



Smallholder Participation in Modernising Agri-Food Value Chains in Thailand: The Role of Traditional Markets

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Abstract

The strategic focus of food retailers on stringent product requirements and the logistical management of fresh produce from farm to shelf have often been seen as raising barriers for smallholders, thus leading to the exclusion of resource-constrained farmers. Our study contributes to research on the inclusion of smallholders in modern agri-food value chains and on the integration of their perspectives in studies of dynamics in value chains through a combined qualitative and quantitative exploration of vegetable-producing smallholders in northern Thailand. We find that smallholders are not excluded from Thailand's modern agri-food value chains, regardless of their household assets, but are instead integrated through traditional structures. To some extent, they do have room for manoeuvre in selecting different marketing channels and some bargaining power. Traditional markets can be very important for linking smallholders to modern agri-food value chains, but limited knowledge exchange, structural challenges in gaining access to certification and product differentiation all reduce the possibilities for upgrading. We emphasise the importance of viewing smallholders as active navigators within value chains and of understanding their motivations in making use of different sales channels in order to understand the complexities of their realities while not overlooking the power structures within value chains.

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Résumé

L'orientation stratégique des détaillants alimentaires sur des exigences strictes en matière de produits et la gestion logistique des produits frais de la ferme à l'étagère ont souvent été considérées comme des obstacles pour les petits exploitants, entraînant ainsi l'exclusion des agriculteurs aux ressources limitées. Notre étude contribue à la recherche sur l'inclusion des petits exploitants dans les chaînes de valeur agroalimentaires modernes et sur l'intégration de leurs perspectives dans les études de la dynamique des chaînes de valeur à travers une exploration qualitative et quantitative combinée des petits exploitants producteurs de légumes dans le nord de la Thaïlande. Nous constatons que les petits exploitants ne sont pas exclus des chaînes de valeur agroalimentaires modernes de la Thaïlande, quels que soient les actifs de leur ménage, mais qu'ils sont plutôt intégrés par le biais de structures traditionnelles. Dans une certaine mesure, ils disposent d'une marge de manœuvre dans le choix des différents canaux de commercialisation et d'un certain pouvoir de négociation. Les marchés traditionnels peuvent être très importants pour relier les petits exploitants aux chaînes de valeur agroalimentaires modernes, mais l'échange limité de connaissances, les défis structurels pour accéder à la certification et la différenciation des produits réduisent tous les possibilités de mise à niveau. Nous soulignons l'importance de considérer les petits exploitants comme des navigateurs actifs au sein des chaînes de valeur et de comprendre leurs motivations à utiliser différents canaux de vente afin de comprendre la complexité de leurs réalités sans négliger les structures de pouvoir au sein des chaînes de valeur.

Introduction

The inclusion of smallholders in modern agricultural value chains has been a recurring research interest in recent decades (German et al. 2020; Ros-Tonen et al. 2015). In research on global value chains (GVCs) and the so-called supermarket revolution (see, e.g. Reardon et al. 2009), discussions of smallholders' participation in modern agri-food value chains have typically focused on rather dichotomous or categorical conclusions, such as inclusion versus exclusion or marginalisation (see, for example, Michelson 2013; Lutz and Olthaar 2017; Barrett et al. 2022). Several studies have stressed that the strategic focus of modern food retailers on stringent product requirements, including specific food-quality and food safety standards such as GlobalGAP,¹ and the logistical management of fresh produce from farm to shelf

¹ The GlobalGAP standard covers the entire portfolio of farming activities before the product leaves the farm gate, including the application of farm inputs (www.globalgap.org/uk_en/). The GAP guidelines encompass food safety, more specifically reducing crop contamination with chemical residues, environmental protection, site selection and management, water supplies, traceability and workers' safety and health.



are raising barriers for smallholders and leading to the exclusion of resource-poor producers (see, for example, Lee et al. 2012, Humphrey 2006; Reardon and Berdegúé 2002). This, alongside the diversity of smallholders both within and between villages and regions and their unequal development, has been seen as hampering the possibility of pro-poor market development and smallholder inclusion in modern value chains (Oya 2009; Vicol et al. 2018; Ruben et al. 2006). Smallholders excluded from retailer-driven agri-food value chains, but still engaged in the cultivation and marketing of fresh agricultural produce, bring to the fore the much less researched but very important role of traditional markets (Ortiz-Gonzalo et al. 2021).

This paper takes its point of departure in transformation processes in food retail and examines the nature and scope of smallholders' integration into fresh agri-food markets in Thailand. The transformation of food retail in Thailand is of particular relevance to the ongoing discussions over the supermarket revolution and the inclusiveness of smallholders in modern agricultural value chains. Well-established modern (national and international) food retail chains in a portfolio of different retail formats (supermarkets, department stores, cash-and-carry, hypermarkets and convenience stores) have attained a remarkable presence, despite the persistence of traditional retail structures (Dales et al. 2019; Endo 2014). Wholesale markets and traders embedded in traditional Thai retail structures are pivotal intermediaries between sales of highly perishable fresh vegetables, such as cabbages, tomatoes and chillies, from supermarket shelves and smallholders who are often located in remote upland areas and lack official land-title deeds (Ørtenblad et al. 2020; Blake et al. 2019; Forsyth and Walker 2008). Vegetable-producing smallholders generally do not sell their produce through contractual arrangements or supermarkets' tightly coordinated value chains, but rather through traditional sales channels comprising different types of market outlets, sales arrangements and quality requirements (Endo 2014; Srimanee and Routray 2012; Ørtenblad et al. 2020).

The following section positions the paper within streams of literature related to smallholders' participation in transforming agri-food value chains. "[Investigating the Participation of Smallholders in Fresh Produce Markets in Thailand Through the Case of Chinese Cabbage](#)" section introduces the case study and describes the methods used in the research. This is followed by a section on the general development of and conditions for smallholder-based vegetable production in the northern uplands of Thailand. "[Smallholders' Cabbage Production in the Uplands](#)" and "[Smallholders' Combinations of Sales Channels](#)" sections provide analyses of smallholders and the potential influences of different parameters on their market integration, of cabbage production in the uplands and of the smallholders' marketing channels. The last section concludes the paper by discussing smallholders' participation in modern and traditional agri-food markets and their navigation and room for manoeuvre within these, as well as product differentiation along the value chains and the possibilities for upgrading.



Transformation of Agri-Food Value Chains and Smallholder Participation

GVC analysis provides tools for understanding how particular value chains are controlled and coordinated and how different groups of actors embedded in them are influenced by chain governance (for a comprehensive overview of GVC analysis see Ponte et al. 2019a). As the increasing buyer- or lead firm-drivenness of agri-food chains shows, GVC studies typically focus on how lead firms shape the way the value chain is structured and coordinated, as well as how they bargain over prices, convey product requirements and negotiate the terms of participation (Ponte et al. 2019b; Cotula et al. 2019). In relation to GVC analysis, one of the main objectives is to analyse and discuss how chain-embedded structures, governance and coordination affect actors' potential upgrading opportunities and/or the rather unspecific and less operationalised conditions for participation (inclusion and exclusion) in value chains (see, e.g. Humphrey and Schmitz 2002; Gereffi and Fernandez-Stark 2011). However, GVC analysis has traditionally been focused on the lead firm's (e.g. retailers') role in coordinating the chain and shaping the conditions for participation and value creation; it has been less concerned with household-level perspectives as an analytical dimension (Neilson and Shonk 2014).

GVC-aligned studies of agri-food value chains have incorporated an analytical focus on the factors that influence smallholders' participation and integration into the market and, for example, the role of government interventions and policies in the integration of smallholders into value-added agri-food chains and their market linkages (Vicol et al. 2018; Horner 2017; Larsen 2016; Neilson and Pritchard 2009). In the majority of studies, however, the focus on the factors that explain smallholders' participation involves household-level characteristics 'without explicitly accounting for subjective attitudes' (Schipmann and Qaim 2011)—or, in other words, the scope to exercise agency by smallholders, both as individuals and collectively, and the implications for integration in agri-food value chains (Cotula et al. 2019). The most prominent household asset that has repeatedly been included in analyses is the size of landholdings, often combined with other explanatory factors such as household size, levels of education and sources of income, and access to farm assets such as irrigation, labour and equipment (e.g. Hernández et al. 2007; Slamet et al. 2017; Bathla 2016; Ogutu et al. 2020; Rao et al. 2017). Moreover, access to roads, cities and markets, including both distance and means of transportation, are frequently examined (e.g. Michelson 2013; Singh et al. 2017). This line of research usually focuses rather categorically on the inclusion and/or exclusion of smallholders and finds that modern food retailers source from smallholders in the upper socio-economic tier who have larger landholdings and more capital, as well as access to non-land assets such as irrigation and infrastructure, and who are more specialised in commercial horticulture.

While processes of smallholder inclusion and exclusion in modern agri-food value chains have been comprehensively discussed with considerable evidence that household assets—notably land—remain pertinent to these processes, notions of diverse or 'messy' people-centred realities and household-level



decision-making have more recently been introduced to these discussions (Pritchard et al. 2017). Such approaches seek, for example, to integrate diverse livelihood strategies into analyses of (global) economic organisation and to acknowledge the merits of connecting smallholder household agency with the structural processes of social differentiation within which livelihoods are pursued (Pritchard et al. 2017; Neilson and Shonk 2014; Vicol et al. 2019). Smallholder livelihood pathways are influenced by integration in agri-food value chains or production networks, but the contrary is equally true—smallholder livelihood pathways in different contexts influence the nature of their engagement with agri-food value chains (Pritchard et al. 2017; Vicol et al. 2019). This points to differences in smallholders' livelihood pathways based on their agency and actions, apart from the influence of chain-internal dynamics, but also to the significance of social differentiation in these processes.

A number of studies have likewise furthered the debates regarding market integration by questioning modern food retailers' replacement of traditional or informal markets and the concomitant formalisation and standardisation of production and distribution (Humphrey 2007), as well as the persistence and competitiveness of traditional markets in the Global South (see e.g. Si et al. 2019; Vetter et al. 2019). These studies capture the situated complexities of agri-food retail and contribute to the discussion of the degree to which smallholders or small-scale businesses and/or traders are actually excluded from modern retail markets, or whether there are alternative ways they can enter value chains through informal market linkages or arrangements (see e.g. Bernzen and Braun 2014; Dannenberg and Nduru 2013).

By examining the international trade in different commodities from India, Kenya and Bangladesh, Dannenberg et al. (2016) contend that informal actors and arrangements continue to be important aspects of southern agricultural production systems even when they are closely linked to the large and highly regulated consumer markets through modern retailers. Despite retailers' emphasis on stringent produce quality and adherence to food safety certification schemes, Dannenberg et al. (2016) suggest that the 'need for rather flexible supply systems in volatile and cost-sensitive markets even makes complex combinations of formal and informal suppliers as well as formal and informal structures and arrangements more attractive and competitive than highly regulated and formalized value chains' (184). In addition, research on fresh agri-food produce in domestic retail markets in Thailand points out that supermarket chains have not necessarily outcompeted traditional wholesale markets (Shepherd 2005; Dales et al. 2019). Supermarkets source produce through distribution centres and preferred (first-tier) suppliers. Nonetheless, throughout the remaining upstream segments, they tap into traditional market structures and are not particularly retailer-driven (Ørtenblad et al. 2020; Endo 2014).

This paper contributes to recent research that acknowledges smallholders' perspectives within the dynamics of particular value chains, as well as research that investigates structural conditions and how farm or household characteristics influence smallholders' participation in agri-food value chains. Our aim is to add to the discussions a further understanding of smallholders' room for manoeuvre, scope for participation in and active navigation within different markets and conditions that influence their participation. Through such an analysis, it becomes possible to



discuss upgrading opportunities and dynamics in smallholder-based agri-food value chains.

Investigating the Participation of Smallholders in Fresh Produce Markets in Thailand Through the Case of Chinese Cabbage

We explore the smallholders' perspective in their integration into modern and traditional agri-food markets by investigating their scope for, and decisions on, selling through different sales channels and the conditions that influence their decisions and options for choosing the respective sales channels. We were interested in studying smallholders who grow vegetables that are sold in both traditional markets and supermarkets, and which have a significant share of the Thai food market based on volumes produced and sold. Based on these criteria, we focused the study on the value chains of Chinese cabbage (*Brassica rapa pekinensis*). According to census data, cabbage (*Brassica*), and the subspecies Chinese cabbage—hereafter referred to simply as cabbage—is among the main vegetable crops grown in Thailand measured by production volumes (<http://www.fao.org/faostat/en/#data/QC>). Cabbage is an important ingredient in Thai cuisine, is distributed countrywide to both modern food retailers and wholesale markets, and has a large share of the Thai food market in terms of volumes sold and numbers of wholesale traders (interviews with supermarket branch managers; www.talaadthai.com/en/vendor-search, accessed January 2018). The crop is highly perishable and susceptible to pests, rot and bruising requiring careful cultivation, handling and distribution management. Consequently, the cabbage value chain is also prone to tighter coordination by retailers and first-tier suppliers.

The study sites were selected so as to represent the main regions and villages of production in terms of volume and the major suppliers of cabbage to both provincial and national wholesale markets (the main wholesale markets in Bangkok are Talaad Thai and Simumuang, and in Chiang Mai, Muang Mai), as well as for national supermarket chains. This was explored during a pilot study in January/February 2018 during which we retrieved production volume data from provincial agricultural offices (on the regional and village levels) and conducted interviews with traders at wholesale markets and supermarket procurement managers. This enabled us to verify the following. Cabbage is mainly grown in upland areas of the northern provinces of Chiang Mai, Mae Hong Song and Petchabun, where agroclimatic conditions are favourable. Most of the cabbage production in these areas is carried out by smallholders (<http://www.fao.org/family-farming/countries/tha/en/>), in particular those belonging to the Hmong ethnic group. Chiang Mai Province is the largest supplier of cabbage for the national wholesale market in Bangkok and for national supermarket chains. Four villages in Chiang Mai Province were selected as sites for conducting the household survey, two in Mae Chaem District and two in Hot District (Fig. 1). According to the Department of Agricultural Extension in Chiang Mai, these districts are responsible for the largest production volumes (DoAE, Chiang Mai, 2016/2017 data retrieved from chiangmai.doae.go.th/reports/stat_plan/stat_plantproduction59-60.pdf, May 2018). They also represent different ethnic groups



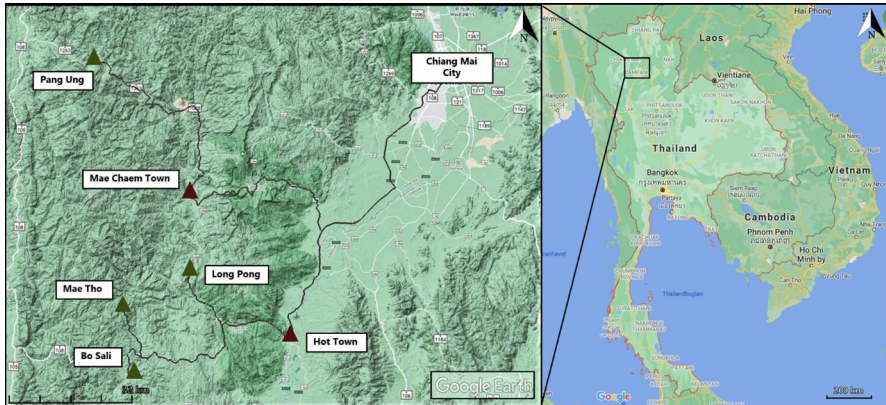


Fig. 1 Location of villages in which household survey was conducted. *Source* Edited from Google Earth

producing cabbage, namely the Hmong and Khun Muang, as well as different bio-physical spectra (different altitudes, temperature and precipitation).

The main fieldwork was carried out from May to October 2018. We conducted a survey of 53 farming households using closed questions in order to conduct statistical analysis on the data. The respondents were evenly distributed among the four villages and selected randomly based on election lists obtained from the respective village leaders. The closed questions addressed the households' marketing strategies, including selling arrangements, types of buyers, product specifications, contractual arrangements and prices. They also addressed farming procedures, including crop production and diversification and farm management practices. Moreover, the questions addressed the key household characteristics of size of landholding, status of land titles, levels of income and access to other physical assets.

Subsequently, we posed open-ended questions to all respondents in order to validate responses from the closed survey questions and to gain a deeper understanding of the households' decision-making procedures in relation to selling produce through different sales channels, as well as more detailed explanations of sales arrangements and relationships with buyers. These qualitative topics were further discussed during group interviews conducted with four to six participants in each village to triangulate the survey responses.

To gain an understanding of sourcing and sales practices further downstream in the value chain and to triangulate smallholders' responses on sales channels and the opportunities and challenges related to each, we also conducted semi-structured interviews with 43 traders² involved in purchasing and selling cabbage. The traders were located in Chiang Mai province and the Bangkok Metropolitan Region, and we included traders selling produce directly to supermarkets ('supermarkets' preferred traders'). The interviews aimed at investigating the traders' sourcing strategies, their

² These included 22 big traders (in addition to 17 short 'screening' interviews for overview purposes), 12 small traders and 9 preferred traders.



product requirements and specifications, and the nature and scope of their relationships with smallholders and buyers. Procurement managers from the four large supermarket chains at their headquarters in Bangkok were also interviewed on supplier relationships and procurement practices and criteria. Finally, semi-structured interviews with village leaders and local and provincial government officials were conducted to obtain a context-specific understanding of the development of and conditions for smallholder-based vegetable production, as well as insights into the government's agricultural policies and programmes.

The analysis presented in the subsequent sections takes its point of departure in households' sales channels and attempts to discern patterns of difference between the market channels and decision-making within the household. The central questions addressed in the analysis of the quantitative data are the following: are there significant differences in terms of households' involvement with certain sales channels based on key household characteristics and farming procedures? This includes analysing which attributes, requirements and (monetary) rewards are associated with the different sales channels. The survey data are analysed using IBM SPSS software, and the results are partly based on descriptive statistics, which primarily involve measures of central tendency of categorised answers. The potential influence of key household characteristics and farming procedures on the market channels employed by the smallholders were investigated by testing correlations between these parameters through correlation tests (*t* tests). We tested for correlations between market channels and agricultural performance, measured through proxies: income allocated to farming activities (proxy for households' specialisation in farming), the area allocated to cabbage production (means of testing for specialisation of the crop) and lastly the number of agrochemical applications and the amount spent on labour (proxies for agricultural intensification). Moreover, we have also tested for correlation between sales channels and the key household characteristics, total income and size of landholding.

The analysis of the qualitative data addressed central themes regarding the factors explaining smallholder households' decision-making related to sales channels and arrangements, including the analytically derived categories of perceived risks and rewards, the smallholders' relationships with different traders, their relative bargaining power, and the potential for product differentiation along the value chain. The data were coded in Nvivo according to the themes delineated, and the patterns and explanatory factors were analysed. The next section of the paper outlines historical developments in the structural and contextual factors that influence the market integration of smallholders before moving into analyses of smallholders' use of sales channels.

Development of Smallholder-Based Vegetable Production in the Northern Uplands of Thailand

The north of Thailand is inhabited by the politically and numerically dominant Khon Muang or Lowland Thai, as well as different hill tribes belonging to different ethnicities (Forsyth and Walker 2008). The hill tribes, in particular the Hmong,



have been major targets of upland development policies and efforts for decades. The Hmong are well known for their involvement in vegetable production for sale. They also suffer from a persistent criminal reputation due to their involvement in poppy cultivation for opium production, in particular during the 1960s and 1970s (*ibid.*). Moreover, the Hmong, together with the Karen, the largest upland ethnic minority, have been targets for political opposition to their shifting cultivation. According to official statistics, Thailand lost more than 50% of its forest cover between 1960 and the late 1980s (www.fao.org/forestry/10809-09f8870885bd8d85106e0a87cd906b784.pdf), and according to the official narrative, the hill tribes and ‘their shifting cultivation systems’ were largely responsible for this loss (TDRI 1987). The eradication of opium production, combined with a concern to protect the forest and promote sustainable farming systems, has led to interventions by the state, development agencies (e.g. the UN and international bilateral aid agencies) and organisations such as the Royal Project Foundation, launched in 1969 by the Thai king (Renard 2001).

From the 1960s onwards, upland policies, including land-settlement policies and development projects, were continuously implemented, at times combined with military coercion (Anderson 2017). Regulations on land use have been implemented to promote land conservation and restrict environmental degradation, especially protection of the forest. To support these policies, zonal development was introduced from the mid-1970s, when the uplands were divided into land-use classes based on slope levels (Guntoro 2005). Most of the land in Mae Chaem district is classified as ‘National Reserved Forest’ in which any form of settlement or agricultural activity is prohibited. As a result, only 1.4% of this area is under legal title (Blake et al. 2019). Similarly, according to government officers in the Chiang Mai section of the Department of Agriculture and the Hot District Agricultural Extension Officer, more than 90 percent of the smallholders who live in the villages, often referred to as ‘the farmers in the mountains’, have no legal or officially recognised evidence of land ownership (interview dates 17.07.18 and 18.07.18, respectively).

Among other state policies were also the introduction of different cash-crop alternatives, such as vegetables, strawberries and cut flowers, all targeted to the market and supported by agricultural input supplies and infrastructure initiatives regarding roads, water supplies and upland research stations (Forsyth and Walker 2008). The marketing of fruit and vegetables has been an evolving aspect of government policies since the late 1980s to early 1990s, its main objective being to create linkages between farmers and consumers and to promote the consumption of fresh fruit and vegetables (Srimanee and Routray 2012). These initiatives proved to be effective in expanding vegetable cultivation by smallholders, as is reflected in substantial increases in the upland area devoted to cabbage and other brassicas from the late 1990s (Phuong 2018, <http://www.fao.org/faostat/en/#data/QC>). Vegetable production in the uplands has faced competition more recently from produce imported from neighbouring countries, in particular China, as a result of the entry into force of the ASEAN Free Trade Area and the lower tariffs on imported produce that have resulted (Mahathanaset and Pensupar 2019, <http://www.fao.org/faostat/en/#data/QC>, <https://tradingeconomics.com/thailand/imports/edible-vegetables-certain-roots-tubers>).



In the early to mid-2000s, a ‘food safety scheme’ and a Thai version of GlobalGAP, called QGAP, were launched. This partly reflects the proliferation of modern retailers, their ambitions to offer high-quality produce, their implementation of quality inspections at distribution centres and in supermarket branches (Endo 2014; Dales et al. 2019) and their introduction of product labels, such as ‘fresh guarantee’, ‘clean vegetables’ and ‘safety fruits and vegetables’, in addition to QGAP-certificated fresh produce. The focus on the quality, hygiene and food safety of fresh produce is also increasingly encountered in traditional wet and wholesale markets such as Talaad Thai in the Bangkok Metropolitan Region (Dales et al. 2019). However, the lack of formal land titles in upland areas, mentioned above, is creating obstacles and restrictions in the form of newly introduced certification schemes, as the applicant has to have official or legal land rights to obtain agricultural certificates, such as QGAP (Fao 2016, GAP responsible officer at Office of Research and Development, Department of Agriculture, Chiang Mai, interviewed 17.07.18).

Smallholders’ Cabbage Production in the Uplands

Mae Chaem and Hot are both upland districts in Chiang Mai province consisting of a main district town and a number of sub-districts and villages. The villages are scattered in the mountains and connected via winding roads of varying levels of maintenance (Fig. 1). Agricultural land is often inherited from generation to generation, and assessments of the size of landholdings are based on unofficial records and community-defined user rights (i.e. customary land tenure). Only two of the fifty-three surveyed households have official titles for their land. Common to all four villages is the market-oriented nature of their agricultural production. Most members of the surveyed households (averaging six members, ranging from one to fifteen) are engaged in some sort of farming activity. A number of households combine their incomes from farming with other income-generating activities, such as running shops and restaurants, working as day labourers in either farming or construction, or doing other jobs and trading activities. Although the main cash crop is cabbage, household cropping systems are relatively diversified, as households grow up to seven different crops per year, with the majority growing from three to five. The main crops, apart from Chinese and green cabbages, are tomatoes, chillies, maize, potatoes, pumpkins, peas, shallots, groundnuts, eggplants and sweet corn.

Chinese cabbage has a short cultivation period of 45 days and can be grown up to three times per year. Its production is associated with high risk, as the crop is highly susceptible to disease and pest attacks during all growth stages and sensitive to fluctuations such as temperature extremes or excessive rainfall. The crop requires relatively large amounts of agrochemicals, and the majority of the smallholders apply a combination of pesticides up to three times every week until harvest. None of the households is certified by QGAP or other private food safety and quality standards or engaged in contract farming arrangements.³ However, thanks to information-sharing

³ Although the transactions are primarily not built on contractual arrangements, traders typically provide farming input ‘loans’, mainly consisting of seeds or seedlings, to a small group of ten to twenty smallholders. These arrangements are embedded in trust-based, sanction-free, mutual agreements such that the



among villagers or with officials, smallholders are increasingly aware of issues with chemical residues on the crops if they spray them with chemicals shortly before the harvest. Some smallholders emphasised that they stop spraying a few weeks before harvesting due to concerns regarding chemical residues or to save money on agro-chemicals, but the majority seem to spray throughout the entire cultivation period. Traders verify the quality of the cabbages by inspecting their visual appearance and only deal with the produce once it is harvested or ready for harvesting.

After the crop reaches maturity, the harvesting window is narrow, with only a few days as a buffer period to wait for potential increases in market price. Combined with highly fluctuating market prices, this adds to the risks. Prices in the national wholesale markets in Bangkok (used as reference points) fluctuate over the year, influenced by production seasons and seasonality related to imports, notably from China. In 2019–2020, for instance, the price varied between 6 and 20 baht/kg (<https://talaa.dthai.com/product/9-36-02-chinese-white-cabbage-unpeeled>, 2019–2021). If prices are too low at the time of maturity (e.g. a farm-gate price of around 2 baht/kg), smallholders will typically leave the cabbages in the field because the selling price will not cover the harvesting and transport costs. However, as the village leader in Pang Ung emphasised, ‘the left cabbages have still “eaten” the fertilizers and other inputs!’ (interviewed 26.09.18). The high level of post-harvest perishability also means that transportation and sales need to happen on the day of the harvest or a few days afterwards.

Smallholders’ Combinations of Sales Channels

The smallholders sell their Chinese cabbages through combinations of three types of sales channel: (1) traders with warehouses located in villages or regional centres (here termed ‘big traders’; *jay* if female, *hia* if male); (2) local small traders, who are often themselves farmers and who sell produce to the big traders or at local and regional wholesale markets (here termed ‘small traders’); and lastly, (3) transporting and selling the produce directly in local and regional wholesale markets. The different combinations of the three types of sales channels employed by the households form the basis for grouping the smallholders and investigating the extent to which the use of different combinations of sales channels is influenced by key household characteristics and farming procedures (Fig. 2). As illustrated in Fig. 2, most smallholders make use of more than one sales channel by combining them either within the same season or from season to season, resulting in four combinations, with one of them only selling to the big traders.

The statistical analysis revealed that there are large variations within the different groups and that none of the observed differences is statistically significant (Fig. 2). This suggests that there is no clear association between key household

Footnote 3 (continued)

smallholders sell the produce to the traders (and reimburse the ‘loan’) upon harvest, and the traders agree to buy the produce from the smallholders.



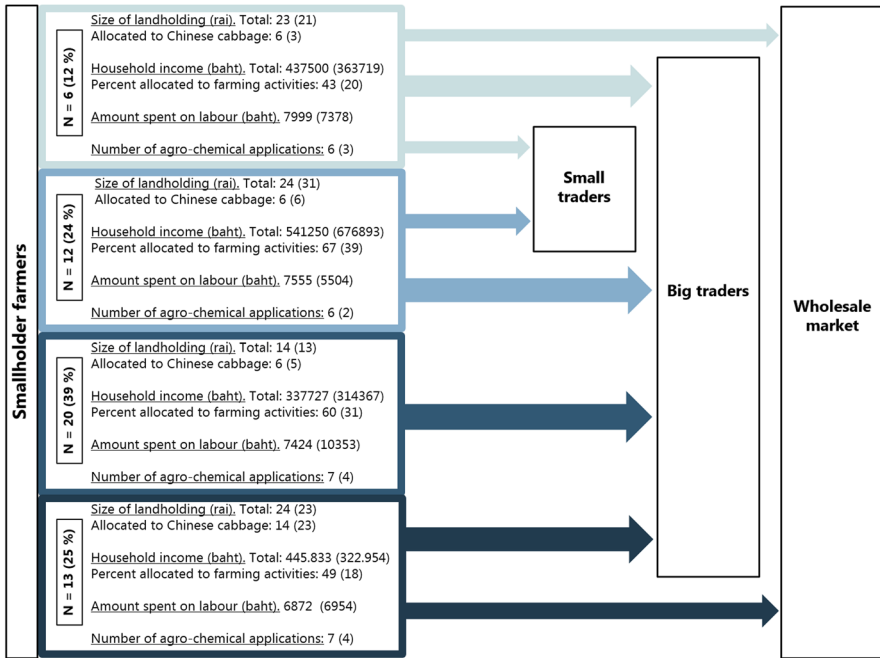


Fig. 2 Overview of sales channel combinations and selected household characteristics of smallholders making use of the respective combinations. *Source* Authors' fieldwork. The smallholders are grouped according to their use of combinations of sales channels. Results are reported as mean and standard deviations; mean (SD). Two-sided tests assuming equal variances were run; no significant correlations were detected between any of the pairs. Two respondents fall outside the groups and are therefore not included, one only selling directly in a wholesale market, the other only to small traders. Household income is annual, whereas the number of agrochemical applications and amount spent on labour is seasonal. 1 rai equals 0.16 hectares. The size of the arrows indicates roughly the estimated relative amount sold via the respective channels

and farming characteristics and sales channels. The following sections present an analysis of smallholders' (household-level) use of different combinations of sales channels based on attributes associated with the three distinct types of sales channels listed above. These include buyers' product requirements, price formation, relationships between smallholders and traders, and the risks and rewards according to smallholders' own perceptions.

Big Traders

The main market outlet for cabbages is big traders with warehouses located in the villages, nearby areas or provincial towns in close proximity to smallholders (Fig. 2). How much of the produce is sold via the different sales channels varies among the smallholders, but the main trend is for 70–100 percent to be sold to the big traders. The smallholders either contact the big traders when their produce is ready for harvesting, or the big traders approach the smallholders by coming to



the fields to inspect the produce before deciding whether to make a deal. Occasionally, the big traders collect random samples of the crops to test for rotten or pest-infected cabbages. One smallholder (interviewed 03.09.18) explained that ‘I call the big traders and say: “I am ready to harvest”. They come to my field, and if they agree to buy after testing my cabbage and bargaining the price, they give me *white money*, a receipt noting the estimated weight and confirming that they will buy it. But the receipt can be renegotiated later’ (see the list of potential risks in Table 1).

The smallholders sell their produce to the big traders via two different arrangements: on a defined plot of land, or by weight. The sales arrangement is highly dependent on the current market price and the quality of the produce. Quality requirements are based on criteria regarding appearance and freshness, as well as size and weight. The big traders require ‘large-size cabbages’ without specifying actual sizes, and they also request cabbages that are symmetric and with as few signs of damage, rot and pest infestation as possible. These cabbages are universally called *suay* cabbages (Thai ‘beautiful’).

The big traders separate the produce by size and quality and sell different products to different types of buyer with varying degrees of stringency regarding the product requirements; their buyers are typically other traders in provincial and national wholesale markets and supermarkets’ preferred traders. Supermarkets’ preferred traders are typically located in close proximity to wholesale markets or supermarket distribution centres. These preferred traders deliver produce to supermarkets, often in the form of a portfolio of fresh fruit and vegetables, cut or trimmed and packed ready for the supermarket shelves. Stricter requirements from preferred traders (above 1.5 kg per cabbage head, zero or very low tolerance of rotten or pest-infected produce, minimum or zero chemical residues) and the relatively high requirements of the national wholesale markets in Bangkok are conveyed up the value chain to the big traders located in rural areas. Some of the cabbage from the big traders is also sold to traders in provincial or local wholesale and fresh markets, which have lower requirements. The big traders therefore do accept different qualities from the smallholders.

Cabbages of high quality and periods of high market prices increase the smallholders’ bargaining position in terms of selling the whole plot to the big traders (which entails selling produce of all qualities in the field, although not all cabbage heads are necessarily harvested) for a good price. During periods with high market prices, the big traders are also more likely to contact the smallholders to make deals with them prior to the harvest. If the traders are not interested in buying the whole plot, the smallholders harvest cabbages of good quality and sell them by weight to the traders. The main risks associated with smallholders selling to the big traders are generally the failure to get paid, or traders pulling out of the deal prior to the harvest (Table 1). While price and quality remain important criteria for decisions and possibilities regarding where to sell the produce, the smallholders often sell to traders whom they know well and with whom they have long-term trading relationships, often inherited over generations. These circumstances point to the fact that relationships with the traders are important for the





Table 1 Potential risks and rewards related to choosing the respective sales channels. *Source* Authors' fieldwork

Smallholders' sales channels	Potential risks	Potential rewards	Selling price
Selling to big traders (by plot)	Traders conducting conservative estimates of the harvest when agreeing the buying price, resulting in smallholders receiving less payment than they are entitled to Trader pulling out of the deal made prior to harvest at the time when the produce is ripe Trader not providing payment or bargaining the price down (arguing that the quality was lower than promised) after the transfer of the produce	Ability to sell all qualities of cabbages in the field at once For good-quality cabbages: better bargaining position (potentially higher price) Convenience: saving time and costs due to traders' responsibility for harvesting and transportation Improvement of relationship (over time) with benefits for future transactions if selling good-quality cabbage to the trader	Price span: 0.5–18 baht/kg Average highest: 9.72 baht/kg Average lowest: 2.76 baht/kg
Selling to small traders	No high risks, but lower payment	Ability to sell lower quality produce Opportunity to harvest and sell excess cabbage of acceptable quality Convenience (saving time and effort): located in close vicinity (e.g. neighbours), communication and transport easier/less costly	Price span: 1*–13 baht/kg Average highest: 9 baht/kg Average lowest: 2.69 baht/kg
Direct sale at district and provincial wholesale markets	Dropping prices at market Not being able to sell the whole truckload Risk that turnover does not cover the costs of transport, parking and market fees, and time consumption (harvest, transport to and from market, waiting time for selling the whole load)	Ability to sell lower quality produce Opportunity to harvest and sell excess cabbage of acceptable quality Potential opportunity to make most money per weight of cabbages this way	Price span: 1.5–20 baht/kg Average highest: 11 baht/kg Average lowest: 3.32 baht/kg

*The price can be a little lower if they sell the whole plot, around 2–3000 baht per rai, which produces on average 5000 kg of cabbage. This is a rough estimate, as the yield per plot size fluctuates

transactions and sales deals (smallholder group interviews, August and September 2018, household survey, see Table 1).

Small Traders

Cabbages that are not bought by the big traders or are perceived to be of lower quality can often be sold to small traders from the villages. One smallholder said that ‘sometimes my regular big trader refuses to buy the cabbage after inspecting it in my field. In that case, I will try to sell the rest to the *miao*’ (Thai ‘small trader’) (02.09.18). This is supported by another smallholder, who stated that ‘the small traders mostly take the *bae* (Thai ‘lower quality’) [cabbages] that are not accepted by the big traders’ (02.09.18). The small traders buy up different vegetables from smallholders within the village. They mainly sell them in district or provincial wholesale markets, where the quality requirements are generally lower, and the small traders are consequently less strict concerning the product requirements compared to the big traders. This is related to the requirements regarding size and appearance, although the small traders do avoid taking highly pest-infested cabbages. The produce is sold to small traders by weight, which means that the smallholders harvest the acceptable cabbages themselves before selling them, or occasionally whole plots. The smallholders mainly sell their produce to small traders out of convenience, since the latter are located in their immediate vicinity and offer an opportunity to sell cabbage that is not acceptable to the big traders. On the other hand, this sales channel generally involves the lowest price rewards compared to other sales channels (Table 1).

Direct Sales in Wholesale Markets

Lastly, it is common for smallholders to harvest their produce and transport it in pick-up trucks (owned by 93 percent of households) directly to district or regional wholesale markets, from where they sell it to different customers. Usually the smallholders sell the produce from the back of their pick-up truck, trimmed, graded roughly and packed in bags of ten kgs. They try to sell most qualities of cabbages (often the lower quality ones too), although the better the quality the higher the chances of a sale. To save time or if the prices per kg are low, the smallholder sometimes sells his whole truckload, or what is left of it, to ‘small traders’ in the wholesale market. These small traders, who are permanently located in the wholesale market, are often migrants and not themselves farmers. The smallholders call this transaction ‘throwing it to the migrants’ (Hmong ‘*yon man pi phu piyom*’).

As when selling to small traders in the village, selling directly in the wholesale market can be a matter of necessity when the produce is not taken by the big traders due to the market being ‘slow’ or to the low quality of the cabbages. The types of buyers in the wholesale market vary from stall-owners selling the produce by the piece in the market to preferred traders stocking up for supermarket orders,



as well as restaurant, hotel and catering company owners. Thus, a broader range of produce quality is accepted. The sales channel can also act as a buffer in cases when the big traders have already harvested the best quality cabbage heads or if the produce cannot be sold to the big traders at all. The smallholders can then harvest the leftover produce rejected by the big traders and sell it in the wholesale market, just like the small traders.

On the other hand, selling directly in the wholesale market can be a strategic choice in attempting to increase the price obtained for the produce. This sales strategy can be rewarding if the market price remains stable and/or high in the market. If the smallholders are 'lucky' (smallholder interviewed 02.02.18), this option can give them the highest price per kilogram (see Table 1). A smallholder selling his cabbages at Muang Mai wholesale market in Chiang Mai (interviewed 02.02.18) gives the example of big traders buying cabbages for 1.5–2 baht/kg at the farm gate, even though in the wholesale market the farmers can get 8 baht/kg. However, this can be risky, as the prices often fluctuate. This was illustrated by another smallholder in the market (interviewed 21.06.18): 'the normal selling price is around 10–12 baht/kg in this season. I have been selling my cabbages for 4–7 baht/kg during the day, though, and now at evening time the selling price is 3 baht'.

The smallholders balance their decisions regarding where to sell their produce based on an assessment of the risks and rewards associated with the respective sales channels. The rewards, apart from prices or profits, may take the form of stability and reliability in the transactions. Of the three distinct sales channels, the smallholders perceive selling directly in the wholesale market to be associated with the largest risk and the highest transaction costs, while at the same time also potentially having the highest rewards in terms of prices. The smallholders' propensity for selling to the big traders, on the other hand, points to the importance of other rewards than the sales price, such as convenience, saving time, the possibility of selling all the cabbages from a single field, and the desire to maintain good relations with traders for the benefit of future transactions. Although relative stability and convenience characterise selling to the big traders, the risk of not being able to sell all one's produce and not receive payment from the traders is somewhat higher than when sales channels are combined. Combining sales to big traders with sales to small traders is perceived as running the lowest risks, but also as having fewer opportunities to make a profit.

Northern Thai Smallholders' Room for Manoeuvre within the Markets: Discussion and Concluding Remarks

Insights from the analysis show that neither household assets nor the level of farm intensification has a significant influence on smallholders' use of different sales channels and on their participation in the market. The smallholders' active navigation within the different sales channels show that they do have some room for manoeuvre within the combined traditional and modern markets and that they assess the risks and rewards related to the sales channels while deciding where to sell the produce. Not surprisingly, during periods of high demand for, and low supply of,



the produce, it is easier for the smallholders to sell their produce. This common market condition is beyond control for the smallholders. On the other hand, the smallholders' ability to influence their bargaining position in relation to the traders, and hence to obtain a higher unit price and improve value added (i.e. upgrade), involves improving produce quality as well as the scope of their relationships with traders. The smallholders can make efforts to enhance product quality by improving farm management practices, which involves increasing the types and amounts of agrochemical applied, introducing more efficient irrigation systems, increasing the amount of labour, or improving harvesting techniques. Hence, these classical forms of product and process upgrading at farm level leverage a higher quality product or a product of higher grade to offer to buyers. The smallholders seek to strengthen and reproduce relationships with traders by being continuously reliable suppliers who keep selling to their regular buyers, even when new buyers approach them to make better deals. Sometimes they underestimate the price and provide the best quality produce to regular customers, often at the same prices as for lower quality products or lower than the current market price for the benefit of future transactions.

These efforts increase the likelihood of smallholders selling their produce and hence generating a stable income through guaranteed market outlets. However, the major product and price differentiation occurs in downstream segments of the value chain. The smallholders most often sell their produce to traders per plot to save labour and transport costs. Selling per plot provides different grades, which entails different sizes and qualities of cabbage (appearance, colour, and no bruises, marks or rot). When buying per plot, traders organise and bring their own labour to the fields and are able to control what is harvested and how. The produce from the harvested plot is subsequently graded at the traders' warehouses and sold at different end markets according to the different grades, allowing the traders to obtain different prices attached to grades. The big traders located both in the growing areas and in provincial and national wholesale markets sort and grade the cabbage into three different grades according to size and appearance. That of the highest grade is sold at provincial and national wholesale markets for a higher price compared to lower quality grades or to supermarkets' preferred traders, who require exclusive sizes and grades.

