



WIDER Working Paper 2019/78

## **The governance of global value chains, the state, and small businesses**

The case of timber in Myanmar

John Rand, Paula Castro Rodriguez, Finn Tarp, and Neda Trifkovic\*

October 2019

**Abstract:** We use the case of the timber industry in Myanmar to analyse how national regulatory frameworks and international ecological discourses affect forest management and small businesses. The state plays two roles in the timber industry in Myanmar: it is the main producer and legal source of raw timber for the private sector; and it regulates timber extraction and the legality of operation of private sector firms. The state seeks a balance between forest conservation as a public policy objective and providing enough raw timber for the private sector. The implications of this for the private sector are twofold. The strict regulatory framework increases operational costs, as multiple licences and permits are required. And the state-controlled supply of raw materials results in inefficiencies, such as shortage and high raw timber prices. Under these conditions, the smallholder wood industry in Myanmar is at risk of stagnating at best, if not disappearing.

**Key words:** timber, wood, forestry, state, policy, Myanmar

**JEL classification:** Q23, Q28, L53, L23

**Acknowledgements:** This research is part of the project ‘Towards inclusive development in Myanmar’ supported by Danida and implemented in collaboration between UNU-WIDER, the Central Statistical Organization (CSO) of the Ministry of Planning and Finance of Myanmar, and the Development Economics Research Group (DERG) of the University of Copenhagen. The authors are grateful to the parties involved for enabling data access. The usual caveats apply.

---

\* All authors: University of Copenhagen, Denmark. Corresponding author: Neda Trifkovic: [neda.trifkovic@econ.ku.dk](mailto:neda.trifkovic@econ.ku.dk).

This study has been prepared within the UNU-WIDER project [Towards inclusive development in Myanmar](#)

Copyright © UNU-WIDER 2019

Information and requests: [publications@wider.unu.edu](mailto:publications@wider.unu.edu)

ISSN 1798-7237 ISBN 978-92-9256-712-5

<https://doi.org/10.35188/UNU-WIDER/2019/712-5>

Typescript prepared by Luke Finley.

The United Nations University World Institute for Development Economics Research provides economic analysis and policy advice with the aim of promoting sustainable and equitable development. The Institute began operations in 1985 in Helsinki, Finland, as the first research and training centre of the United Nations University. Today it is a unique blend of think tank, research institute, and UN agency—providing a range of services from policy advice to governments as well as freely available original research.

The Institute is funded through income from an endowment fund with additional contributions to its work programme from Finland, Sweden, and the United Kingdom as well as earmarked contributions for specific projects from a variety of donors.

Katajanokanlaituri 6 B, 00160 Helsinki, Finland

The views expressed in this paper are those of the author(s), and do not necessarily reflect the views of the Institute or the United Nations University, nor the programme/project donors.

## 1 Introduction

Myanmar's forest cover is still the largest in the Asia-Pacific region, but it is under serious threat of deforestation. In 2016, a temporary national logging ban was put in place to counteract years of over-exploitation. Myanma Timber Enterprise (MTE), a state-owned enterprise, is solely responsible for the production and sale of timber on behalf of the government. Private enterprises can purchase these logs through a tendering process administered by MTE. The number of firms which can afford to participate in the timber value chain under these conditions is decreasing, while at the same time the international community advocates for improved forest governance, with a huge emphasis on timber legality.

In this context, we analyse the regulatory framework under which enterprises in the wood industry operate and how international ecological discourses affect forest management and private businesses in the wood industry in Myanmar. In particular, how does the state absorb international sustainability requirements and apply them to policy, while so many smaller businesses depend on timber to survive? Providing answers to these questions will improve our understanding of the role of national policies in shaping the wood value chain. It will also reveal the implications for the livelihoods of enterprise owners and employees in the wood industry of national policies to protect the environment and limit production. Furthermore, it will contribute to literature on the significance of the state in shaping global value chains.

Considerable attention has been given recently to the role that lead firms and labour play in the configuration of global value chains (Barrientos et al. 2011; Coe and Hess 2013; Gereffi 1994; Gereffi et al. 2005; Henderson et al. 2002; Smith et al. 2014). Much less attention has been devoted to the different roles of the state within global value chains (Horner 2017; Smith 2015), and the state has tended to be analysed as a part of the institutional setting (Gibbon and Ponte 2005; Neilson and Pritchard 2009). We depart from earlier studies by explicitly focusing on the different roles of the state in the timber value chain in Myanmar, where the state acts as both regulator and producer.

Our analysis discloses the conditions of participation for private enterprises in a supplier-driven value chain in which the state assumes the role of a lead firm. The state enters the timber industry in Myanmar in two different roles. First, it is the only legitimate producer of raw logs in the country, which indicates that it needs to balance the objectives of approaching forests both as a valuable monetary asset and as a valuable natural resource to be preserved for future generations. Second, the state also assumes the role of a regulator, where, again, it has diverging objectives of self-regulating extraction and regulating the legality of operation in the private sector. In addition, there is a need to establish accountable verification systems that demonstrate the legality of timber intended for export to stringent foreign markets, such as the EU and the US. While the state is taking some steps in this direction, Myanmar timber is still prohibited from some markets due to the inability to prove the legal origin of all exported timber.

There are several implications of the two roles of the state for small and medium-sized enterprises (SMEs) in the wood industry. Regulatory restrictions are one of the main challenges for SMEs. The legislative framework increases operational costs, as multiple licences and permits are required to operate legally. The state-controlled supply of raw materials results in inefficiencies, such as shortage and high prices of raw timber. Under these circumstances, the smallholder wood industry in Myanmar is at risk of stagnating at best, if not disappearing. Better chances are likely for larger businesses with secure access to raw materials. Given the dual role played by the state, resulting in both unsustainable forest management and substantial losses for the private sector, it is unclear

whether the state should continue its engagement in both roles. Forest decentralization and concessions have become increasingly common in many parts of the world. They should, however, be understood in light of financial incentives and monitoring and evaluation costs (Karsenty et al. 2008; Tacconi 2007).

## 2 Background

### 2.1 Myanmar's history and economy

Myanmar gained independence from British rule in 1948, after which the government of the Anti-Fascist People's Freedom League (AFPFL) introduced the private and foreign sectors. Parallel to this flourishing of private industries and under the industrial plan, the government set up state-owned industries, mostly large-scale (Aung 2008). After 1962, a socialist economic system was established with the nationalization of large private enterprises; however, small private businesses were preserved. After the deterioration of the economic situation, in the 1970s new efforts for institutional reform were made, but private investment was still limited by the state. The demonetizations of 1985 and 1987 without any warning or compensation left the Burmese population with a profound distrust of the financial system.

In 1988, a military takeover by the State Law and Order Restoration Council (SLORC) switched the country towards a more market-oriented economy, reversing all socialist policies but failing to mimic the high growth of other authoritarian regimes of the same period (ICG 2012). Contrary to expectations, the government failed in international engagement, and due to political and human right concerns among the international community Myanmar was suspended from bilateral and multilateral agreements. Sanctions and trade restrictions followed. After the failed elections in 1990 Myanmar was even more isolated, and it would not be until 2011 that a new government would take power. The new government, however, inherited low levels of industrialization, a large share of the labour force working in the informal sector, a dysfunctional financial sector, and a distorted and inefficient economic situation, deriving from the banking crisis of 2003,<sup>1</sup> which left the banking sector crippled and with a complete lack of public confidence (ICG 2012).

Myanmar initiated market reforms towards the end of the 1980s but these only lasted until 1997, when the military-led government started to impose restrictions on the private sector again and mostly focused on enterprises that were owned by the army. A few private SMEs were allowed to operate under the condition that they support the military regime. The US and European countries imposed sanctions on Myanmar in 1997; these were only dissolved in 2013, after a transformation process towards democracy and industrialization had been initiated in 2011 (Bernhardt et al. 2017).

The sectoral composition in Myanmar at the beginning of the twentieth century revealed a highly de-industrialized country, with only 9.7 per cent of GDP in the industrial sector. Agriculture was the principal sector in the economy, with 57 per cent of GDP. From the 2000s, Myanmar experienced an accelerated industrialization process: by 2015, the industrial sector represented 34.4 per cent of GDP while the agricultural sector was reduced to 28 per cent. The services sector remained more stable but with its share of GDP increasing slowly. Between 1995 and 2015, the

---

<sup>1</sup> The collapse of a group of informal finance companies in 2003 quickly escalated into the private banking sector; this caused withdrawal and transfer restrictions, the recalling of loans, a shortage and lack of liquidity of the kyat (MMK), and the interruption of card, cheque, and remittance payments (Turnell 2003).

processing and manufacturing subsector's contribution to GDP increased from about 7 to 21 per cent.

## 2.2 Forestry and the wood industry

Today, Myanmar's forests account for 44.5 per cent of land area (World Bank 2017), which remains one of the highest shares in the Asia-Pacific region. The most common types of forest in Myanmar include tidal, beach, dune, and swamp; notably, 38 per cent of the total forest area is teak—a high-quality and much-valued timber with 20–25-year rotations (Kaung 2016; Ladrach 2009). In terms of the value and quality of forests, forest degradation has become increasingly critical in Myanmar and remains one of the principal national environmental concerns, which explains why it is now one of the most regulated industries in the country.

