

Impact of Contract Farming on Small Farmers: A Comparative Study of Contract and Non-Contract Potato Farmers from West Bengal

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Submitted

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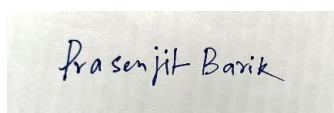
11th December 2024

Declaration

I, Mr Prasenjit Barik, hereby declare that the thesis titled “**Impact of Contract Farming on Small Farmers: A Comparative Study of Contract and Non-Contract Potato Farmers from West Bengal**” is an original piece of research work conducted by me under coordinating supervisor Dr Rajshree Bedamatta, Professor in Economics, Department of Humanities and Social Sciences, Indian Institute of Technology Guwahati and external supervisor Dr. Surjit Vikraman, Associate Professor & Head, Centre for Agrarian Studies, National Institute of Rural Development and Panchayati Raj, Hyderabad.

This work has not been submitted previously in part or full for the award of any other academic degree, diploma, or certificate at any other institution. All the sources of information and data utilised in this thesis have been duly acknowledged. I confirm that the content of the thesis is the result of my own work, and I have acknowledged all sources of assistance received during its preparation. I also declare that this thesis has passed the plagiarism checking.

I further declare that the ethical guidelines, including obtaining necessary permissions from relevant authorities, conducting a literature review, and adhering to the rules and regulations of the Indian Institute of Technology Guwahati, have been strictly followed during the course of this research.



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Certificate

This is to certify that the doctoral thesis entitled “**Impact of Contract Farming on Small Farmers: A Comparative Study of Contract and Non-Contract Potato Farmers from West Bengal**”, submitted by Prasenjit Barik for the degree of Doctor of Philosophy in Development Studies in the Department of Humanities and Social Sciences at Indian Institute of Technology Guwahati embodies bonafide record of research work carried out under my supervision and guidance. The present thesis or any part thereof has not been submitted to any other University/Institute for the award of any degree or diploma. All the assistance received by the researcher has been duly acknowledge.



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Dedication

To my beloved parents, Sri Ratan Kumar Barik and Smt. Usha Barik

This thesis is dedicated to my parents, whose unwavering love and support have been my greatest source of strength. Their guidance and encouragement have been the bedrock upon which my academic and personal achievements have been built.

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List of Abbreviations

Abbreviations	Expansion
APMC	Agricultural Produce Marketing Committee
ATL	Atlantic
CF	Contract Farming
CCPC	Cost of Cultivation of Principal Crops
CCF	Composite Conceptual Framework
CFFG	Contract Farming Facilitation Group
DCA	Directed Content Analysis
FAO	Food and Agriculture Organization
FBY	Fasal Bima Yojana
FGDs	Focus Group Discussions
FPCs	Farmer Producer Companies
FPOs	Farmer Produce Organisations
GCA	Gross Cropped Area
GVC	Global Value Chain
HH	Households
KIIs	Key Informant Interviews
KCC	Kishan Credit Card
NAP	National Agriculture Policy
NCF	Non-Contract Farming
NCF	National Commission on Farmers
NIE	New Institutional Economics
NPF	National Policy for Farmers
OBC	Other Backward Caste
PAFC	Punjab Agro Foodgrains Corporations
SES	Sequential Exploratory Strategy
SC	Schedule Caste
SHGs	Self-help Groups
TOP	Tomato Onion Potato
TV	Television

List of Publication and Conference Presentation

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Part-I Publications	Under revision and review	Barik, P., & Bedamatta, R. Is Contract Farming a Fair Practice for Smallholder Farmers? A Case Study from West Bengal, India, <i>Journal of Contemporary Asia</i> , Routledge. (Accepted forthcoming). Barik, P., Bedamatta, R., & Vikraman, S. Contract Farming a Pathway to Diversity Livelihood Opportunities for Rural Elite, A Case Study of Potato Contract Farming from West Bengal, <i>Indian Journal of Human Development</i> . (Communicated).
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	Book reviews	Barik, P. (2024). Book Review: Debates on Contract Farming Policy in India. <i>Economic & Political Weekly</i> . vol.59, ISBN.2349-8846, pp.29-31. https://www.epw.in/system/files/pdf/2024_59/29/revlix29prasenjit-barik20072024.pdf Barik, P. (2024). Book review: Ashok Gulati, Rajana Roy and Shweta Saini. Revitalising Indian Agriculture and Boosting Farmer Incomes, <i>Indian Journal of Human Development</i> , SAGE, 17,3. https://doi.org/10.1177/0973703023121762 . Barik, P. (2022) Book review: Pramod Kumar, A. V. Manjunatha, and Suman K. Sourav, Contract Farming and Land Tenancy in Indian Agriculture, <i>Indian Journal of Human Development</i> , SAGE, 16,2. https://doi.org/10.1177/09737030221123 . Barik, P. (2022) Book Review: Prabhu Pingali, Anaka Aiyar, Mathew Abraham, Adaleeb Rahman, Transforming Food Systems for a Rising India. Palgrave Macmillan, 2019, 382 pp., Open access, ISBN 978-3-030-14409-8 (eBook), DOI: https://doi.org/10.1007/978-3-030-14409-8 ", <i>Asia-Specific Journal of Rural Development</i> , SAGE, vol.32, 2, pp.1-5. https://doi.org/10.1177/1018529123119012 .

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Abstract

The recent farmer protests and policy debates in India have reignited interest in contract farming (CF henceforth) within critical agrarian studies. CF permeates various regions of India, and the prevailing literature often provokes ideological debates that tend to oversimplify the narrative into "win-win" or "win-lose" scenarios. Between the two extremes, the critical perspective on CF raises many concerns, such as unequal power dynamics, the monopsony position of firms, and exploitative practices. Prominent microeconomic studies on CF in India propose various approaches to resolving market failures, aiming to benefit farmers through enhanced production, income, and employment prospects. Despite several studies over the past couple of decades and recent policy debates, the implication of CF on smallholders due to the complex interplay of social relations of production and capitalist tendencies of corporate firms is understudied in India.

This thesis aims to address the existing gap in CF literature through a critical examination of potato CF under PepsiCo in West Bengal. This thesis focuses on the benefits and burdens faced by smallholders, as well as its impacts on broader agrarian relations in the study villages. The central research questions guiding this thesis are: What model of potato CF is employed, and what roles do intermediaries play in the input-output markets? Does CF enhance the value chain for smallholders, and is it an equitable practice? Lastly, is CF more financially viable for smallholders?

The major findings of the thesis diverge significantly from the leading previous studies on CF in India. Previous studies claimed that CF often restricts smallholder farmers and is biased towards resource-rich farmers. First, the thesis demonstrates that CF promotes 'adverse inclusivity' regarding production scale and social dynamics. Small and marginal farmers, mainly from socially disadvantaged castes, often opt for CF to confront the challenges of cultivating high-value crops in India. However, despite notable changes in social order and the political involvement of smallholders and marginalised caste populations facilitated by successful land reforms and the Panchayati system under the long-standing Left government in the state, the prevailing social hierarchy continues to favour socially advantaged castes, enabling them to assume roles as commission agents and secure livelihood opportunities within

the CF framework. This leads to an intermediary model of CF that enables PepsiCo to have indirect control over land, family labour, and production of smallholders through an intermediary, ultimately reducing transaction costs and smoothing the supply of quality raw materials.

Secondly, the thesis contests the efficacy of fixed-price contracts, commonly perceived as creating a "win-win" scenario, yet failing to yield better returns for contract farmers in the event of production losses. Through a comparative analysis of costs and profits, I argue that a fixed price contract may not be a viable option for smallholders at all times. In study villages, non-contract farmers benefitted from the open market price fluctuations during production losses, whereas contract farmers faced relative economic losses. Thus, I argue that CF may guarantee fixed returns under normal circumstances. However, during production loss and upwardly fluctuating market price situations, it fails to give market-based returns to farmers. Therefore, I made some recommendations that, along with fixed prices, there should be a compensation mechanism for farmers to protect them from farm business losses at lower production or upward price movements.

Thirdly, the section explored the motives that lead farmers to cultivate under CF and the fairness of such arrangements. Secure minimum income, input support, and market access are the primary reasons small and marginal farmers cultivate under CF to avoid open market risks. They cannot afford to lose because they live so close to the margins. The thesis contends that while CF has facilitated increased access for smallholders to input and output markets, the value chain structure within this practice remains inherently unfair. CF addresses two critical constraints smallholders face: credit support, market access (information and price), and technological knowledge, which hinder their participation in high-value crop cultivation. The political economy and critical approach perspectives conceptualise CF as a manifestation of unequal power dynamics and exploitative practices. Within this framework, smallholders forfeit their autonomy over production processes and decision-making. However, there is a lack of an adequate framework that could explain such unequal relations, exploitation, and unfair everyday acts in CF. To address these issues, this study develops a novel composite conceptual framework to understand the benefits, burdens, and unfairness inherent in the CF value chain.

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Part 1

Chapter 1. Introduction and Literature Review

1.1 Setting the Scene

Agricultural policy measures introduced in India during the Green Revolution of the 1960s were strategically formulated to increase production and productivity by adopting high-yielding seeds, integrating modern technological interventions, deploying chemical fertilisers, etc. This primary strategy was conceived to alleviate food insecurity and become self-sufficient in food (Basu & Scholten, 2012; Eliazer et al., 2019; Larson et al., 2004; Rahman, 2015; Singh, 2000). Agricultural growth during this period largely depended on public sector investments and state interventions. Policies following economic reforms shifted towards market-centric approaches and promoted the active involvement of the private sector in the agricultural domain (Ahluwalia, 1996; Arora, 2013; Johl, 1995; Madhadevan, 2003; Ramakumar, 2009; Vyas, 2001). During this period, there has been a decline in public investments and a withdrawal of state support from the agriculture sector, leading to what is known as the *agrarian crisis*.¹

Although Indian agriculture, since the late 1960s, has seen an increasing capitalist control of the agricultural production system (Das, 2007; Patel, 2013), after the economic reforms of the 1990s, large-scale involvement of corporations in the agricultural sector has increased manifold. Moreover, to tackle agricultural distress and promote agriculture and rural development, many states have implemented neoliberal policies encouraging corporate entities to invest in the sector, facilitating capitalisation on a large scale (Ray et al., 2021; Singhi et al., 2008, pp. 81; Shrimali, 2016; Vicol, 2019). The neoliberal policy emphasises providing greater market freedom and reducing state control over the public sector,

¹. “With the economic reforms of the early 1990s, India opened up to global markets and imported food grains were often available at lower prices than the officially declared minimum support price (MSP). The economic growth India witnessed for more than two decades following the economic reforms was mostly outside of agriculture. Agriculture declined in relative terms, both in its contribution to the economy and in its position in the national imagination, and farmers began to matter less in national politics. It was around this time that the narrative of the ