layered nature of these networks (Henderson et al., 2002), and a concomitant attention to power (Dallas et al., 2019; Henderson et al., 2002; Hess and Coe, 2006; Hess, 2008)[2]. Across diverse value-chain stakeholders, the ability to exert control, and having power over others in some way (Barrientos, 2014; Fold, 2002) is vital, including who gets what and who does what e.g. between different genders (Barrientos, 2019). In keeping with the GPN lens, we investigate firstly corporate power exerted by private-sector stakeholders, the institutional power of the public sector, and the collective power of e.g. farmers (Henderson et al., 2002). Phillips (2017) extends this focus to inequalities in GVCs by conceptualising a tripartite distinction: market power asymmetries focus on the relative positions of firms, social power asymmetries emphasise different levels of power, inequality and deprivation, while asymmetries of political power focus on differences in political interests shaping GVCs. In our approach, we emphasise Phillips's (2017) market power and its asymmetries in relation to private-sector stakeholders since the value chains in this study do not have 'corporate', i.e. lead-firm-driven power. When focusing on asymmetries of social power (Phillips, 2017), we take into account not only levels of inequality, risk and deprivation, but foreground the collective power inherent in group organisation for safeguarding livelihoods. Regarding the public-sector domain, we use institutional power to capture the broad-based governmental restrictions shaping livelihoods under Covid NPIs.

In analysing how power and risk asymmetries in value chains affect livelihoods, a second vital element is unpacking dominant stakeholders' motivations and priorities in value chains (Krauss and Krishnan, 2021; Raynolds, 2009). Convention theory highlights how diverging understandings of quality produce different regimes in market relations. In our study, we draw on its distinction between market-based conventions

[2] We acknowledge, but do not utilise the analysis of power by Dallas et al. (2019) distinguishing between bargaining, demonstrative, institutional, constitutive. The main reason is that their distinction between dyadic and collective value chains, and the concomitant allocation of bargaining power to dyadic rather than non-dyadic value chains, is not suitable for the power structures we found. For instance, in the charcoal value chain, there were no lead firms with which to form dyadic relations, yet bargaining power was very much a determining factor in rendering value-chain-based livelihoods unstable (cf. section 4).

which focus on price, industry-based understandings prioritising standardisation, and civic-based mindsets prioritising socio-environmental production circumstances (Cidell and Alberts, 2006; Renard, 2003). Convention theory has previously been combined with value-chain and production-network analysis to highlight how dominant stakeholders' understandings need to be negotiated within, and affect, diverse value-chain stakeholders (Krauss and Barrientos, 2021; Ponte, 2016). In our study, we expand this focus to encompass livelihood resilience, to investigate how different market-based, industry-based and civic-based conventions were refracted through power and risk asymmetries to produce different livelihood experiences in baobab and charcoal value chains under Covid NPIs. In negotiating conventions and priorities, alliances and contestations between different types of power across different stakeholders and scales play a key role in shaping outcomes particularly for local value-chain actors (Herman, 2019; Hughes et al., 2014).

The added focus on the livelihood resilience literature is because the production-networks and value-chains literature, traditionally, has struggled to explain aspects of uneven, local, rural development (Vicol et al., 2019). Value chain research has placed a considerable focus on lead firms and labour (Gereffi, Humphrey and Sturgeon, 2005; Ponte and Sturgeon, 2013), despite acknowledging civil-society and public-sector stakeholders as well as smallholders and their livelihoods (Baglioni, 2017; Barrientos, Gereffi and Rossi, 2011; Barrientos et al., 2016; Krauss and Krishnan, 2021; Raynolds, 2009). Livelihoods, i.e. the ability and means to gain a living (Chambers and Conway, 1991), are subject to significant vulnerability especially in Sub-Saharan Africa given simultaneous, structural, interrelated risks and hazards (Quinn et al., 2011). Differing levels of integration into markets and value chains (Baumert et al., 2016; Jones et al., 2016) significantly affect individuals', households' and communities' ability to maintain livelihoods in times of crisis. The relational view of the world from the GPN literature (Coe et al., 2008: 272) dovetails with the emphasis in livelihood resilience literature on the interconnectedness of environmental, social and political aspects shaping livelihoods and vulnerability (O'Brien et al., 2007; Quandt, 2018). Consequently, livelihood resilience has been defined as 'the capacity of all people across generations to sustain and improve their livelihood opportunities and well-being despite environmental, economic, social, and political disturbances' (Tanner et al., 2015: 23). In combining livelihood analysis with a value-chain lens, a focus on livelihood resilience intrinsically centres the local level, while helping to conceptualise the environmental dimension and its links to production and society which have often proved elusive in value-chain analysis (Irarrazaval and Bustos-Gallardo, 2019; Lanari and Bek, 2022).

A final helpful element is risk, a commonplace term in livelihood resilience, which is much less well explored in value chains outside of risk management for lead firms (Henson and Humphrey, 2010), particularly at the local level. Risk has been conceptualised in GPNs as differentiated between economic, product, regulatory, labour and environmental (Yeung and Coe, 2015; cf. also Franz et al., 2018). Bryson and Vanchan classify Covid-19, akin to other natural hazards and human-made disasters, as an environmental risk (2020). To further a nuanced understanding of the livelihood risks experienced in relation to Covid NPIs by smallholders, neither understanding is sufficient firstly because GPNs affect and are affected by risks which are beyond them (Lanari et al., 2021; Lanari and Bek, 2022), which includes Covid. Secondly, there is a need to disaggregate what specific risks were created or exacerbated for value-chain-based livelihoods through Covid NPIs in light of power asymmetries. This also matters in terms of whether the common approach of diversifying livelihoods to mitigate risks (Ellis, 2000) worked for panellists in our two value chains. We explore next how our conceptual lens was implemented in terms of methods.

3. Materials and methods

3.1. Research design

This study relies on a broader research project which conducted 441 qualitative phone panel interviews over up to seven study weeks (May-July 2020), discussing with 92 panellists the implications of Covid for information flows, coping strategies and livelihoods (cf. Krauss et al., 2022, for fuller details on the study design). This study focuses on only two value chains from which panellists reported opposite experiences in terms of livelihoods, power and risk in the pandemic: baobab and charcoal, which involve study communities in Manica province (districts of Guro and Tambara), and Gaza province (districts of Mabalane and Mapai). Through panel interviews, we sought to answer our two research questions firstly on livelihood experiences in the charcoal and baobab value chains, and the relevance of stakeholder conventions in light of power and risk experiences. Table 1 highlights the distribution of interviews:

This study draws[3] on 273 interviews in six communities and four districts. The period of study (May-July 2020), identical in both value chains, occurred just after the Mozambican government had instituted diverse NPIs in late March and early April 2020 in response to the World Health Organization's identification of Covid as a pandemic. The Government of Mozambique required social distancing across all professional and private spaces, hygiene and face masks, with border closures and transport restrictions, including the suspension of trains (GoM, 2020; Radio Moçambique, 2020), affecting our value chains in various ways. As Covid numbers remained very low throughout the interview period in the rural areas investigated, restrictions proved partly difficult to understand for our panellists.

The research design built on prior work (Baumert et al., 2016; Jones et al., 2016; Smith et al., 2019) in selecting study communities with which rapport had already been built to safeguard both free, prior and informed consent despite the pandemic, and vital feedback on questionnaire design and content. Coordination with local governments aided in selecting panellists and devising research questions. Panellists agreed to participate in weekly phone calls in local languages, compensated by receiving phones and phone credit. The social groups were selected based on prior work (e.g. Baumert et al., 2016; Smith et al., 2019; Vollmer et al., 2017) and consultation with on-the-ground partners:

1) Vulnerable people based on precarity of income, age, gender
2) Microbusiness owners, e.g. small-scale traders and vendors
3) Market-oriented smallholders, including charcoal, livestock or agricultural producers
4) Traditionally influential individuals, including local leaders, traditional healers
5) Modern influential individuals, including teachers, church pastors, health agents

The inclusion of panellists beyond those directly involved in the value chains safeguarded a more holistic view of NPI implications for livelihoods, power and risk experiences. As shocks often affect vulnerable groups and women disproportionately (Ahmed et al., 2020; UNDP, 2020; UN, 2020), the 'vulnerable' category included different ages and genders, while women were present in all categories given the importance of understanding divisions of labour and gendered experiences in value chains (Barrientos, 2019; cf. Table 2).

The qualitative questionnaires were designed building on prior work (e.g. Smith et al., 2019) and in consultation with on-the-ground civil-

[3] Ethical approval for this study was granted by the University of Edinburgh's School of Geosciences Research Ethics and Integrity Determination process, ref. 2020–420.

Table 1
Study districts, communities, panellists, number of interviews, key livelihoods/value chains. Source: Authors.

Province	District	Community code	# of panellists	# of interviews	Key livelihoods
Manica	Guro	GN	10	68	Baobab (plus agriculture (maize), horticulture, livestock)
	Tambara	TL	10	70	Baobab (plus agriculture (millet), horticulture, livestock)
Gaza	Maba-lane	HC	10	40	Charcoal (plus livestock, charcoal, rain-fed agriculture (maize))
		MV	10	39	Charcoal (plus livestock, flood plain agriculture (maize))
	Mapai	BR	10	25	Charcoal (plus livestock)
		MF	10	31	Charcoal (plus livestock, rain-fed agriculture (maize))

Table 2
Panellists disaggregated by study districts and categories (vertical), gender and number of panellists/interviews (horizontal). Source: Authors.

Value chain totals (Guro, Mabalane, Mapai, Tambara)	#	Interviews	F#	F interviews	M #	M interviews
Total	60	273	33	148	27	125
Guro	10	68	4	28	6	40
Mabalane	20	79	12	48	8	31
Mapai	20	56	12	37	8	19
Tambara	10	70	5	35	5	35
Vulnerable	12	54	10	49	2	5
Microbusiness	14	62	8	27	6	35
Market-oriented smallholders	10	41	7	29	3	12
Traditional influence	9	42	2	13	7	29
Modern influence	15	74	6	30	9	44

society and public-sector representatives given the novel pandemic, while also adjusting to data collection by phone (Block and Erskine, 2012). A detailed questionnaire in Week 1 employed closed questions to familiarise panellists with phone data collection, while establishing baseline information about livelihoods and value chains. In ensuing weeks, more open questions asked about changes to the prior week, before the final two weeks (77 of 273 interviews) added new questions on risk and community responses in light of data collected and feedback. The qualitative phone interviews, conducted in local languages, were summarised and translated into Portuguese and then analysed and coded through Nvivo 12 following Mikkelsen (2005). The findings below build predominantly on qualitative interview quotes[4]. In addition, continuous conversations with on-the-ground civil-society partners, researchers and key informants helped contextualise and stay abreast of changes up to the time of writing the first draft (September 2021).

3.2. Setting the research context

In one study community each in the Guro and Tambara districts, Baobab Products Mozambique (BPM) purchases baobab fruits from women collectors who harvest them from baobab trees in the vicinity. The 'tree of life', as baobab is also known, can be used for food (fruits and leaves), fibre (bark) and medicine (all parts), and survives droughts through stem-stored water (Welford et al., 2015). They equally play an important role in crisis: 'In times of drought, people used to make baobab pap to have something to eat' (GN-04-06). The dry climatic conditions mean income sources are not abundant: 'I have always had money problems all my life. I have always had issues with getting enough food because of droughts and other factors.' (GN-03-04) In the two study communities, two other key livelihoods beyond baobab revolve around the cultivation of grains (maize and millet), which were affected by a lack of rain in 2020, and peanuts, which can thrive in dry conditions, but equally were limited by weather conditions and the pandemic.

BPM, the sole formal baobab buyer, is run by authors Kingman and Nuvunga and was established as a social enterprise in collaboration with the all-female baobab collectors. It has built on the work of the Micaia Foundation, a non-governmental organisation working to help people challenge poverty and promote sustainable use of natural resources in Mozambique. Especially during the pandemic, Kingman and Nuvunga's status working with both Micaia and BPM was vital in facilitating this first-time academic analysis of this particular baobab value chain in Mozambique. Data was collected by research assistants rather than the authors to safeguard research integrity, with analysis undertaken collectively by the research team.

The charcoal value chain linking Mapai and Mabalane districts in Gaza province and the Mozambican cities of Maputo and Xai-Xai has been the subject of diverse investigations of supply chains, livelihoods, and resource governance (e.g. Baumert et al., 2016; Jones et al., 2016; Vollmer et al., 2017; Smith et al., 2019). Charcoal, as in much of sub-Saharan Africa, constitutes a key semiformal economic sector and crucial cash income source in these rural Mozambican communities (Vollmer et al., 2017). Charcoal is produced from wood undergoing heat treatment at various temperatures in artisanal kilns made from sand and straw, and is the main energy source for cooking in urban centres (Baumert et al., 2016).

4. Value chains under Covid

4.1. Baobab

4.1.1. Setting the context of the global/domestic baobab value chain

The baobab value chain that connects to our study communities in Guro and Tambara is unusual in some key respects. The sole formal buyer (BPM)[5] is a social enterprise involving the all-female baobab collectors, who by the end of 2021 were being prepared to accept shares in the company and were participating in its management[6]. Despite some inherent power asymmetries between the company and women collectors, the grassroots involvement in directing the company via the collectors' registered association facilitates participation and accountability. Consequently, a civic-based understanding of quality, prioritising particularly social and socio-economic aspects of production, plays a significant part in this value chain. BPM's business model focuses primarily on selling large volumes of high-quality organic baobab fruit

[4] Interview quotes are indicated with interview codes (xx-xx-x), which reflect the study community followed by the interviewee's number, and the study week. Where more than one interview code is stated, they are ordered alphabetically.

[5] There are also informal buyers in the sector, but women have shifted towards selling predominantly or exclusively to BPM given higher prices and more reliable selling opportunities, despite stricter quality standards.

[6] Even prior to the legal handover of shares, BPM already operated on the basis of the association being a part of the company.

powder to a small number of larger-scale buyers in the European Union and the UK. Much of the powder is destined for food and beverage manufacturing, where food safety concerns are paramount. Centralised procurement is therefore necessary on account of quality control, displaying a feature of an industry-based understanding of quality prioritising standardisation. BPM buys whole fruit, but pays a price far in excess of what informal market traders pay for extracted fruit pulp; thus, the women receive more money for less work. In addition, they can participate in some added-value processes as BPM has established five pre-processing centres in the districts, where additional employment opportunities, paid by kilo, arose in cracking open collected fruits and extracting the pulp and seed from the fruit pod.

4.1.2. Baobab under Covid NPIs

Early in the pandemic, European buyers proved extremely hesitant to commit to purchasing baobab in 2020 as European markets were collapsing due to government NPIs. The institutional power of European governments in closing commerce, and the resulting commercial reticence, thus shifted significant economic risks onto BPM. Given the involvement of the Micaia Foundation in the baobab communities, one Micaia donor gave the Foundation the go-ahead to re-direct funds to support the baobab-buying process. With a different donor involved with BPM via a private-sector support programme, Micaia negotiated a grant to establish a Baobab Stabilization Fund[7]. In 2020, this fund was loaned at zero interest to BPM, enabling the company to purchase baobab fruits at least to the same level as in 2019. This was to maintain one key livelihood particularly for women, as many other livelihoods were collapsing on household and community level due to Covid NPIs (Krauss et al., 2022).

Due to the social-enterprise orientation of BPM and its civic-based convention, its operations were adapted to maintain value-chain functioning despite NPIs. This involved safeguarding social distancing at all baobab purchasing points, and Covid-related health information being displayed at the collection points (GN-01-01; GN-07-01, TL-05-02). It also required BPM to reduce the number of women working at any one time in the pre-processing centres, increasing supervision costs and operational time. Thanks to BPM's track record and the close ties between BPM and the collectors, the certifying agency equally adapted and performed a remote audit instead of in-person visits and interviews: the industry-based understanding of quality thus remained dominant for the certifier, but was modified.

The buyer's civic-based conventions thus in themselves were not sufficient to maintain the value chain under Covid NPIs. There are asymmetries of market power between BPM, which owned the baobab stock together with collectors, and powerful European buyers, who had not entered into longer-term contractual structures that could have supported BPM in the pandemic. It was only the social-enterprise nature of the venture, harnessing the collective power of collectors in combination with the market and collective power of a social enterprise and the institutional power of donor investment, that bridged the financing gap until commercial operations could resume. This bridge-financing facilitated the continued purchase of baobab despite temporary withdrawal of commercial buyers in Europe. Equally, the organic certifier was willing to adapt its industry-based operations, with the civic-based collaboration between BPM and the collectors a key factor in facilitating continued operations under Covid. Given baobab's perishable nature, swift, flexible arrangements were required so as not to lose the harvest. What is more, the loan enabled BPM to purchase greater baobab volumes across all communities as weather and biological conditions facilitated a very good baobab year. Beyond the civic-based intention of safeguarding continuity of incomes for women collectors, however, there was also a market-based motivation for BPM to adapt to Covid: avoid losses of trust and confidence in the value chain.

As vaccination rates were increasing in Europe and commercial outlooks for 2021 improved, interest from diverse European buyers intensified, while the domestic market for baobab fruits picked up significantly due to the perceived health benefits of baobab in a pandemic (cf. Fig. 1 for a visual summary). This means that the value chain, initially purely global, also acquired a domestic dimension. The loan and the expanded market enabled BPM to purchase 50% more baobab fruits than initially anticipated for the 2020 harvest. In the medium to long term, the funding provided, the concomitant higher purchase volumes, and the newly established domestic interest may thus entail greater benefits for women collectors, the company and the communities.

4.1.3. Baobab value chain: Local livelihoods under Covid NPIs

Unlike prior crises, when baobab was used as an emergency food source (GN-04-06; GN-09-06), women focused on the harvest and sale of baobab fruits to BPM under Covid NPIs. The collection and sale of baobab was a constant, stable livelihood as other incomes collapsed (GN-06-06; GN-09-06; TL-03-01):

> 'Since last week, I managed to sell one sack of baobab. I got enough money for it to make a living.' (TL-04-04)
> '[From baobab,] I got money so I can help my family. I have no other livelihood apart from that now.' (TL-03-05)

Other livelihoods including brewing traditional drinks, wholesale and vending were either eliminated or diminished significantly by Covid NPIs restricting the sale of alcohol, movement and opening times. Additionally, peanut sales early in the pandemic stalled due to travel restrictions and poor understandings of limits on people and movement. Although domestic peanut buyers later returned, the initial perception was that peanut sales would be low in terms of volume and prices, prompting even greater engagement with baobab collection. Moreover, the cultivation and sale of peanuts and grain were affected by both dry conditions and Covid NPIs:

> 'We cannot go anywhere. Sometimes I can sell some peanuts. Baobab is selling though. Because of no rain and pests, we have no grain this year.' (TL-03-02)
> 'I have sold some baobab to make money. Last year I sold peanuts; … this year because of the drought, we did not have a good peanut harvest.' (GN-06-06)
> 'I have nothing to sell. I did not sell peanuts; we are only selling baobab, and the women are able to buy a lot of things with the money from baobab.' (TL-01-05)

As peanut volumes and prices were affected by the unpredictability of buyer movement and the lack of rain, and the dry conditions prevented other agricultural production, baobab remained a key source of income for panellists and their families in the pandemic, with husbands increasingly getting involved with their wives' baobab collection and sale. This was particularly relevant as another strategy previously used against dry spells, obtaining food in other unaffected locations (GN-02-06), was unavailable due to Covid transport and movement restrictions.

In sum, the global baobab value chain served as a lifeline in the Covid pandemic particularly for women with no alternative income. The value chain continued to function on account of an alliance between the civic-based convention of a buyer building on the collective power of its beneficiaries, and an institutional, civic-minded investor stepping in where market-focused corporate buyers temporarily backed out. This was especially relevant as the area was also affected by a lack of rain. BPM transferred the economic risk from the most vulnerable links in the value chain, women collectors often without significant other sources of income, towards themselves. As European markets were collapsing in the face of institutional decisions and buyers did not assume this NPI-induced risk, it was the presence of an institutional donor, and the

[7] As soon as BPM is able, the company will repay the loan to Micaia Foundation, and the stabilisation fund will be retained for possible future needs in the value chain.

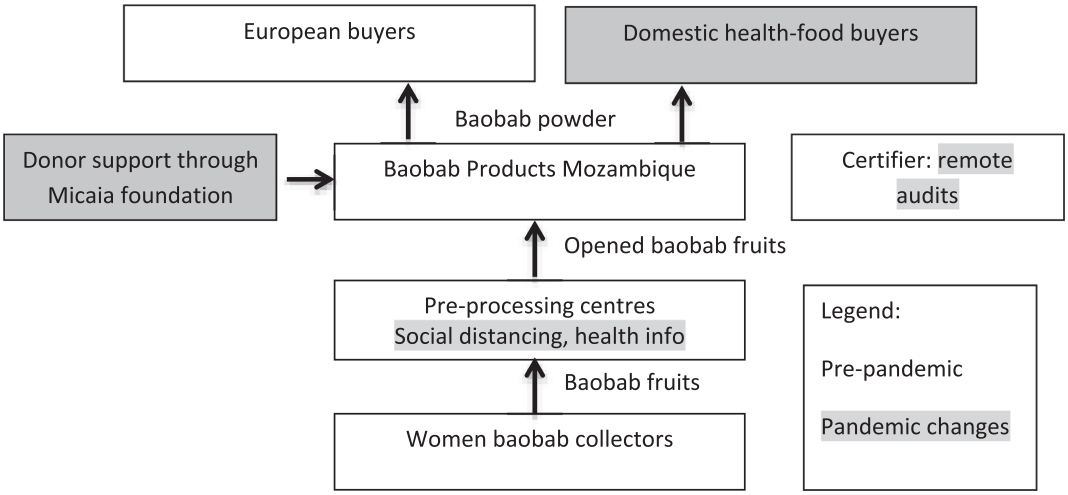

Fig. 1. Simplified baobab value chain in study communities. Source: Authors.

social-enterprise, collective-power-based nature of the venture, that enabled the procurement of a temporary loan to shift the acute risk away from baobab collectors. In the long run, however, this facilitated an expansion of this baobab value chain to additional domestic and international buyers, and thus additional livelihood opportunities for local communities. The market-power asymmetries thus did not affect producers adversely. However, it was only the civic-based, social-enterprise nature of the partnership, and an institutional ally, that shielded BPM from the asymmetries of market power in the shape of powerful buyers backing out.

4.2. Charcoal

4.2.1. Setting the context of the domestic charcoal value chain

Unlike baobab, the charcoal value chain is domestic in nature. There is no one centralised buyer, yet diverse charcoal buyers and wholesalers from urban centres. Baumert et al. (2016) distinguish between (i) local small-scale operators generally working without a license that use either local transporters to sell directly to rural consumers, or sell through large-scale transporters (12% of value chain), and (ii) large-scale operators using chainsaws or migrant labour that sell either to wholesalers or directly to retailers (88%). Our study focuses on the smaller end of the production scale, encompassing both small-scale producers making approximately 5 sacks of charcoal per month, and medium-sized producers which can use some non-household-labour to produce up to 20 sacks per month. Production is time- and energy-intensive and generally requires collaboration.

> 'In each kiln I would manage to make 3 sacks of charcoal, but now it is hard; we can no longer find trees … I make charcoal with my wife.' (HC-08-01)
> 'Earning cash [from charcoal] is difficult. Producing charcoal does not happen overnight; it can take people up to one month to make charcoal. If you want to make more than 20 sacks, you need help from other people, and it takes a lot of time.' (BR-01-01)
> 'When I make charcoal, people come to buy wholesale. They come in trucks. … As a woman, cutting a tree alone and then doing the kiln is very hard. There might be no more food at home even when there is still work to do.' (BR-06-01)

Where associations exist, they do not control pricing or volume, and lack organisation. In the two districts and four communities, alternative livelihoods are limited to only some flood plain or rain-fed agriculture as well as livestock production given very arid conditions. These livelihood limitations were exacerbated by a lack of precipitation particularly in the 2020/2021 rainy season, increasing the importance of the charcoal value chain. The lack of alternative livelihoods and sole reliance on the charcoal value chain exerted pressure on woodlands. Some community members were travelling further to cut trees, including to areas recently designated as part of a national park, which intensified tensions with park authorities (HC-04-04).

4.2.2. Charcoal under Covid NPIs

Already pre-Covid, this small-scale charcoal production system resulted in 90% of monetary benefits from the supply chain not reaching local communities and instead remaining with external agents (Baumert et al., 2016). This points to the presence of significant market power asymmetries in the value chain. These leave local charcoal producers at a significant disadvantage vis-à-vis external actors. Prior to the pandemic, trains were a crucial transport mechanism to take charcoal to urban centres especially for smaller-scale producers, with some charcoal sellers transporting their produce to train stations e.g. by ox cart (Baumert et al., 2016).

However, as part of the state of emergency due to Covid, the circulation of trains was discontinued. This left non-organised, small-scale sellers without systematic ways of transporting charcoal to urban outlets: they had to rely on passing customers to buy from them on the roadside, or trucks coming to the communities to purchase charcoal from medium-sized or larger sellers, who might buy small-scale production on the side (cf. Fig. 2). Small producers highlighted that the price buyers were willing to pay for charcoal had decreased considerably, as further explored below. In addition to the transport disruption, the collaboration necessary to produce charcoal was affected due to social distancing rules.

4.2.3. Charcoal value chain: livelihoods under Covid

Charcoal-related livelihoods were affected by Covid NPIs in four key ways, one positive in terms of boosting livelihood resilience, and three negative. The positive was that, with the lack of cash circulating due to transport restrictions and less casual-labour opportunities, charcoal could serve as alternative payment for crucial purchases such as food.

> 'Now that there is no cash, in the stalls you can now get products for charcoal. … A sack of 25 [kg] of flour can be traded for 3 sacks of charcoal.' (BR-03-01)

Negative implications for charcoal livelihoods manifested in terms of production, transport, and selling opportunities. Firstly, effective charcoal production requires collaboration (BR-07-03), both at the wood-harvesting and kiln stages. Consequently, the NPI requirement of social distancing meant that existing mutual-aid and collaboration networks could no longer function, affecting charcoal producers and

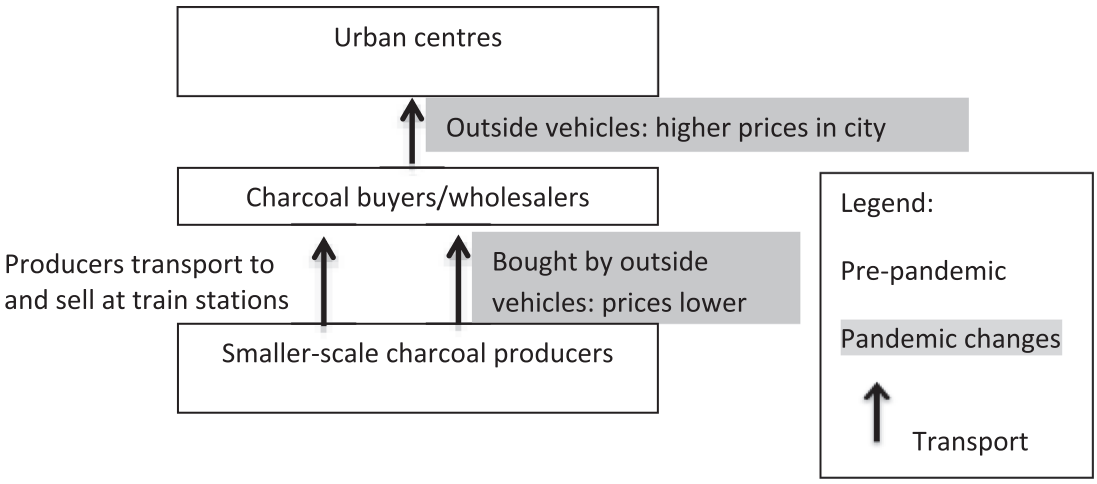

Fig. 2. Simplified charcoal value chain in study districts. Source: Authors.

especially women due to the physicality involved:

> 'Before, we could ask each other for help. Now, no-one can help each other for fear of the disease.' (MF-06-01)
> 'Cutting a tree and making charcoal alone is very hard for us women.' (BR-06-01)
> 'I am not able to make charcoal; I am an old woman, and even if I put the hard work in to cut a tree for charcoal, I only get 2 sacks … Only those that are strong can make charcoal … and get some money for food.' (MV-06-04)

The social distancing requirement also rendered village meetings and gatherings to discuss producing or selling charcoal impossible. Another fear related to charcoal production was the concern that making charcoal can trigger coughs, which might be seen as a symptom of Covid (BR-06-02). At the same time, Covid NPIs restricting collaboration and eliminating female livelihoods including brewing traditional drinks or vending, equally prompted women to start working on charcoal e.g. with their husbands (HC-05-04; MF-02-04; MF-03-03). According to our interviewees, while this increased the number of charcoal producers, especially women's relative lack of physical strength and experience hampered their ability to boost supply to such a degree that it would have depressed prices. This was far more influenced by the second negative: transport restrictions.

Due to train circulation being suspended, charcoal-related transport modalities changed. Trains were not only a key mode of transport to move charcoal to urban centres, but also the way to access the sacks and rope needed to package charcoal. Those who were unable to purchase sacks and rope in the city were dependent on vehicles that brought sacks and rope, placing them in a highly disadvantaged negotiating position.

> 'Many of us here sell charcoal on the roadside, but it does not have advantages – we have to buy the sacks and pay for transport. When I sell to a truck driver, I don't have to buy the sacks; they bring their own.' (BR-01-03)
> 'The sacks to package charcoal are expensive, and transporting the sacks to the road is also expensive. Those that come to buy them no longer are willing to pay the price we ask.' (MF-02-01)

The lack of trains thus gave a distinctly improved bargaining position to truck drivers. Truck drivers have always entered communities to purchase charcoal, yet trains created an alternative sales outlet and mode of transport. In addition, the lack of train circulation heightened unpredictability in terms of when and how charcoal could be sold:

> 'The livelihood which we have here to survive is producing … charcoal. Now that the trains are no longer running, those that depend on those livelihoods are bankrupt. They just depend on trucks that pass through the community to buy charcoal. They used to take the charcoal to the train station and sell charcoal there.' (HC-10-04)
> 'We now depend on vehicles which buy charcoal so we get any money at all.' (MF-07-05)

Thirdly, this shift in transport also entailed differences in volume and price, as sellers reported fewer opportunities to sell ('it can stay by the side of the road for a month' - MF-03-03), and buyers reducing charcoal prices when they did come. Combined with higher prices for consumables due to NPIs, this squeezed locals' purchasing power:

> 'We still produce charcoal, but not a lot. … Since last week, I have not sold a single sack of charcoal.' (HC-02-03)
> 'Before, we used to sell charcoal through the train, to people who came from Maputo and bought charcoal wholesale. Now they don't buy like they used to. I used to be able to sell 10 or 20 sacks per month. Now, I can only sell 5 sacks.' (BR-06-02)
> '[With the pandemic] we are not selling well … Without the disease, we sell charcoal at 500 MZN[8], but now we sell it at 450 MZN by the roadside … Wholesale at the kiln they used to buy at 350 Mts, but now it's 300 MZN [per sack] … Revenues are lower … now we can only buy flour … Now when we sell 10 sacks [of charcoal] - flour is 1500 MZN [for 25 kg], oil is 280 MZN [for 5 l], so we have nothing left over. It feels like we are getting ripped off because of coronavirus.' (BR-05-02)

Although producers had stock, they thus could only sell it at low prices. While charcoal buyers only paid producers low prices, they resold in cities at higher prices citing transport restrictions. After some pandemic restrictions were lifted, trains began circulating again. However, this did not boost producers' bargaining power as one might expect for several reasons. Firstly, the resumption of train circulation coincided with a required 'rest' period for charcoal production at that point in the year. However, charcoal sellers in Maputo continued to sell charcoal, stating they were still selling off 'old stock' from before the rest period. Although sellers in the city charged higher prices because of transport NPIs and the rest period, these higher prices were not being passed on to local charcoal producers. Local producers still were only paid 300 or 350 MZN per sack compared with a desirable price of 400 MZN. This raises the question of whether the shock of NPIs may have worsened small-scale charcoal producers' bargaining position beyond the short term of the Covid period, requiring further research.

In sum, small-scale charcoal producers' lack of integration with

[8] At the time of data collection, 1 USD was ca. 80MZN (Mozambican Metical).

downstream retailers and buyers thus diminished bargaining positions, selling opportunities and prices paid. Small charcoal producers could not leverage any collective power with which to contest buyer behaviour. Conversely, charcoal sellers in Maputo leveraged Covid transport NPIs into higher prices, demonstrating a significant asymmetry in market power. The institutional power of government shutting down train circulation thus had the knock-on effect of exposing local charcoal producers to significant livelihood and food insecurity risks, both in terms of expected prices, volumes and frequency of sales. The absence of civic-based conventions thus exposed charcoal producers to the full impact of a market-based value chain, which did nothing to protect local producers from the pandemic, leading to significant reports of diminished incomes up to and including hunger (MV-04-03, HC-05-02; MF-01-05; MF-10-02).

5. Discussion

Some interesting parallels and divergences arise from the findings across baobab and charcoal in terms of value-chain structures and conventions, power and risk experiences as well as livelihood implications due to Covid NPIs. In terms of parallels, the first point to note is that both are based on natural resources which are obtained from woodlands and forests. This means neither of them is premised on farming or cultivation, yet on the availability of (certain) trees. While baobab is premised on collecting tree fruits, charcoal is based on cutting trees and processing wood. A second parallel is that the extraction of both these natural resources remained viable despite the Covid shock and all study communities grappling with lacks of rain. While panellists reported Covid NPIs changing lives and livelihoods, e.g. through transport and purchasing opportunities, unchanged access to these natural resources shored up livelihoods.

A third parallel is both value chains providing a lifeline in difficult times, albeit differently. In all communities, the advent of NPIs restricting transport and trading eliminated or diminished diverse livelihoods, limiting opening times for stalls, banning traditional beverages and diminishing travel. In gender terms (Barrientos, 2019), this prompted heightened engagement with baobab and charcoal: as BPM only purchases baobab from women, male spouses began supporting their wives in the absence of other functioning value chains or employment opportunities following border closures. In charcoal, given heightened social distancing eliminating other forms of collaboration, women equally began engaging with charcoal partly in support of their husbands. However, while baobab remained a constant livelihood source, charcoal's returns diminished, yet it was still seen as the only available option to fend off hunger, though not even that in some cases.

A final parallel is that charcoal producers or baobab collectors *a priori* were the value-chain stakeholders most at risk from Covid NPIs. In the case of charcoal, while production and demand from urban customers remained, the breakdown of train circulation meant fewer selling opportunities and lower prices for small-scale charcoal producers, with purchasing power being diminished through rising prices for consumables. Asymmetries in market power between fragmented producers on the one hand and buyers external to our study communities on the other hand, coupled with a lack of integration with downstream retailers and customers, prompted a lack of leverage for small-scale charcoal producers. These small-scale producers had to assume all economic, livelihood and food insecurity risk in terms of lower volumes and prices in a chain dominated by purely market-based conventions. By contrast, an injection of money to BPM from an institutional source enabled the baobab value chain to continue providing livelihoods thanks to an alliance between stakeholders with civic-based priorities. The integration of baobab collectors as shareholders into BPM, coupled with another stakeholder with civic-based conventions, safeguarded the chain's continued functioning, without reduced prices or volumes. The social enterprise, combining collective and market power, assumed economic and financial risks to shield women collectors. Conceptually, our approach of bringing together value-chain (Phillips, 2017; Franz et al., 2018), convention theory (Renard, 2003) and livelihood resilience literature (Tanner et al., 2015) thus succeeded in synthesising a lens which produced a granular juxtaposion of power asymmetries, risks and different stakeholder conventions in two value chains, and their consequences for local livelihoods in an unprecedented shock. As we showed, understanding how different types of power and stakeholder orientations in value chains shaped experiences of livelihoods and risks by individuals, households and communities is vital. We invite further research to test and hone our conceptual lens to capture value chains and their livelihood implications amid on-going social and environmental change.

We invite further conceptual research to tie more systematically into value chain research the nuanced risks from local stakeholders' perspectives in light of different types of power, and power and convention asymmetries (Franz et al., 2018; Lanari et al., 2021; Lanari and Bek, 2022). While our study investigated the shock of Covid NPIs, parts of Mozambique and Sub-Saharan Africa more broadly are seeing the effects of environmental degradation and climate change, which are affecting local livelihoods. This makes our empirical and conceptual approach even more pertinent as risks and livelihood changes for local stakeholders involved in domestic, regional and global value chains are likely to increase. There are also further research questions to raise regarding one first key difference: the relative scarcity, value and international appeal of baobab (higher value, more scarce, internationally attractive) vs. charcoal (lower value, more available, no significant international interest). It would be interesting to explore to what extent the scarcity, international appeal and higher value of baobab made financial and institutional support more likely than for charcoal, and whether it also reduced the relative risk to be borne by BPM.

In terms of differences, a key factor was the divergences in market-based, domestic-based or civic-based stakeholder conventions (Krauss and Barrientos, 2021; Renard, 2003) governing baobab vs. charcoal. In the global baobab chain which acquired domestic buyers over the pandemic, an industry-based understanding played a role in terms of centralising procurement for quality control and safeguarding organic certification. Most prominent, however, were civic-based conventions governing different aspects of the value chain through an alliance of women collectors, a social enterprise and an institutional investor, which helped maintain the baobab value chain and the livelihoods it provided despite NPIs through three main adjustments. The first was the bridge-financing which the institutional investor provided to BPM, allowing BPM to continue purchasing stock from women collectors for whom many other livelihoods had evaporated. The second factor was the willingness to make alternative, flexible arrangements at collection and pre-processing centres to accommodate Covid-induced restrictions related to particularly transport, social distancing and hygiene in the value chain, with the clock ticking given a perishable product. Finally, BPM agreed a pandemic-adapted approach with the certifier and their industry-based priorities. The social enterprise, and the collective power of women collectors, thus played a key role in maintaining baobab collection as a vital lifeline despite significant market power asymmetries, demonstrating an alliance between stakeholders with social, collective power and market power in this instance (Herman, 2019; Hughes et al., 2014; Phillips, 2017).

The domestic charcoal value chain, by contrast, remained driven by market-based considerations throughout. Neither industry-based understandings around standardisation and quality control, nor civic-based conventions regarding socio-environmental production circumstances and safeguarding producer incomes were relevant (Krauss and Barrientos, 2021; Renard, 2003). Wholesalers and community-external buyers have significant market power, controlling transport, packaging, prices and volumes especially after the suspension of trains, leading to lower volumes and prices for small-scale producers. Panellists asked why vehicles were so infrequent, unpredictable and unfavourable in terms of commercialisation. The associations that do exist were

unable to negotiate better terms of engagement, transport links or a higher share in value generation. Charcoal associations generally lack funding and capacity as individual charcoal producers nevertheless set their own prices, and were equally affected by the general ban on meetings due to social distancing. Consequently, there was no collective power to contest buyer behaviour and leverage the existence and availability of stock and production into stable prices, volumes or transport trajectories to urban centres. In urban centres, charcoal sellers extracted higher prices due to Covid, but purchased charcoal from small-scale producers at below-normal prices, thereby not passing any gains along to small-scale producers. Paradoxically, despite these adverse conditions, the elimination of livelihoods such as traditional brewing or wholesale businesses involving travel under Covid NPIs prompted more panellists, including women, to engage with charcoal production given the absence of other livelihoods, yet hunger nevertheless increased. Without alternatives, even a highly power and risk-asymmetrical, market-based value chain was better than nothing, despite the poor livelihoods it provided.

Collective and social power, or its absence, thus played a key role in determining very different outcomes for the most vulnerable chain stakeholders within charcoal and baobab in the Covid shock. For baobab collectors, being organised and involved in the baobab-purchasing company safeguarded livelihoods as the social enterprise made all necessary hygiene and distancing adjustments in the face of the government's institutional power mandating NPIs. Despite significant asymmetries in market power vis-à-vis European buyers, the collective power of collectors enshrined in BPM safeguarded vital bridge-financing from an institutional investor, allowing risk to be shifted away from collectors. By contrast, the absence of collective power through charcoal associations in the face of significant market power asymmetries with external buyers led to considerably worse selling conditions for charcoal producers. The lack of collective, social power, coupled with a lack of integration into charcoal wholesalers or downstream retail markets, meant that small-scale charcoal sellers bore the full risk both in terms of unpredictable prices, and sales volumes due to unforeseeable transport trajectories, despite still having stock and production. Unlike the alliances forged in baobab, the lack of strong associations and collective power in charcoal thus eliminated even the possibility of contestation of buyers' behaviour, given a void of alternative livelihoods due to lacks of rain and Covid NPIs. Despite both value chains being subject to market power asymmetries and the same NPIs through the government's institutional power, the collective power delta produced significantly different outcomes and much higher economic risks for the most vulnerable in charcoal. In light of abiding support for value chains as ways to shore up livelihoods (World Bank, 2020), further research is thus needed on how to safeguard sufficiently civic-based conventions, and adequate collective and social power, to maintain resilient livelihoods for local stakeholders in value chains even amid advancing environmental change.

Conceptually, the different outcomes for local livelihoods from these two value chains under Covid NPIs equally raise questions about diversification of livelihoods. Diversification literature has traditionally assumed that all diversification of livelihoods reduces risk (Ellis, 2000). While the diversification into baobab proved a lifeline for women in two districts, it was only the civic-based conventions, and the flexibility of its social-enterprise core, that safeguarded this livelihood. Moreover, the diversification of clients by BPM domestically and internationally proved an avenue to expand local livelihood opportunities thanks to the donor's bridge-financing. By contrast, the diversification into charcoal was the only alternative available to some communities whose other livelihoods had been eliminated. However, the lack of collective power in the charcoal value chain rendered it a risky, unstable, low-return diversification pursuit which exacerbated risks at the individual, household and community level, rather than averting food insecurity and livelihood risks from vulnerable value-chain stakeholders in a shock.

Despite the above-mentioned parallel of both value chains relying on natural resources, there is a final potential difference in the sustainability of natural resource use. While baobab involves collecting baobab fruit, but not harming the trees themselves, charcoal production relies on cutting wood from trees to convert into higher-energy–density charcoal for cooking purposes, which can be environmentally sustainable if done at locally adapted intensity levels (Wells et al., 2022). The elimination of other livelihoods due to NPIs, and the resulting increasing reliance on charcoal, accentuated questions about how to safeguard the long-term environmental sustainability of charcoal production in addition to the social issues raised above. This highlights that incorporating environmental dimensions more systematically into value-chain research is an important research agenda (Franz et al., 2018; Krauss and Krishnan, 2021; Lanari et al., 2021; Lanari and Bek, 2022). As we raised above, this will be all the more important in light of advancing environmental and climate changes which are likely to affect rural livelihoods increasingly. This equally underscores the importance of our conceptual lens built to reflect how differences in power, risk and stakeholder conventions in value chains shape environmentally-based livelihoods locally in times of crisis.

6. Conclusion

Our study investigated firstly how Covid restrictions affected the baobab and charcoal value chains in Mozambique particularly in terms of local livelihoods. In the global baobab value chain, it found that an alliance between a social enterprise co-managed by women collectors and like-minded institutional donors, prioritised civic-based conventions. This provided far more resilient local livelihoods under Covid NPIs than the market-based, domestic charcoal value chain. For baobab, an institutional investor provided bridge-financing thanks to collectors' and the social enterprise's collective power. Consequently, despite international buyers temporarily backing out due to government-instituted European lockdowns, livelihoods continued to be provided as adjustments around certification, transport and hygiene were made, and economic and financial risks shifted from collectors towards the company. Eventually, sales volumes and thus livelihood opportunities even increased due to more diverse domestic and international buyers. Charcoal, by contrast, provided much more uncertain livelihoods as transport links to urban centres were suspended due to Covid NPIs and the resulting, itinerant trade produced smaller sales volumes and lower prices for small-scale charcoal producers even as the cost of consumables increased.

Our second research question asked how, in light of power and risk, baobab and charcoal experiences advance our understanding of the importance of civic-based conventions in value-chain stakeholders to sustain local livelihoods. Firstly, while baobab collectors are organised and co-manage BPM, there is no equivalent level of collective organisation especially for small-scale charcoal producers to contest buyer behaviour. Despite asymmetrical market-power situations in both cases, collective power in baobab assumed risk and shielded vulnerable value-chain stakeholders from the vagaries of Covid NPIs, while the charcoal value chain barely helped vulnerable stakeholders survive as institutional power's Covid NPIs diminished other livelihoods. The experiences documented in our study reiterate previous assessments of the charcoal value chain highlighting power asymmetries (Smith et al., 2019) vis-à-vis multidimensionally vulnerable smallholders (Vollmer et al., 2017), insufficient current returns for charcoal sellers (Baumert et al., 2016) and the importance of stronger market integration and organisation (Eriksen and Silva, 2009). Our findings thus confirmed our argument that collective, social power and civic-based conventions in value-chain stakeholders safeguarded more resilient livelihoods in our Mozambican study communities under Covid NPIs. An opportunity for exchange and cross-learning from the baobab value chain's organisation would be a useful first step.

Our paper's granular, nuanced empirical findings validated our

conceptual approach, as bringing together elements from value-chain research (Phillips, 2017), convention theory (Krauss and Barrientos, 2021; Renard, 2003) and livelihood resilience (Tanner et al., 2015) succeeded in producing a lens sensitive to local livelihood repercussions of power, risks and different stakeholder conventions. The livelihood resilience literature helped draw attention to the local level, i.e. the power and risk asymmetries faced by the most vulnerable stakeholders in value chains. Coupled with value chains' attention to different types of power and stakeholders as well as convention theory's different priorities, our conceptual framework captured how power and risk asymmetries became more pronounced under Covid NPIs to the detriment of the most vulnerable value-chain actors. However, it also showed how civic-based conventions and collective power could maintain livelihoods even in an unprecedented shock. Experiences differed between the two livelihoods, but also between genders (Barrientos, 2019). Our conceptual contribution, we suggest, will be useful to future research investigating different types of shocks as ongoing climate and environmental changes exacerbate risks and increasingly affect rural livelihoods in value chains. We encourage further research to build environmental, local livelihood and risk lenses more systematically into value-chain research (Franz et al., 2018; Krauss and Krishnan, 2021; Lanari et al., 2021) and test our findings of civic-based conventions and collective power promoting more resilient livelihoods across diverse value chains, particularly given value chains' growing popularity (World Bank, 2020).

CRediT authorship contribution statement

Judith E. Krauss: Conceptualization, Methodology, Data curation, Formal analysis, Writing – original draft, Writing – review & editing, Project administration, Funding acquisition. **Eduardo Castro:** Methodology, Data curation, Formal analysis, Writing – review & editing. **Andrew Kingman:** Conceptualization, Methodology, Writing – review & editing, Project administration, Supervision, Funding acquisition. **Milagre Nuvunga:** Conceptualization, Methodology, Data curation, Formal analysis, Writing – review & editing, Project administration, Supervision, Funding acquisition. **Casey Ryan:** Conceptualization, Methodology, Writing – review & editing, Supervision, Project administration, Funding acquisition.

Declaration of Competing Interest

The authors declare the following financial interests/personal relationships which may be considered as potential competing interests: AK and MN are the founders of Micaia and lead BPM, discussed in this text. Their unique position afforded this study access and insight otherwise impossible to attain to triangulate other findings. Other than that, the authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

Data will be made available on request.

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