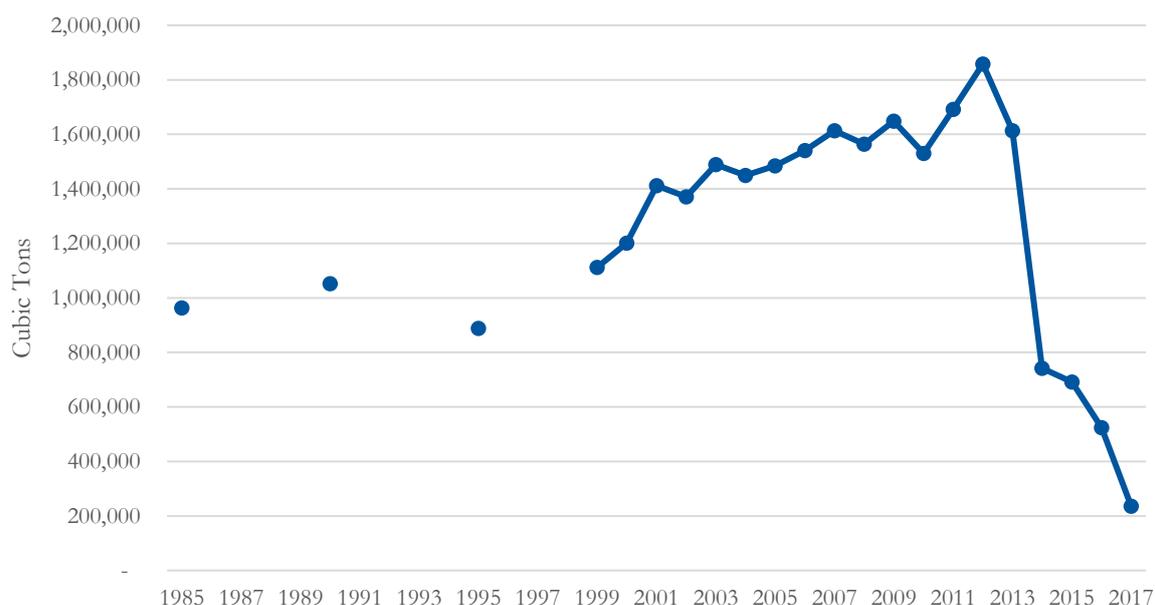
It is estimated that forest reserves are now generally exhausted and that areas of degraded forest dominate (Treue et al. 2016). Deforestation accelerated during the period 1975–2000, only decreasing slightly in the 2000–10 period (FAO 2010). In the period 2002–14, Myanmar lost 2.07 million hectares or 11.3 per cent of its intact forest, both inside forest reserves and in non-reserved areas (Bhagwat et al. 2017). Some link the highest rate of deforestation to the SLORC, the military regime that came to power in 1988. In the period after military rule, the deforestation has continued due to production and consumption of fuel-wood and increased commercial agriculture, urbanization, infrastructure, mining, and illegal logging (Linn and Liang 2015).

The damage due to deforestation is not spread evenly across the country. For example, geographers have identified that one of the most rapid intact forest losses in the world since 2000 is taking place in Bago Region (Potapov et al. 2017). Before that, border areas close to China and Thailand were cited as the most affected parts of the country, with a lot of activity attributed to ethnic minorities and foreign companies (Brunner et al. 1998). The consequences of deforestation in Myanmar are serious, including soil erosion, sedimentation of rivers, increased flooding, and acute dry-season water shortages in some areas (Brunner et al. 1998).

Forest has historically always been owned by the state in Myanmar, with the exception of community forests (CF), which have 30-year long-term lease contracts. In 2010, 99 per cent of forest ownership was still in public hands (FAO 2010). The Myanmar Selection System (MSS) established an annual allowable cut (AAC) which was followed until the 1980s, but in instances in which the government needed to boost the forestry sector in order to contribute to regional and national GDP, the annual cut exceeded the AAC at the expense of immature trees (Kaung 2016). Illicit logging due to increased demand, high prices, and corruption has also become common, especially by forest dwellers and small merchants (Kaung 2016).

Figure 1 shows the annual teak and hardwood production in Myanmar for the period 1985–2017. Even though the information in the 1980s and 1990s is available only every five years, we observe that the output level was stable at around 1 million cubic tons until 2000. The 2000s show an increase in production of about 3 per cent per year. The peak was in 2012, with a harvest of 1.86 million cubic tons. Production started to decline soon afterwards, reaching about 500,000 cubic tons in 2016. The amount projected for 2017 was half of the 2016 value, indicating a continuing downward trend in hardwood extraction in Myanmar.

Figure 1: Hardwood production in Myanmar



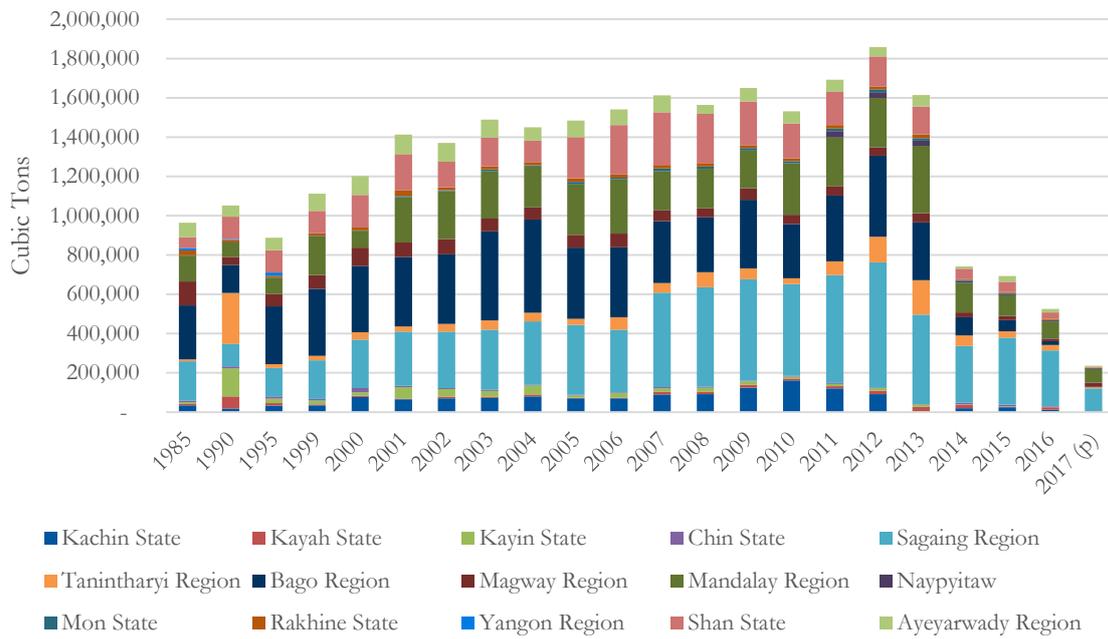
Note: 2017 data are projections.

Source: Authors' illustration based on Central Statistical Organization data (CSO 2019).

Figure 2 shows the amount of teak and hardwood logs extracted in different parts of the country in the period 1985–2017. The largest producers in the observed period have been the Sagaing, Bago, and Mandalay Regions. A small growth in production (of 3 to 5 per cent) occurred in Tanintharyi Region and Kayah State between 1985 and 2016. Most regions, however, have experienced a decline in production. Bago Region, Magway Region, and Kayin State have been through the largest decline, with 11.2, 9.5, and 8.3 per cent lower output, respectively. The only region where production has stopped completely is Yangon, for which there are no extraction data after 1995.

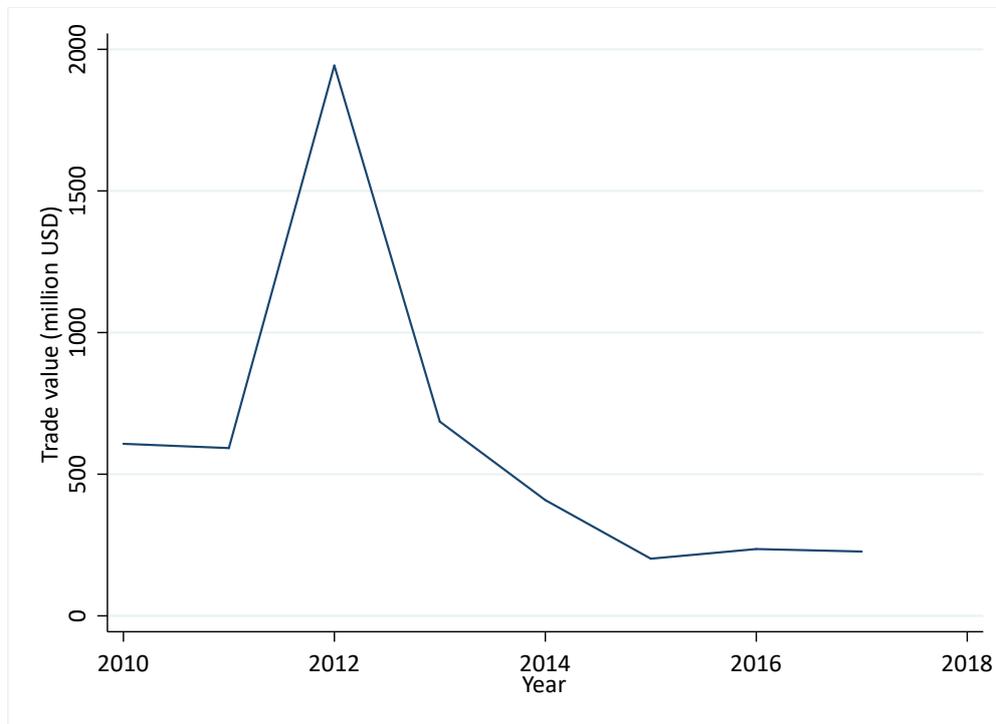
Figure 3 shows the value of exports of wood and wood products from Myanmar for the period 2010–17. Just as in the case of production, exports peaked in 2012 at a value of US\$1.9 billion. In comparison, the value of exports was around US\$600 million in 2010 and around US\$200 million per year in 2015 and thereafter.

Figure 2: Teak and hardwood logs extraction by region and state



Source: Authors' illustration based on CSO (2019).

Figure 3: Export value of wood and wood products from Myanmar

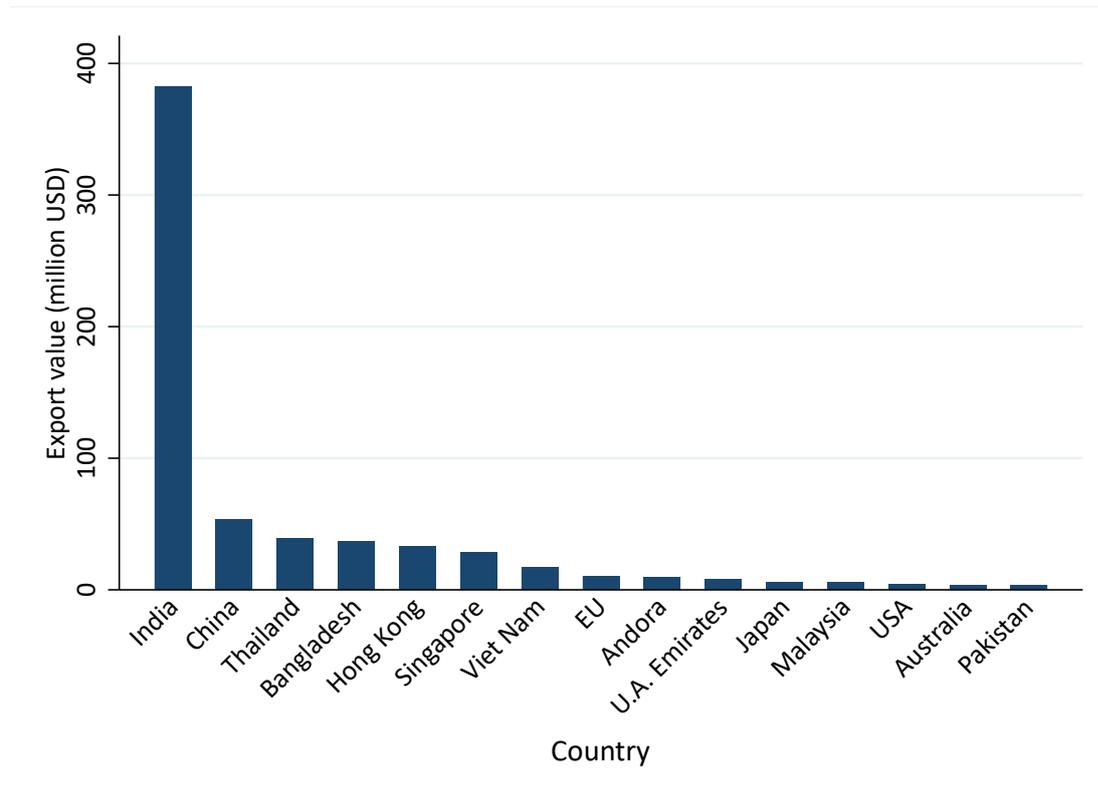


Note: The figure shows the value of the HS category 44.

Source: Authors' illustration based on UN Comtrade (2018).

Figure 4 shows that the main export market for wood and wood products from Myanmar is India. On average, 60 per cent of all wood and wood products from Myanmar was exported to India in the period 2010–17. The peak was reached in 2012, when 88 per cent of Myanmar wood went to India. In other years, the average export rate to India was around 55 per cent. China is the second most important destination for wood from Myanmar, with around 9 per cent of total export value. Other important export destinations include Thailand and Bangladesh, which indicates that Myanmar primarily focuses on exporting to neighbouring countries. Direct exports to more distant markets such as the EU, the US, and Japan are less common. It cannot be excluded that neighbouring countries serve as re-exporting hubs in this case.

Figure 4: Main export destinations for wood and wood products from Myanmar



Note: The figure shows the top 25% of export markets. The values are averages of the HS category 44 for the period 1992–2017.

Source: Authors' illustration based on UN Comtrade (2018).

Several factors have played a role in the decline of teak and hardwood production in Myanmar since 2012. The military leadership was dissolved in late 2011, making 2012 the first full year after democratization, so it could be that the new government had different extraction objectives and that awareness took hold of a too-rapid loss of the forest cover. An indicative marker of these changes was the new Environment Conservation Law enacted in 2012, with an aim of 'reclaim[ing] ecosystems ... which are starting to degenerate and disappear' and ensuring that 'the relevant Government departments and Government organizations ... carry out the conservation, management, beneficial use, sustainable use and enhancement of regional cooperation of ... forest resources'. Other changes took place in the reference period as well. The EU lifted sanctions in 2013, perhaps reducing the need for foreign currency, which was primarily obtained through timber trade until then. A ban on the exporting of unprocessed logs was enacted in 2014, further reaffirming commitments towards sustainable forest management. This ban is still in place (EIA International 2016).

In response to increasing deforestation, the government imposed a temporary national logging ban in 2016 (until March 2017), as well as a 10-year logging ban in Bago Region that was put in place to counteract years of over-exploitation (EIA International 2016).

### **3 Literature**

#### **3.1 Governance of forest resources**

The impact of deforestation has been considered by the academic literature in both environmental and socioeconomic terms. Environmental consequences arising from deforestation and land-use conversion include water quality degradation, due to agriculture practices and urbanization; alteration of regional climates; air pollution; and increased susceptibility to infectious diseases (Foley et al. 2005). Land conversion to agricultural land is one of the most common causes of deforestation in Asia, also causing severe soil degradation and freshwater deficiencies due to demands for irrigation (Zhao et al. 2006). Loss of forest cover in Asia has also been attributed to timber harvesting (Zhao et al. 2006), which causes irreparable biodiversity loss and is considered one of the most important factors for biogeochemical cycle changes (Dauvergne 2007; Foley et al. 2005; Rotmans and Swart 1991; Zhao et al. 2006). Also, the deforestation of South-East Asian forests, characterized by ecosystems storing vast amounts of carbon, contributes in a larger share to global climate change (Miettinen et al. 2011).

Environmental consequences are closely interlinked with social and economic consequences. Unequal distribution and degradation of water, as a fundamental resource for human consumption and human activities, contributes to conflicts and health-related concerns all over the world. The alteration of regional climates, in addition to global climate changes, adds to the vulnerability of certain regions to natural disasters and susceptibility to resource conflicts. Air pollution and amplified transmission of infectious diseases directly affect human health. This is not to say that these consequences solely arise from deforestation and forest degradation—but it contributes to the sum of human activities and their impacts on the environment.

We might see causes for deforestation in economic terms, looking at the forest transition hypothesis, which points towards deforestation as part of the economic development path, including population pressures and the relative value of forests and agricultural land (Wolfersberger et al. 2015). In the first phase, access to forests through infrastructure (roads, bridges) increases agricultural rents and incites population shifts. During the second phase, the population growth increases human needs for land use, namely agriculture, farmland, and urban expansion, which quickly resolves into deforestation. In the next phase, deforestation stagnates due to increases in forest rents and decreases in agricultural rents. Empirical results have shown the forest transition in terms of the marginal value of forests and agricultural land, such that the shift towards the stagnation phase occurs when forest scarcity results in the marginal value of forests being higher than that of agricultural land (Wolfersberger et al. 2015). Other drivers of forest transition include rural–urban migration, perceptions of resource values, timber prices, the role of the state in policy and institutional development, and foreign investments (Li et al. 2017).

Forest transition must also be considered carefully, as data are seldom complete and can be based on various different characterizations (e.g. forest area, volume, biomass), making it difficult to define the exact timing of forest transition at the national level (Mather 2007). The timing of forest transition, as evidence has shown, is not a linear progression from deforestation to forest restoration: the process can be delayed due to national land-use policies (Grainger 1995). It has also been questioned whether forest transition under a globalized economy is a result of the

displacement of wood extraction to other countries and not solely due to domestic conditions (Lambin and Meyfroidt 2010).

The dilemma lies in how to balance human needs from land use (e.g. agriculture, farmland, urban expansion) and how to distribute resources adequately and equally. Thus, the governance of forest resources plays an important role in how causes and effects of deforestation interact, the extent of the effects themselves, and the inherent wellbeing of all sectors of society. The nature of forests, considered as both private and public goods, gives way to a complex structure of governance, in which they are managed as 'sovereign resources of producer states' (Brown et al. 2008) while being considered by international actors as global public goods. We are, then, interested in looking at the role of the state within this governance structure, not necessarily only as the regulator or facilitator, but also as a producer and key node within global value chains.

### **3.2 The role of the state in global value chains**

Global value chains (GVCs) and global commodity chains (GCCs) have been used conceptually in the literature to explain the production processes in a globalized context. Yet they are concepts mainly focused on linear and vertical governance structures, and also almost exclusively focused on inter-firm relationships. The concept of global production networks (GPNs) allows us to encompass the multitude of actors and relationships that might be disregarded by the GVC/GCC literature. The concepts of GVCs and GPNs jointly allow for a multi-actor analysis outside of the production process and consideration of how the actors play a part in the governance structure. We might also recognize the role of collective power in GVC/GPN governance through actors such as trade unions or NGOs (Horner 2017). We might look into how GVCs/GPNs face multilevel regulatory systems, such as international standards, and how they operate under a political structure with the nation state as the main actor. This becomes increasingly relevant for so-called 'global public goods', such as forests.

Consequently, we might consider the role of the state in terms of how it varies according to its involvement in GVCs/GPNs. Horner (2017) settles on four different characterizations of the role of state, these being facilitator, regulator, producer, and buyer. Gereffi (1994) differentiates the role of facilitator within export-oriented and import-oriented economies. In the former, the state's role is primarily to facilitate and promote participation in GVCs, both among domestic actors and by introducing foreign actors. In the latter case, a more interventionist approach is taken, for example by including requirements such as joint ventures together with nationals, or state participation in the value chain. The facilitator role can take different forms depending on policy targets, such as foreign private investment or domestic investment, lead or small and medium-sized firms, and sector-specific, with measures that include communication and transport infrastructure, credit and tax facilities, etc. (Horner 2017).

The state's role as a regulator emerges from the need to limit economic activities in order to protect certain interests, such as those of citizens, businesses, consumers, or workers (Horner 2017). However, the role of the state as a regulator within GVC governance has been increasingly losing significance in favour of that of international and private actors due to the required organization and co-operation among all global actors (Nadvi 2008). Similarly to the facilitator role, the state-as-regulator role might vary depending on its involvement in the global value chain and national policy objectives.

The role of the state as a producer relates specifically to state-owned enterprises (SOEs), usually in strategic sectors or those sectors less attractive to private investors and their increasing internationalization (Horner 2017). Empirical results in Vietnam show advantages of high-capacity SOEs in the textiles and garments industry, in that they are able to integrate into high-quality value

chains and provide gains through employment while smaller private firms remain in regional markets (Nadvi et al. 2004). In contrast, dynamic modelling of the SOE-led Indonesian teak market shows that SMEs benefit unevenly in terms of value added due to mismanagement and illegal logging (Purnomo et al. 2007). Perhaps less common, the role of buyer involves the state in the large-scale purchases needed to offer particular social services or supply SOEs (Horner 2017).

In terms of natural resource governance and particularly forestry, we might argue that the state only rarely falls under just one of these four categories of facilitator, regulator, producer, and buyer. The intersection of these roles might give way to potential conflicting interests in functions and responsibilities, as well as to inefficient and/or unequal management of resources. This is what we explore in the case of Myanmar.

### **3.3 The role of the state in managing forest resources and supporting businesses**

The role of the state in relation to forest governance develops in a two-fold way. Firstly, the state is responsible for the protection of the country's natural resources and the promotion of environmental regulation. However, it must also account for the need for land-use conversion (e.g. agricultural land, urbanization), the subsistence need for forest products among certain sections of society, and, in certain regions, the interests of the wood industry.

In more recent development approaches, there has been a shift from centralized management of natural resources to decentralization. Decentralization emerges under the premise that local governments are more familiar with the local context and needs, having lower information costs (Andersson et al. 2006) yet also accounting for difficulties in co-operation among the different levels of the governance structure as well as power asymmetries and differing interests (Andersson 2004). However, there is not enough evidence to pinpoint the causes of success or failure of decentralization policies (Andersson 2004). Success has been attributed to local access to technical and financial resources, as well as to popular participation, and has been limited due to high rents and lack of authority in the fiscal and regulatory policies of the forestry sector (Andersson 2006).

The state, not being a compact institution, faces conflicts of interest in regard to forest governance, such as between the land-use preferences of different departments, ministries, or regional governments. In the Asia-Pacific region, branches of the government in charge of environmental protection are often comparatively weaker than those associated with the business environment (Dauvergne 2007). In itself, this might result in international actors back-tracking on or undervaluing environmental regulations.

Considering forests as 'global public goods' gives way to international pressure for environmental protection and conservation, as well as sustainable management and strong governance of forests. This is manifested as a form of verification system, which can be both internal (harvesting country) or external (international/consumer country) (Brown et al. 2008). In this context, conflicting interests appear between different political agendas, such that consumer countries pressure harvesting countries by only buying verified legal wood, while harvesting countries might not have the institutional capacity to meet such verification requirements. Evidently, illegal logging has high environmental and societal costs, such that verification is deemed necessary. However, there are adverse direct and indirect effects of verification which need to be accounted for.

Cross-country analysis within countries in Asia has shown correlation between the international trade of agricultural products and changes in forest resources, such that higher shares of forest products in total exports have negative effects on forest area, volume, and density, while imports of forest products have positive effects (Li et al. 2017). Thus, inclusion of the wood industry in

GVCs and GPNs might have either positive or negative impacts on deforestation, depending on the role of the domestic actors within the chain.

#### 4 Data and methods

We use two kinds of data in this paper. First, we use data from a nationally representative enterprise survey of small and medium-sized manufacturing enterprises in Myanmar. The survey was conducted in 2017 within the Myanmar Enterprise Monitoring System (MEMS) project (UNU-WIDER 2017). The sample includes 2,496 private enterprises from all 15 regions and states in Myanmar. Out of these, 203 enterprises operate in the wood industry. The survey data include information on enterprise characteristics and practices, such as number and structure of workforce, technology and innovation, revenues and costs, customers, owner characteristics, and economic constraints.

Second, we use data from in-depth interviews with enterprise owners and other value chain actors conducted across country in 2018. The interviews were conducted over the course of six weeks in the period from March to September 2018 in 14 townships from eight regions/states in Myanmar. Out of 108 qualitative interviews, 40 were with owners or managers of wood-processing enterprises and six were with representatives of supporting institutions, such as officers in local branches of the Forest Department and Environmental Conservation Department. Table 1 shows an overview of interviews by state/region. The highest number of interviews with wood enterprises was in Ayeyarwady Region and the lowest was in Kachin State, reflecting the distribution of industries in different parts of the country.

Table 1: Location of qualitative interviews

State/Region	Township	Interview code, institutions	Interview code, SMEs	Number, SMEs	Per cent
Ayeyarwady Region	Myanaung		W25, W26, W27, W28, W29	5	10.87
	Myaungmya		W30, W31, W32, W33, W34	5	10.87
	Patheingyi	I11	W35, W36	3	6.52
Bago Region	Taungtha		W5, W6, W7, W8	4	8.70
Kachin State	Myittha		W40	1	2.17
Magway Region	Chauk		W16, W17, W18, W19	4	8.70
Mandalay Region	Pyin Oo Lwin	I10	W21, W22	3	6.52
	Tatkon	I2	W1, W2, W3, W4	5	10.87
Sagaing Region	Monywa	I4	W11, W12, W13, W14, W15	6	13.04
	Sagaing	I3, I9	W9, W10	5	10.87
Shan State	Lashio		W23, W24	2	4.35
Yangon Region	Shwepyithar		W37, W38, W39	3	6.52
Total				46	100

Source: Authors' qualitative interviews.

The interviewed wood-processing enterprises were predominantly from the micro-size category, with one to nine employees (82.5 per cent of those interviewed, or 33 enterprises). A further five enterprises were small, with 10–49 employees (12.5 per cent) and two were medium-sized, with

50–300 employees (5 per cent). The average number of employees was four in micro firms, 15 in small firms, and 100 in medium-sized firms.

We selected the respondents for qualitative interviews from the quantitative survey database using a combination of purposeful and random sampling. The sampling categories were established to maximize the breadth and relevance of information based on industry size, firm size, and location. In terms of industries, the focus was on the largest ones: textiles, apparel, wood, and food. In terms of location, we chose townships with the largest number of firms in a particular industry and sampled randomly within each industry. We also stratified by firm size category to obtain information from micro, small, medium, and large enterprises. The interviews were arranged and conducted in co-operation with the Central Statistical Organization (CSO) of Myanmar. The list of enterprises selected for interviews was sent to CSO central office staff, who transferred the list to CSO regional offices. All interviews were scheduled by CSO regional office staff and staff from local administrative (village or ward) offices. CSO staff from central and regional offices were present during the interviews.

The interviews took the form of semi-structured conversation. The key topics prepared in advance included production characteristics, supply chain, employment conditions, access to finance, formalization, business associations, informal payments, and business environment. Additional and clarifying questions were added on a needs basis. All questions were open-ended. As a rule, the interviews started with questions about production characteristics, while sensitive questions, such as the ones about informal payments and challenges, came at the end. The order of other questions varied from one respondent to another to address fatigue issues.

The interviews proceeded with two-way interpretation between English and the Myanmar language. In a few cases, additional interpretation from local minority languages was required. The interviews were recorded with consent. The research team also took handwritten notes. The interview material underwent thematic and interpretative analysis. The respondents were promised confidentiality, so the paper does not refer to any persons, businesses, or brands by name. To increase the reliability of data, comparisons and contrasts were made between the survey and qualitative interview data, as well as with material from yearbooks, factory visits, and conversations with administration officers and experts from relevant ministries.

## **5 Results**

### **5.1 The state as a regulator**

As described in the literature review, the role of the state as a regulator comes with the objective of protecting the interests of all sectors of society. This is understood under the premise by which private actors ultimately seek economic benefit, while the state seeks social benefit. Conceptualizing forests as common-pool resources with widespread social benefits enhances the need to control their use and potential depletion. Yet the state still needs to account for the economic value of forests and their part in the local and national economies.

Throughout the country's history, Myanmar's forests have been closely linked to its political, economic, and social circumstances. From early colonial times, and throughout independence and socialist and military regimes, the state has played a significant role in forest governance. The role of the state has involved the facilitation of economic development with capital accumulation objectives, and the pursuit of its own political, economic, and strategic interests (Bryant 1997: 6). Colonial rule relaxed access to forest resources in comparison with the monarchical state, due to

the colonial state's inability to systematically regulate the forests, yet colonial management prompted deep transformations in access to and use of forest-lands, as well as the clearance of deltaic forests (Bryant 1997: 8). Governance techniques such as scientific forestry employed during the colonial times gave way to the management of forests in search of long-term timber production and to the detriment of pre-industrial, natural forests (Bryant 1997: 7).

Significantly, the Forest Department, the key institutional player in charge of forest governance, has been present in Myanmar since 1856 (Bryant 1997: 11). In principle, under colonial rule the institutional capacity of the department relied on the enforcement of the colonial state's interests, ultimately prioritizing European firms over Burmese traders. After independence, the socialist SLORC regime switched power (over extraction, sawmilling, and marketing) to the State Timber Board,<sup>2</sup> leaving the Forest Department with conservation obligations (Bryant 1997: 12).

In this context, the conceptualization of the state as a single actor should be considered carefully. As is often the case, in Myanmar the state is composed of a set of institutions. Forest governance entails the co-operation of the Forest Department and MTE, and to some extent it is affected by other ministries and departments, such as the Ministry of Agriculture, Livestock and Irrigation because of its focus on forest conversion objectives. As such, the conflicting interests of different institutional actors may arise, in their pursuit of departmental or regional objectives.

Today, the regulatory framework in the Myanmar forestry sector is still characterized by heavy regulation and centralization. Timber governance falls under the Forest Department and the state-owned MTE, both operating under the Ministry of Natural Resources and Environmental Conservation. Within the domestic market, the principal objectives of state policy rely on the legal processing of timber, from raw material (logs) to manufacturing and sales. Along the value chain, actors external to the state are principally private sawmills,<sup>3</sup> as manufacturers of raw timber; furniture and wood-related businesses, as manufacturers of processed timber; and final consumers, which can be either individuals or other wood-related businesses and constructors. Myanmar's heavy regulation and centralization of the wood sector means that the state is present throughout the value chain, from the validation of the legality of operations and transport to sales.

National regulation of Myanmar forests includes the 1992 Forest Law, the 1995 Forest Policy, and the new Forestry Law enacted in 2018. The 1992 Forestry Law sets the foundations for forest exploitation, permits, and procedures, as well as designations for protected forest. It also describes the legal sources of timber: through state-owned MTE auctions, concessions, land conversion, plantations, and community forests. The law also stipulates that all teak trees in the country are owned by the state, and establishes fines and penalties for illegal operations. The new 2018 Forestry Law involves stricter regulation of illegal actions, such as stricter punishments (of 7–15 years in prison) for forestry officials taking part in illegal logging, trade, possession and processing of illegal logs, and accepting bribes (Aung 2018). Fines for minor offences have also increased, to as much as MMK30 million.<sup>4</sup> Other aspects of the Forestry Law that have been modified include the legal processing of suspects, which can now be done at police stations instead of solely at courts (Aung

---

<sup>2</sup> Today's Myanma Timber Enterprise (MTE) has been in charge of timber production in Myanmar since the country's independence in 1948, under different names and structures. In 1948, the State Timber Board (STB) was created for the production of non-teak timber. In 1963 and 1965 respectively, timber sale and sawmilling were nationalized. In 1974, the STB was renamed and restructured as the Timber Corporation (TC); after 1989, another restructuring led to the creation of MTE (MTE 2019).

<sup>3</sup> While we learned of the existence of state-owned sawmills in certain regions of the country, they did not seem to be a common source of raw materials during the time of the interviews, as many had been closed in recent years.

<sup>4</sup> US\$1 is around MMK1,500.

2018). The Forest Policy of 1995 focuses on the objectives of forest governance, including sustainability, protection, basic needs, efficient production, social participation, and awareness (Forest Legality Initiative 2016). In this policy we observe the duality of forest governance, in terms of the need to provide means for wood production under strict regulation, balanced against the consideration of national conservation objectives.

In terms of regulation, we note the legality of timber as an increasingly focal policy objective. Yet strict regulations require highly efficient institutional capacity. When illegal timber is discovered, the Forestry Department must act following one of two different processes, depending on whether the owner is apprehended or not, which directly affects the length of the process. If the owner is in the presence of illegal wood, they are taken to the police and a court case is opened. While the trial is active, the seized timber is kept by the Forestry Department until the court determines the sentence. MTE must decide whether seized timber transferred by the Forest Department is acceptable. If the seized timber meets standards, then MTE decides how to manage the wood (e.g. keeping it for auction or selling it as Form-8 wood). The whole process is lengthy, but this can only be avoided if the owner is not detained, in which case it is not necessary to wait for a court decision before the wood can be auctioned.

Regulation also extends to the transport and trade of raw timber and processed wood. Legality is proven with the Forest Department's 'Revenue Mark'. Permits are required for domestic transport from one township to another (Article 23, 1992 Forestry Law). In addition, exports are heavily regulated and restricted. Since 2014, raw logs (HS4403) have been banned for export, as have products from seized timber in 2017.

The issue of illegal logging and its introduction into GVCs has gained momentum in international trade. The interest in illegal logging arose largely from its relationship to deforestation and forest damage and degradation, which contribute to the inefficiency of the industry, societal costs due to the revenues forgone, and weak international trade competitiveness (Brown et al. 2008). This initiated the widespread use of verification systems in order to assess the legality of timber, including certain requirements for imports, exports, accreditation, third-party certification systems, sanctions, etc. Efforts of the EU include the Forest Law Enforcement, Governance and Trade (FLEGT) Action Plan, which assigns responsibility to consumer countries, such that it creates a verifiable market for wood products that excludes illegal trade.

In the case of Myanmar, past decades witnessed accelerated deforestation, attributed to forest harvesting volumes above the AAC set by the MSS (Enters 2017). Land-use conversion, specifically to agricultural use, has been one of the main drivers. Illegal logging, which is argued to be widespread in the country, is the second most frequently cited reason. By some accounts, the value of unauthorized and unrecorded timber exports was estimated at US\$5.7 billion for the period 2000–13 (EIA 2014). After the democratic transition in Myanmar, more pressure has been brought to bear by foreign actors to establish a more transparent verification process. Myanmar is currently engaged in preparing a Voluntary Partnership Agreement (VPA) with the EU under the EU FLEGT Action Plan (European Forest Institute 2019). This process includes the mapping of the chain of custody, as well as preliminary measures for a verification process.

On the domestic side, the government has made increasing efforts to prevent and prosecute illegal operations and trade. Myanmar currently has a very strict regulatory framework, which is primarily aimed at preventing illegal logging. There is, however, a lack of identification throughout the chain of custody.

Myanmar's internal verification is reserved to state institutions, namely MTE and the Forest Department. After approval from the Forest Department, logs are extracted by MTE. The logs

are then sold in public MTE auctions, making them available to licensed sawmills that complete a comprehensive process in order to document the chain of custody. The logs are then transported to the sawmill. Verification is then passed over to the Forest Department, whose staff inspect sawmills before and after the logs are cut in order to adequately confirm the legality of the wood products. If the goal is to export, the enterprise must again follow a lengthy procedure to obtain the export licence and be able to export the cut wood. Beyond a very complicated and bureaucratic process and its susceptibility to bribes, the verification of legal wood obtained through auctions seems to have little margin for illegality.

Evidently, the current internal verification process is insufficient for external verification, yet it is still heavily restricting the operation of small and medium-sized enterprises. In theory, verification systems should resolve into an increase in compliance and government revenue. In Myanmar, the volume of confiscated illegal wood consistently increased in the period 2007–14, with varying shares across different types of wood (UNODC 2015). In relative terms, this trend was reflected in the increase in legal wood production in the country in the same period (Figure 1). During interviews, Forest Department officials mentioned that they had seen a decrease in both production and the amount of seized timber in recent years.

Myanmar has progressively taken steps in order to meet external verification requirements, including the Timber Legality Assurance System (MTLAS) and a third-party certification system, the Myanmar Forest Certification Committee (MFCC), launched in 2018. The certification bodies include two domestic and one foreign: Nature Watch (established in 2017 and accredited in 2018), United Forestry Services (established in 2017 and accredited in 2018), and the Singapore-based Double Helix Tracking Technologies (established in 2008 and operating in Myanmar since 2013) (MFCC 2018).

The introduction of new measures to ensure the traceability of forest products in Myanmar arose as a response to negative assessments of the accountability and transparency of timber exports' chain of custody. In the EU, teak imports have been shown to violate the European Union Timber Regulation (EUTR), such that in 2016 and 2017, Sweden and Denmark respectively banned teak imports from Myanmar (EIA International 2017). Multiple private companies in other EU countries have been reported for selling Myanmar teak in the European market in violation of the EUTR (EIA 2019). Notably, current verification systems are also insufficient to ensure compliance with the US Lacey Act and Australia's Illegal Logging Prohibition Act (ILPA).

The Myanmar Timber Merchants Association, as a representative body of the private sector, argues that little can be done to comply with external verification processes beyond following legal procedures and sourcing raw materials from MTE (Cho 2013). In this case, the responsibility lies with the institutions in charge of legitimizing the current internal verification system.

The global participation of the Myanmar wood industry is highly dependent on its ability to meet legal requirements in destination markets. This poses a great institutional challenge, as there is a need to verify every step in the chain of custody, from production to manufacturing and trade. The ban on exports for logs creates additional pressure, as more actors are involved in the value chain before the export stage.

## **5.2 The state as a producer**

In order to understand how policy and livelihoods interact in the Myanmar context, it is imperative to reflect on the entire value chain process, from extraction of timber to woodcutting and domestic purchase or export. Ultimately, the state produces, manages, and regulates the wood industry completely, which centralizes the governance power. On the one hand, centralization potentially

allows for a greater monitoring of the chain of custody. On the other hand, the intersection of the roles of the state within the value chain poses further challenges for the wood industry, as conflicting interests and more opportunities for corruption arise.

MTE is the principal producer of timber in Myanmar, in charge of felling the trees as permitted by the Forest Department, and selling the logs to the manufacturers through tender. MTE has been harvesting below the AAC since 2014. For example, the AAC was set at 852,314 tons in 2017, while MTE scheduled the harvesting of 365,000 tons (Ba 2017). The tendency to cut less than the allowed amount could be related to the insufficient capacity of MTE to reach the actual harvesting target. A recent report states that MTE's harvesting capacity amounts to 220,000 tons (Ba 2017). Out of total amount harvested, 75 per cent is distributed to private sawmills while 25 per cent is processed by MTE-owned sawmills and factories (Ba 2017). In the past, AAC levels were calculated based on the entire national forest area—including forest that is inaccessible due to insurgency, which led to over-exploitation of the accessible forest (Brunner et al. 1998). In a similar way, the actual harvesting was performed with national targets in mind, which disregards local state or regional needs. In addition to the set AAC level for the national forests, MTE has responsibility for harvesting in cases of national development projects such as the construction of dams, roads, electricity lines, and agribusiness. Harvesting for the purpose of land conversion was not included in AAC amount. Nevertheless, all of the logs extracted under the administration of MTE may only be sold by the company. Production from private plantations and community forests are not the concern of MTE.

MTE auctions persist as the main source of raw timber used in the wood industry. Plantations were also mentioned during our interviews in certain townships of the Ayeyarwady Region, but did not seem to be a widespread source of timber for SMEs. Concessions and land conversion sources seem to be related to large-scale agribusiness (Woods 2015) and were not mentioned during interviews. MTE operates seven sawmills that produce for export and 58 sawmills that supply the local market (Ba 2017).

Demonstrating the relevance of auctions for the value chain in Myanmar requires further details on their functioning. First, different MTE auctions are available for domestic and foreign bidders. There are nationwide auctions carried out in Yangon and regional auctions; the latter are, however, not present in all states and regions, such that enterprises from some regions are excluded from attending. Auctions can be accessed by all licensed enterprises, independently of size or sub-industry (e.g. wooden floors, house structures). This poses a challenge for smaller or low-revenue enterprises that need to match bidding prices with large or high-revenue enterprises. Regulations for the transport of timber logs also restrict SMEs' access to raw materials due to the additional costs incurred in transporting the logs from the auction site to the sawmill. The inclusion of foreign firms in the auction system takes place through separate foreign-only auctions. Qualitative interviews revealed that domestic co-ownership allows foreign firms to access domestic auctions—again to the detriment of smaller domestic enterprises, which are unable to match bidding prices. Enterprises that are unable to attend or to match auction prices resort to secondary sources, such as purchasing from auction winners or seized timber. In this way, the auction system benefits a limited number of enterprises, particularly large enterprises and those located near auction sites. MTE has found it a challenge that many domestic enterprises are unwilling to accept the price floor. Since 2016, in order to fulfil the domestic need of timber, the sale of seized timber within the respective states and regions has been carried out under the joint administration of the Forest Department and MTE. Since 2018, raw materials and sawed hardwoods are now only sold to Micro, Small and Medium Enterprises in all of the states and regions.

### **5.3 The burden of legality for SMEs**

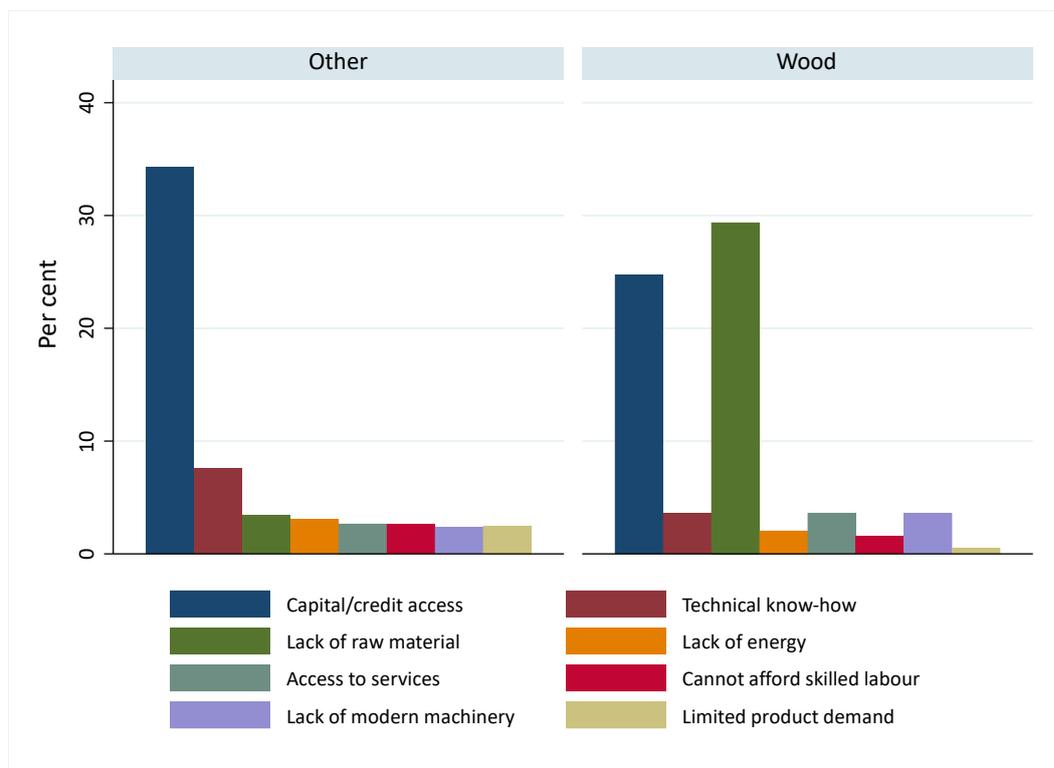
Under current regulatory conditions, timber sourcing remains one of the main challenges for small and medium-sized enterprises in the Myanmar wood industry. Interviewees overwhelmingly

agreed that the amount of available raw materials is much lower than in the past. Moreover, some categories of wood, especially higher grades, have become entirely unaffordable for most enterprises. The 1992 Forestry Law (Article 23) states that transportation of forest products from one region to another cannot be done without adequate permits. Moreover, seized timber cannot be transported outside of the state/region as seized timber is used only to fulfil a local need in the area in which it is confiscated (W6). The interviewed firms expressed their discontent with these restrictions, as they further complicate access to raw materials (W2, W30, W34, and W36 and W36).

The bidding prices at MTE auctions have also been rising consistently in recent years. For instance, one of the business owners interviewed indicated that the bidding price had increased by about MMK250,000 per ton in the past three years. These rising bidding prices progressively exclude small and medium-sized enterprises, which are unable to match with large enterprises and thus cannot access large quantities of raw materials. Associations of wood producers and processors have the potential to improve access to auctions but in practice are far from achieving any real co-ordination among firms in the industry (W9), except in a few townships or when mediating access to seized timber (W24, W7).

Our survey data convey the same message as the qualitative interviews. Figure 5 illustrates the most important constraints to growth as perceived by enterprises. Compared with other industries, wood-processing enterprises are much more likely to report that limited access to raw materials poses a serious constraint.

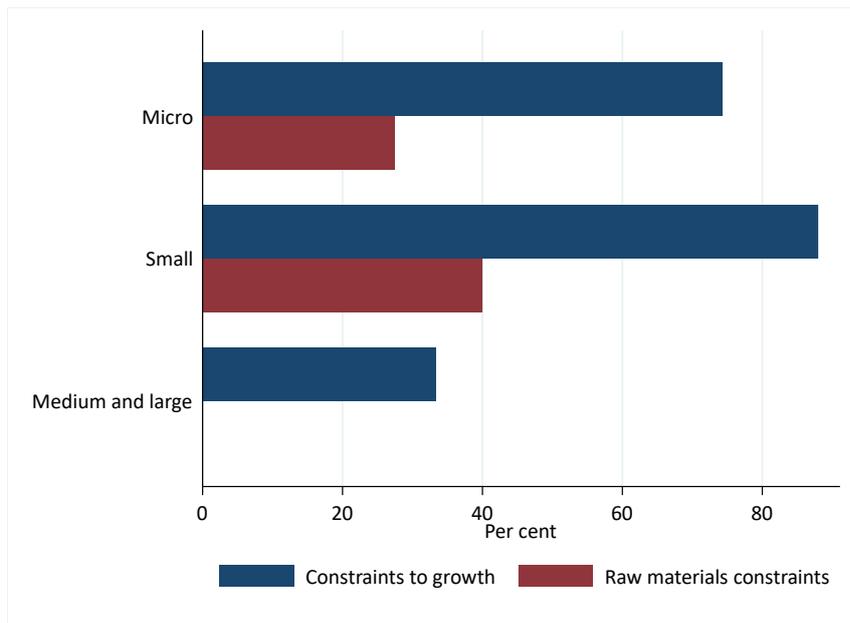
Figure 5: Most important constraints to growth as perceived by enterprises



Source: Authors' illustration based on SME data (Berkel et al. 2018).

Figure 6 shows that wood-industry firms in all size categories face constraints to growth, but that the problem of access to raw materials affects only smaller ones. It is likely that limited access to raw materials thwarts the performance of SMEs in the wood industry.

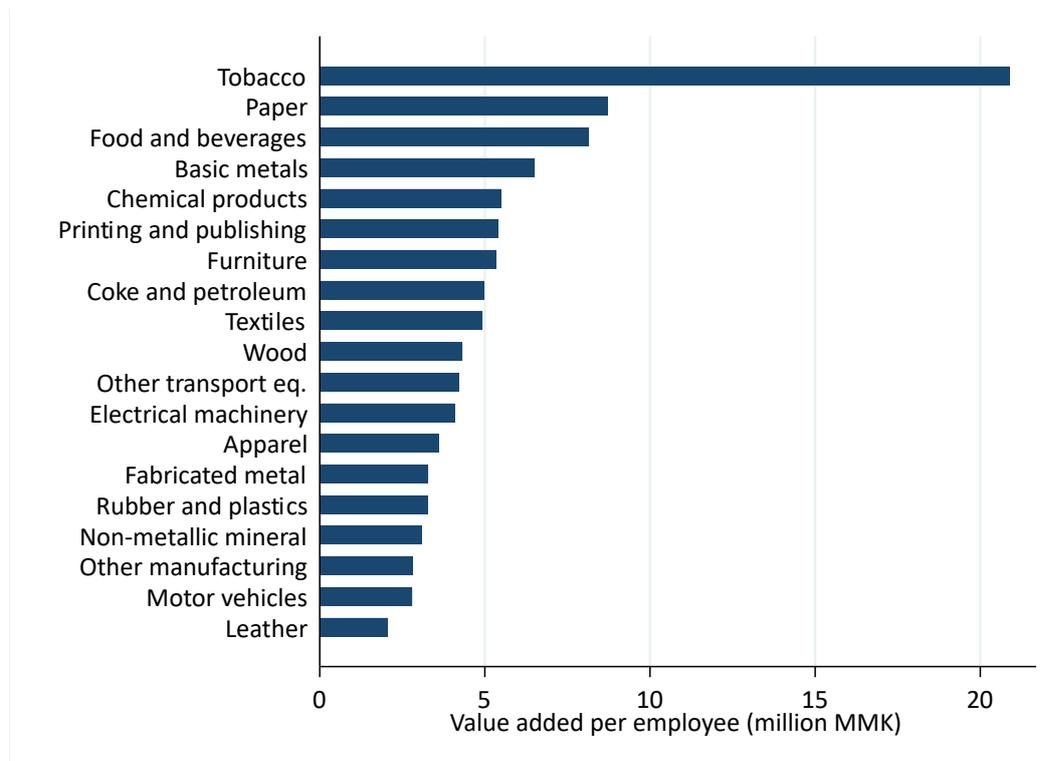
Figure 6: Constraints to growth in the wood industry by firm size



Source: Authors' illustration based on SME data (Berkel et al. 2018).

Figure 7 shows performance, measured as value added per employee, of enterprises from different manufacturing industries in Myanmar. The wood-processing enterprises show a low to medium performance level compared with other industries, such as tobacco, paper, and food, which are in general characterized by low levels of technology and innovation capacity.

Figure 7. Value added per employee in different manufacturing industries in Myanmar



Source: Authors' illustration based on SME data (Berkel et al. 2018).

Only licensed sawmills can attend MTE auctions. The most important licence is obtained from the Forest Department, but licences from certain other institutions are also required to assure the legality of the business. Licence fees for sawmills depend on production capacity. Larger sawmills pay a licence fee of MMK100,000 per year, while small mills pay MMK50,000 per year to the Forest Department (I10). Larger sawmills are also required to register with the Directorate of Industrial Supervision and Inspection (DISI), and smaller sawmills can register with the Small Scale Industry Department (SSID). The DISI-mandated figures for the licence fees per year are as follows: for large enterprises, MMK50,000; for medium-sized enterprises, MMK25,000; and for small enterprises, MMK12,000.

Many sawmills interviewed expressed their dissatisfaction over the strictness of regulations in regard to the legality of wood. They also criticized the number of procedures needed to operate in the industry, saying that ‘government procedures are too complicated’ (W2), that ‘they need many permits’ (W35), or that they have to go through many ‘unnecessary procedures’ (W34). Sawmills are frequently inspected by the Forest Department, which checks at least once a year whether the wood is legal, whether all licences are available, and the size of the saw. In addition, the Forest Department inspects sawmills after every purchase of wood, before and after the cutting of logs (as described in Section 5.1).

The regulatory environment of the wood industry entails contradictory consequences for the way in which SMEs operate. To a certain extent, strict regulations prevent the widespread use of illegal sources of timber, through the application of penalties and continuous inspections. Some enterprises, however, report being pushed to operate completely outside the legal framework due to the extremely high cost of operating legally. Such enterprises exclusively use illegal raw materials and operate without the necessary licence issued by the Forest Department. The temptation for some otherwise-legal enterprises to use occasionally illegal sources of raw materials is high. Such enterprises resort to paying high amounts in bribes to avoid fines and to keep operating. The number of illegally operating sawmills is impossible to ascertain, but interviewees mentioned that their number is substantial and that they represent unfair competition (W17). At the same time, the regulations seem to constrain micro and small enterprises to a greater extent than they do larger enterprises. The limited availability of raw materials through legal means (auctions, plantations) creates a highly competitive environment, in which small enterprises become the last to access the supply.

The seized timber available at MTE-organized auctions was assessed by interviewees as being of inferior quality compared with regular auction wood. The difference is most likely due to the long storage time of seized timber: it is inaccessible as long as the court case is active, during which time logs are exposed to the elements, reducing their quality. Some firms mentioned that the price of Form-8 wood is lower than that of auction wood; however, there is no standard basic price, so the cost is set separately by each regional Forest Department. The supply of Form-8 wood across different states/regions appears to be unequal and potentially inefficient, further highlighted by restrictions on transport from one state/region to another. Even though access to Form-8 wood may seem appealing for small, financially constrained firms, its irregular availability and unpredictable quality and price illustrate the lack of a comprehensive solution to the wood supply problem.

While verification systems increase the costs of operating legally, financial considerations remain one of the main causes of illegality in the SME sector. The marginalization of small enterprises into illegality is likely to create a greater concentration of the industry. There are also consequences for other industries, such as furniture producers, who also express dissatisfaction with raw material shortages and the burden of legality (Rand et al. 2019).

## 6 Conclusion

We have focused on analysing the two main roles of the state in the Myanmar timber industry. We have identified that the state enters the timber industry in Myanmar in different roles. First, the state remains the main producer and legal source of raw logs for the private sector. In this context, forests become valuable monetary assets for the state, and yet the state also carries the responsibility of preserving the natural patrimony of the country. These roles include self-regulation in production, and private sector regulation in order to avoid illegal logging and operations. In the latter case, the state's role as regulator comes into play. The intersection of the two roles is grounded in the balance between the state's own revenue needs, those of the private sector (both domestic and foreign), and the need for forest conservation.

We have also illustrated the implications of these two roles of the state for SMEs in the wood industry. Regulatory restrictions paired with high transportation costs comprise the main barriers for small and medium-sized enterprises in the wood industry. The government-controlled supply of raw materials seeks a balance between forest conservation as part of one of the country's major policy objectives, and trying to provide an adequate amount of raw timber to national and regional auctions. Access to auctions is in itself limited to certain locations and to firms able to match the increasingly high prices. If this trend continues, the smallholder wood industry in Myanmar will most likely disappear, or stagnate at best. The survival of firms in the industry might be limited, for instance, to those with development contracts, with secure supply of raw materials, or with highly profitable businesses, such as wood floor producers.

Given the limited capacity of the state to assure sustainable forest management, the limited supply of wood to the industry, and the dual role played by the state, decentralization of forest management and the use of concessions could be an appealing solution. Replacing 'command-and-control forest governance approaches' with 'policies that incentivize socially beneficial forest use and management practices' (Hansen and Lund 2018) has become increasingly common in many parts of the world. One should, however, be mindful of governance constraints and the need to optimize financial incentives and monitoring and evaluation mechanisms (Karsenty et al. 2008; Tacconi 2007).

## References

- Andersson, K.P. (2004). 'Who Talks with Whom? The Role of Repeated Interactions in Decentralized Forest Governance'. *World Development*, 32(2): 233–49. <https://doi.org/10.1016/j.worlddev.2003.07.007>.
- Andersson, K.P. (2006). 'Understanding Decentralized Forest Governance: An Application of the Institutional Analysis and Development Framework'. *Sustainability: Science, Practice and Policy*, 2(1): 25–35. <https://doi.org/10.1080/15487733.2006.11907975>.
- Andersson, K.P., C.C. Gibson, and F. Lehoucq (2006). 'Municipal Politics and Forest Governance: Comparative Analysis of Decentralization in Bolivia and Guatemala'. *World Development*, 34(3): 576–95.
- Aung, K. (2008). 'Financing Small and Medium Enterprises in Myanmar'. IDE Discussion Papers 148. Tokyo: Institute of Developing Economies (IDE), Japan External Trade Organization (JETRO). Available at: <https://ideas.repec.org/p/jet/dpaper/dpaper148.html> (accessed 1 May 2019).

- Aung, M.M. (2018). 'Government Enacts Tougher Forest Law'. *The Myanmar Times*, September 26. Available at: [www.mmtimes.com/news/government-enacts-tougher-forest-law.html](http://www.mmtimes.com/news/government-enacts-tougher-forest-law.html) (accessed 26 April 2019).
- Ba, S.J.S. (2017). *Role of MTE in Myanmar Timber Industry*. Yangon: Myanma Timber Enterprise, Ministry of National Resources and Environmental Conservation.
- Barrientos, S., G. Gereffi, and A. Rossi (2011). 'Economic and Social Upgrading in Global Production Networks: A New Paradigm for a Changing World'. *International Labour Review*, 150(3–4): 319–40. <https://doi.org/10.1111/j.1564-913X.2011.00119.x>.
- Berkel, H., M. Cardona, H. Hansen, J. Rand, P. Castro Rodriguez, N. Trifkovic, E. de Witte, H. Zille, K.S. Latt, and F. Tarp (2018). *Myanmar Micro, Small, and Medium Enterprise Survey 2017*. Helsinki: UNU-WIDER, Copenhagen: University of Copenhagen, and Nay Pyi Taw: CSO. Available at: [www.wider.unu.edu/publication/myanmar-micro-small-and-medium-enterprise-survey-2017](http://www.wider.unu.edu/publication/myanmar-micro-small-and-medium-enterprise-survey-2017) (accessed 16 October 2018).
- Bernhardt, T., G. Dickenson-Jones, and S.K. De (2017). 'New Kids on the ASEAN Block: Myanmar SMEs and Regional Economic Integration'. *Journal of Southeast Asian Economies (JSEAE)*, 34(1): 4–38.
- Bhagwat, T., A. Hess, N. Horning, T. Khaing, Z.M. Thein, K.M. Aung, K.H. Aung, P. Phyto, Y.L. Tun, A.H. Oo, A. Neil, W.M. Thu, M. Songer, K.L. Connette, A. Bernd, Q. Huang, G. Connette, and P. Leimgruber (2017). 'Losing a Jewel: Rapid Declines in Myanmar's Intact Forests from 2002–2014'. *PLOS ONE*, 12(5): e0176364. <https://doi.org/10.1371/journal.pone.0176364>.
- Brown, D., K. Schreckenber, N. Bird, P. Cerutti, F. Del Gato, M. Diaw, T. Fomété, C. Luttrell, G. Navarro, R. Oberndorf, H. Thiel, and A. Wells (2008). *Legal Timber: Verification and Governance in the Forest Sector*. London: Overseas Development Institute.
- Brunner, J., K. Talbott, C. and Elkin (1998). *Logging Burma's Frontier Forests: Resources and the Regime*. Washington, DC: World Resources Institute.
- Bryant, R.L. (1997). *The Political Ecology of Forestry in Burma, 1824–1994*. London: C. Hurst & Co.
- Cho, B. (2013). 'Current Status Quo and Issues of Formulation of TLAS in Myanmar'. Paper presented at the 3rd Sub-Regional Training Workshop on Timber Legality Assurance, Kuala Lumpur, Malaysia, 22–24 April. Available at [www.euflegt.efi.int/documents/10180/23267/Country+Report+Myanmar/178cbaa9-d006-4a01-8502-3e6b196c354c](http://www.euflegt.efi.int/documents/10180/23267/Country+Report+Myanmar/178cbaa9-d006-4a01-8502-3e6b196c354c) (accessed 26 April 2019).
- Coe, N.M., and M. Hess (2013). 'Global Production Networks, Labour and Development'. *Geoforum*, 44: 4–9. <https://doi.org/10.1016/j.geoforum.2012.08.003>.
- CSO. (2019). 'Statistical data: Central Statistical Organization of Myanmar'. Available at: [www.csostat.gov.mm:8888/cso-beta/statistical-data](http://www.csostat.gov.mm:8888/cso-beta/statistical-data) (accessed 15 February 2018).
- Dauvergne, P. (2007). 'Globalisation and Deforestation in the Asia-Pacific'. *Environmental Politics*, 7(4): 114–35. <https://doi.org/10.1080/09644019808414425>.
- EIA (Environmental Investigation Agency) (2014). 'Data Corruption: Exposing the True Scale of Logging in Myanmar'. Burma Partnership website, 26 March. Available at: [www.burmapartnership.org/2014/03/data-corruption-exposing-the-true-scale-of-logging-in-myanmar](http://www.burmapartnership.org/2014/03/data-corruption-exposing-the-true-scale-of-logging-in-myanmar) (accessed 29 April 2019).
- EIA (2019). 'German Trader Reported for Repeated Violations of EU Timber Regulation'. EIA website, 21 March. Available at: <https://eia-international.org/german-trader-reported-repeated-violations-eu-timber-regulation> (accessed 29 April 2019).