The cabbage sold in the traditional and modern markets originate from the same smallholders. Nevertheless, as the smallholders do not differentiate produce of different grades with attached price differentials according to either traditional traders or supermarkets' standards, they do not seem to benefit from this. In fact, they do not know which end market their produce reaches. Producing new forms of the existing crop (e.g. new varieties) and cultivating the crop according to new buyer-defined farm and post-harvest management requirements (e.g. certified produce) is also not encountered. The farmers are generally not aware of the possibilities for obtaining certificates like QGAP. Land tenure and titling restrictions also exclude them from certification schemes (see above). Moreover, supermarkets do not have strong incentives to develop a tightly coordinated value-chain filament with a parallel system of more efficient and controlled processes, which may include sourcing directly from smallholders, introducing contractual agreements, or monitoring the production process. Sourcing through the existing



system, which builds on relations between smallholders and different traders that have often been established over generations, enables supermarkets to secure produce of adequate quality in a sufficiently efficient manner (Ørtenblad et al. 2020). Indeed, separate modern and traditional value-chain filaments do not seem to be on the verge of materialising in a system that has known the presence of modern food retailers for decades (Dales et al. 2019). Hence, the agri-food value chain is characterised by limited knowledge exchange and learning processes, and upgrading possibilities, based on supplying for buyer-specific requirements are largely constrained for the smallholders. Moreover, the above account indicates that the smallholders are largely price-takers and subject to control by downstream actors, where product differentiation takes place, and to power asymmetries in the value chain.

GVC analysis has been employed in a large body of research to study the influence of changing global food-system structures on the coordination and control of product flows and the conditions for and outcomes of chain participation by analysing the entirety of a product value chain. The focus in such studies has often been on the lead firms' roles in determining the conditions for participation. In terms of agri-food value chains, recent studies have suggested including smallholder perspectives and household-level realities, especially concerning their livelihood trajectories, which involves a focus on their agency and options or pathways in life (Neilson and Shonk 2014; Pritchard et al. 2017; Vicol et al. 2019). We further this focus on groups of actors, in particular smallholders, as active navigators within markets by investigating their motivations for and decisions to use different sales channels, how they are integrated into both traditional and modern markets, and what room for manoeuvre they have within these markets.

This helps us acknowledge the complexities of smallholders' realities and allows us to understand that they are not just passive groups of actors who are either excluded from or included in modernising markets and value chains: instead, they do have some room for manoeuvre in shaping their marketing strategies. In our case, the smallholders are not excluded from modern agri-food value chains despite their involvement with highly perishable produce, which would potentially require tighter coordination of handling and distribution management by retailers, but nor are they included directly. Instead, they are integrated through traditional market structures involving multiple, co-existing and sometimes intertwined marketing channels that they must navigate when selling their fresh produce. This demonstrates the importance of informal (traditional) product flows into more formalised or tightly coordinated agricultural value chains (Dannenberget al. 2016; Dales et al. 2019). Furthermore, it demonstrates the role that traditional markets can play in linking smallholders to modern agri-food value chains, which are growing in importance in fresh-food retailing despite the persistence of traditional markets. Such investigations also help us understand how traditional markets develop concurrently with the introduction of modern food retailers, including product differentiation and proliferations of particular quality requirements. Yet, our case also shows that power asymmetries and knowledge-exchange structures in the value chain cannot be overlooked if we are to find ways



to improve upgrading opportunities and conditions for the smallholders beyond market participation and beyond stabilising or securing their incomes.

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Data Availability The data that support the findings of this study are available from the corresponding author upon reasonable request.

Declarations

Conflict of interest The authors have no conflict of interest to declare.

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References

- Anderson, B. 2017. People, land and poppy: The political ecology of opium and the historical impact of alternative development in northwest Thailand. *Forest and Society* 1: 48–59.
- Barrett, C.B., T. Reardon, J. Swinnen, and D. Zilberman. 2022. Agri-food value chain revolutions in low- and middle-income countries. *Journal of Economic Literature* 60: 1316–1377.
- Bathla, S. 2016. Organized fresh food retail chains versus traditional wholesale markets: marketing efficiency and farmers' participation. In *Organised retailing and agri-business*, ed. N.C. Rao, R. Radhakrishna, R.M. Mishra, and V.D. Kata. New York: Springer.
- Bernzen, A., and B. Braun. 2014. Conventions in cross-border trade coordination: The case of organic food imports to Germany and Australia. *Environment and Planning A* 46: 1244–1262.
- Blake, D.J., P. Thiengburanathum, P. Thiengburanathum, R.M. Friend, B. Doherty, and S. Thankappan. 2019. Looking at complex agri-food systems from an actor perspective: the case of Northern Thailand. In *Advances in food security and sustainability*, ed. J.F. David Barling. London: Elsevier.
- Cotula, L., E. Polack, T. Berger, and B. Schwartz. 2019. *Rural producer agency and agricultural value chains: What role for socio-legal empowerment*. London: International Institute for Environment and Development (IIED).
- Dales, A., N.M. Coe, and M. Hess. 2019. Variegated national retail markets: Negotiating transformation through regulation in Malaysia and Thailand. *Economic Geography* 95: 90–111.
- Dannenberg, P., B. Braun, and E. Kulke. 2016. The paradox of formalization and informalization in South-North value chains. *DIE ERDE* 147: 173–186.
- Dannenberg, P., and G.M. Nduru. 2013. Practices in international value chains: The case of the Kenyan fruit and vegetable chain beyond the exclusion debate. *Tijdschrift Voor Economische En Sociale Geografie* 104: 41–56.
- Endo, G. 2014. The key role of intermediaries in Thailand's fresh food distribution system. *The International Review of Retail, Distribution and Consumer Research* 24: 544–563.



- Fao. 2016. *A scheme and training manual on good agricultural practices (gap) for fruits and vegetables*. Bangkok: FAO Regional Office for Asia and the Pacific.
- Forsyth, T., and A. Walker. 2008. *Forest guardians, forest destroyers: The politics of environmental knowledge in northern Thailand*. Seattle: University of Washington Press.
- Gereffi, G., and K. Fernandez-Stark. 2011. *Global value chain analysis: A primer*. Durham: Center on Globalization, Governance & Competitiveness (CGGC), Duke University.
- German, L.A., A.M. Bonanno, L.C. Foster, and L. Cotula. 2020. "Inclusive business" in agriculture: Evidence from the evolution of agricultural value chains. *World Development* 134: 1–21.
- Guntoro, B. 2005. *Traditional agricultural practices of hill tribes in supporting sustainable tourism development in Northern Thailand*. Paper presented at the 5th national symposium on graduate research, october 10–11. Bangkok: Kasetsart University.
- Hernández, R., T. Reardon, and J.A. Berdegué. 2007. Supermarkets, wholesalers, and tomato growers in Guatemala. *Agricultural Economics* 36: 281–290.
- Horner, R. 2017. Beyond facilitator? State roles in global value chains and global production networks. *Geography Compass* 11: e12307.
- Humphrey, J. 2006. Policy implications of trends in agribusiness value chains. *The European Journal of Development Research* 18: 572–592.
- Humphrey, J. 2007. The supermarket revolution in developing countries: Tidal wave or tough competitive struggle? *Journal of Economic Geography* 7: 433–450.
- Humphrey, J., and H. Schmitz. 2002. Developing country firms in the world economy: Governance and upgrading in global value chains. *INEF Report*. UK: Department for International Development.
- Larsen, M.N. 2016. Sustaining upgrading in agricultural value chains? State-led value chain interventions and emerging bifurcation of the south Indian smallholder tea sector. *Sustainability* 8: 1102.
- Lee, J., G. Gereffi, and J. Beauvais. 2012. Global value chains and agrifood standards: Challenges and possibilities for smallholders in developing countries. *Proceedings of the National Academy of Sciences* 109: 12326–12331.
- Lutz, C., and M. Olthaar. 2017. Global value chains and smallholders in sub-saharan Africa. *Review of Social Economy* 75: 251–254.
- Mahathanaset, I., and K. Pensupar. 2019. The effects of rising cabbage import on cabbage production in Thailand. *ARE Working Paper No. 2562/3*. Bangkok: Department of Agricultural and Resource Economics, Faculty of Economics, Kasetsart University.
- Michelson, H.C. 2013. Small farmers, NGOs, and a Walmart world: Welfare effects of supermarkets operating in Nicaragua. *American Journal of Agricultural Economics* 95: 628–649.
- Neilson, J., and B. Pritchard. 2009. *Value chain struggles: Institutions and governance in the plantation districts of South India*. West Sussex: Wiley.
- Neilson, J., and F. Shonk. 2014. Chained to development? Livelihoods and global value chains in the coffee-producing Toraja region of Indonesia. *Australian Geographer* 45: 269–288.
- Ogutu, S.O., D.O. Ochieng, and M. Qaim. 2020. Supermarket contracts and smallholder farmers: Implications for income and multidimensional poverty. *Food Policy* 95: 101940.
- Ørtenblad, S.B., M.N. Larsen, and P. Suebpongsang. 2020. Multi-dimensional dynamics and spatial connections in food retail markets in Thailand. *Geografiska Annaler: Series B, Human Geography* 1–21.
- Ortiz-Gonzalo, D., S.B. Ørtenblad, M.N. Larsen, P. Suebpongsang, and T.B. Bruun. 2021. Food loss and waste and the modernization of vegetable value chains in Thailand. *Resources, Conservation and Recycling* 174: 105714.
- Oya, C. 2009. The World Development Report 2008: Inconsistencies, silences, and the myth of 'win-win' scenarios. *The Journal of Peasant Studies* 36: 593–601.
- Phueng, N.T. 2018. *Development of vegetable production and organic vegetable production in Thailand*. FFTC Agricultural Policy Platform. <https://ap.fttc.org.tw/article/1318>. Accessed 8 Jan 21.
- Ponte, S., G. Gereffi, and G. Raj-Reichert. 2019. Introduction to the handbook on global value chains. In *handbook on global value chains*, ed. S. Ponte, G. Gereffi, and G. Raj-Reichert. Cheltenham: Edward Elgar Publishing.
- Ponte, S., T.J. Sturgeon, and M.P. Dallas. 2019b. *Governance and power in global value chains. Handbook on global value chains*. Cheltenham: Edward Elgar Publishing.
- Pritchard, B., M. Vicol, and R. Jones. 2017. How does the ownership of land affect household livelihood pathways under conditions of deagrarianization? 'Hanging in', 'stepping up' and 'stepping out' in two north Indian villages. *Singapore Journal of Tropical Geography* 38: 41–57.



- Rao, N.C., R. Sutradhar, and T. Reardon. 2017. Disruptive innovations in food value chains and small farmers in India. Keynote paper presented at the 76th annual conference of the isae, november 2916. *Indian Journal of Agricultural Economics*. Assam Agricultural University, Jorhat: Indian Journal of Agricultural Economics.
- Reardon, T., C.B. Barrett, J.A. Berdegue, and J.F.M. Swinnen. 2009. Agrifood industry transformation and small farmers in developing countries. *World Development* 37: 1717–1727.
- Reardon, T., and J.A. Berdegue. 2002. The rapid rise of supermarkets in Latin America: Challenges and opportunities for development. *Development Policy Review* 20: 371–388.
- Renard, R.D. 2001. *Opium reduction in Thailand 1970–2000: A thirty-year journey*. Undcp.
- Ros-Tonen, M.A., Y.-P.B. Van Leynseele, A. Laven, and T. Sunderland. 2015. Landscapes of social inclusion: Inclusive value-chain collaboration through the lenses of food sovereignty and landscape governance. *The European Journal of Development Research* 27: 523–540.
- Ruben, R., M. Slingerland, and H. Nijhoff. 2006. *The agro-food chains and networks for development*. The Netherlands: Springer.
- Schipmann, C., and M. Qaim. 2011. Supply chain differentiation, contract agriculture, and farmers' marketing preferences: The case of sweet pepper in Thailand. *Food Policy* 36: 667–677.
- Shepherd, A. 2005. *The implications of supermarket development for horticultural farmers and traditional marketing systems in Asia*. Rome: FAO.
- Si, Z., S. Scott, and C. Mccordic. 2019. Wet markets, supermarkets and alternative food sources: Consumers' food access in Nanjing, China. *Canadian Journal of Development Studies/revue Canadienne D'études Du Développement* 40: 78–96.
- Singh, G., M.M. Wilson, and D.L. Dean. 2017. Smallholders and agribusiness supply chains: participation and implications. In *15th ANZAM Operations, Supply Chain and Services Management Symposium*. Queenstown, New Zealand.
- Slamet, A., A. Nakayasu, and M. Ichikawa. 2017. Small-scale vegetable farmers' participation in modern retail market channels in Indonesia: The determinants of and effects on their income. *Agriculture* 7: 11.
- Srimanee, Y., and J.K. Routray. 2012. The fruit and vegetable marketing chains in Thailand: Policy impacts and implications. *International Journal of Retail & Distribution Management* 40: 656–675.
- TDRI. 1987. *Thailand: Natural resources profile*. Bangkok: Thai Development Research Institute (TDRI).
- Vetter, T., M.N. Larsen, and T. Bech Bruun. 2019. Supermarket-led development and the neglect of traditional food value chains: Reflections on Indonesia's agri-food system transformation. *Sustainability* 11: 498.
- Vicol, M., N. Fold, B. Pritchard, and J. Neilson. 2019. Global production networks, regional development trajectories and smallholder livelihoods in the global South. *Journal of Economic Geography* 19: 973–993.
- Vicol, M., J. Neilson, D.F.S. Hartatri, and P. Cooper. 2018. Upgrading for whom? Relationship coffee, value chain interventions and rural development in Indonesia. *World Development* 110: 26–37.

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