- EIA International (2016). 'Myanmar Logging Ban a Major Step to Forest Sector Reform'. EIA website, 4 August. Available at: <https://eia-international.org/myanmar-logging-ban-major-step-forest-reform> (accessed 15 October 2018).
- EIA International (2017). 'Denmark Sanctions Entire Burmese Teak Industry'. EIA website, 15 March. Available at: <https://eia-international.org/denmark-sanctions-entire-burmese-teak-industry> (accessed 23 April 2019).
- Enters, T. (2017). *Drivers of Deforestation and Forest Degradation in Myanmar*. Nay Pyi Taw: UN-REDD Myanmar Programme.
- European Forest Institute (2019). 'Myanmar: All About the Myanmar FLEGT Process'. EU FLEGT website. Available at: [www.euflegt.efi.int/myanmar](http://www.euflegt.efi.int/myanmar) (accessed 23 April 2019).
- FAO (Food and Agriculture Organization of the UN) (2010). *Global Forest Resources Assessment*. Rome: FAO. Available at: [www.fao.org/3/a-i1757e.pdf](http://www.fao.org/3/a-i1757e.pdf) (accessed 26 April 2019).
- Foley, J.A., R. Defries, G.P. Asner, C. Barford, G. Bonan, S.R. Carpenter, F.S. Chapin, M.T. Coe, G.C. Daily, H.K. Gibbs, J.H. Helkowski, T. Holloway, E.A. Howard, C.J. Kucharik, C. Monfreda, J.A. Patz, I.C. Prentice, N. Ramankutty, and P.K. Snyder (2005). 'Global Consequences of Land Use'. *Science*, 309(5734): 570–74. <https://doi.org/10.1126/science.1111772>.
- Forest Legality Initiative (2016). 'Myanmar'. Available at: <https://forestlegality.org/risk-tool/country/myanmar> (accessed 22 April 2019).
- Gereffi, G. (1994). 'The Organization of Buyer-Driven Global Commodity Chains: How US Retailers Shape Overseas Production Networks'. In G. Gereffi and M. Korzeniewicz (eds), *Commodity Chains and Global Capitalism*. Westport, CT, and London: Praeger.
- Gereffi, G., J. Humphrey, and T. Sturgeon (2005). 'The Governance of Global Value Chains'. *Review of International Political Economy*, 12(1): 78–104. <https://doi.org/10.1080/09692290500049805>.
- Gibbon, P., and S. Ponte (2005). *Trading Down: Africa, Value Chains, And The Global Economy*. Philadelphia: Temple University Press.
- Grainger, A. (1995). 'The Forest Transition: An Alternative Approach'. *Area*, 27(3): 242–51.
- Hansen, C.P., and J.F. Lund (2018). 'Forestry Taxation for Sustainability: Theoretical Ideals and Empirical Realities'. *Current Opinion in Environmental Sustainability*, 32: 23–28. <https://doi.org/10.1016/j.cosust.2018.03.002>.
- Henderson, J., P. Dicken, M. Hess, N. Coe, and H.W.-C. Yeung (2002). 'Global Production Networks and the Analysis of Economic Development'. *Review of International Political Economy*, 9(3): 436–64. <https://doi.org/10.1080/09692290210150842>.
- Horner, R. (2017). 'Beyond Facilitator? State Roles in Global Value Chains and Global Production Networks'. *Geography Compass*, 11(2): e12307. <https://doi.org/10.1111/gec3.12307>.
- ICG (International Crisis Group) (2012). 'Myanmar: The Politics of Economic Reform'. Asia Report 231. Brussels: ICG. Available at: [www.crisisgroup.org/asia/south-east-asia/myanmar/myanmar-politics-economic-reform](http://www.crisisgroup.org/asia/south-east-asia/myanmar/myanmar-politics-economic-reform) (accessed 26 April 2019).
- Karsenty, A., I.G. Drigo, M.-G. Piketty, and B. Singer (2008). 'Regulating Industrial Forest Concessions in Central Africa and South America'. *Forest Ecology and Management*, 256(7): 1498–508. <https://doi.org/10.1016/j.foreco.2008.07.001>.

- Kaung, B. (2016). 'Forest Restoration at the Landscape Level in Myanmar'. In S. Appanah (ed.), *Forest Landscape Restoration for Asia-Pacific Forests*. Bangkok: FAO and RECOFTC—The Center for People and Forest.
- Ladrach, W. (2009). 'Management of Teak Plantations for Solid Wood Products'. *ISTF News*, Special Report, December. Bethesda, MA: International Society of Tropical Foresters.
- Lambin, E.F., and P. Meyfroidt (2010). 'Land Use Transitions: Socio-ecological Feedback versus Socio-economic Change'. *Land Use Policy*, 27: 108–18. <https://doi.org/10.1016/j.landusepol.2009.09.003>.
- Li, L., J. Liu, H. Long, W. De Jong, and Y.-C. Youn (2017). 'Economic Globalization, Trade and Forest Transition: The Case of Nine Asian Countries'. *Forest Policy and Economics*, 76: 7–13. <https://doi.org/10.1016/j.forpol.2015.12.006>.
- Linn, K.M., and W.C. Liang (2015). 'Analysis of Forest Policy in Myanmar'. *International Journal of Sciences*, 4(3): 16–28.
- Mather, A.S. (2007). 'Recent Asian Forest Transitions in Relation to Forest-Transition Theory'. *International Forestry Review*, 9(1): 491–502. <https://doi.org/info:doi/10.1505/ifor.9.1.491>.
- MFCC (Myanmar Forest Certification Committee) (2018). 'Welcome to MFCC'. MFCC website Available at: [www.myanmarforestcertification.org](http://www.myanmarforestcertification.org) (accessed 25 April 2019).
- Miettinen, J., C. Shi, and S.C. Liew (2011). 'Deforestation Rates in Insular Southeast Asia between 2000 and 2010'. *Global Change Biology*, 17(7): 2261–70. <https://doi.org/10.1111/j.1365-2486.2011.02398.x>.
- MTE (Myanma Timber Enterprise) (2019). 'About MTE: Myanma Timber Enterprise Brief History'. MTE website. Available at: [www.myanmar-timber.com.mm/index.php/en/about/about-mte](http://www.myanmar-timber.com.mm/index.php/en/about/about-mte) (accessed 1 February 2019).
- Nadvi, K. (2008). 'Global Standards, Global Governance and the Organization of Global Value Chains'. *Journal of Economic Geography*, 8(3): 323–43. <https://doi.org/10.1093/jeg/lbn003>.
- Nadvi, K., J.T. Thoburn, B.T. Thang, N.T.T. Ha, N.T. Hoa, D.H. Le, and E.B.D. Armas (2004). 'Vietnam in the Global Garment and Textile Value Chain: Impacts on Firms and Workers'. *Journal of International Development*, 16(1): 111–23. <https://doi.org/10.1002/jid.1066>.
- Neilson, J., and B. Pritchard (2009). *Value Chain Struggles: Institutions and Governance in the Plantation Districts of South India*. Malden, MA, Oxford, and Chichester, West Sussex: Blackwell Publishing.
- Phyo, P.T., and K.K. Sway (2016). 'Private Firms Still Barred from Logging Next Year'. *The Myanmar Times*, 16 November. Available at: [www.mmtimes.com/national-news/23696-private-firms-still-barred-from-logging-next-year.html](http://www.mmtimes.com/national-news/23696-private-firms-still-barred-from-logging-next-year.html) (accessed 15 October 2018).
- Potapov, P., M.C. Hansen, L. Laestadius, S. Turubanova, A. Yaroshenko, C. Thies, W. Smith, I. Zhuravleva, A. Komarova, S. Minnemeyer, and E. Esipova (2017). 'The Last Frontiers of Wilderness: Tracking Loss of Intact Forest Landscapes from 2000 to 2013'. *Science Advances*, 3(1): e1600821. <https://doi.org/10.1126/sciadv.1600821>.
- Purnomo, H., P. Guizol, and D.R. Muhtaman (2007). 'Governing Teak Furniture Business: A Global Value-Chain System Dynamic Modeling Approach'. Paper presented at 'Towards Sustainable Livelihood and Environment', the 2nd International Conference Asian Simulation and Modelling (ASIMMOD 2007), Chiang Mai, Thailand. 9–11 January. Available at: <http://agritrop.cirad.fr/551228> (accessed 26 April 2019).

- Rand, J., P. Castro Rodriguez, F. Tarp, N. Trifkovic, and CSO team (2019). *Myanmar Micro, Small, and Medium Enterprises 2018 Qualitative Study*. Helsinki: UNU-WIDER, Copenhagen: University of Copenhagen, and Nay Pyi Taw: CSO.
- Rotmans, J., and R.J. Swart (1991). 'Modelling Tropical Deforestation and Its Consequences for Global Climate'. *Ecological Modelling*, 58(1): 217–47. [https://doi.org/10.1016/0304-3800\(91\)90038-3](https://doi.org/10.1016/0304-3800(91)90038-3).
- Smith, A. (2015). 'The State, Institutional Frameworks and the Dynamics of Capital in Global Production Networks'. *Progress in Human Geography*, 39(3): 290–315. <https://doi.org/10.1177/0309132513518292>.
- Smith, A., J. Pickles, M. Buček, R. Pástor, and B. Begg (2014). 'The Political Economy of Global Production Networks: Regional Industrial Change and Differential Upgrading in the East European Clothing Industry'. *Journal of Economic Geography*, 14(6): 1023–51. <https://doi.org/10.1093/jeg/lbt039>.
- Tacconi, L. (2007). 'Decentralization, Forests and Livelihoods: Theory and Narrative'. *Global Environmental Change*, 17(3): 338–48. <https://doi.org/10.1016/j.gloenvcha.2007.01.002>.
- Treue, T., O. Springate-Baginski, and K. Htun (2016). *Legally and Illegally Logged Out: Extent and Drivers of Deforestation and Forest Degradation in Myanmar*. Yangon: EcoDev/ALARM.
- Turnell, S. (2003). 'Myanmar's Banking Crisis'. *ASEAN Economic Bulletin*, 20(3): 272–82.
- UN Comtrade (2018). 'International Trade Statistics Database'. COMTRADE website. Available at: <https://comtrade.un.org> (accessed 29 April 2019).
- UNODC (United Nations Office on Drugs and Crime) (2015). *Criminal Justice Response to Wildlife and Forest Crime in Myanmar: A Rapid Assessment*. Vienna: UNODC.
- UNU-WIDER (2017). 'Towards Inclusive Development in Myanmar'. UNU-WIDER website. Available at: [www.wider.unu.edu/project/towards-inclusive-development-myanmar](http://www.wider.unu.edu/project/towards-inclusive-development-myanmar) (accessed 16 October 2018).
- Wolfersberger, J., P. Delacote, and S. Garcia (2015). 'An Empirical Analysis of Forest Transition and Land-Use Change in Developing Countries. *Ecological Economics*, 119: 241–51. <https://doi.org/10.1016/j.ecolecon.2015.08.018>.
- Woods, K. (2015). 'Commercial Agriculture Expansion in Myanmar: Links to Deforestation, Conversion Timber and Land Conflicts'. Forest Trends Report Series: Forest Trade and Finance, March. Washington, DC: Forest Trends Association.
- World Bank (2017). 'Share of Forest Area'. World Bank website. Available at: <https://data.worldbank.org> (accessed 26 April 2019).
- Zhao, S., C. Peng, H. Jiang, D. Tian, X. Lei, and X. Zhou (2006). 'Land Use Change in Asia and the Ecological Consequences'. *Ecological Research*, 21: 890–96. <https://doi.org/10.1007/s11284-006-0048-2>.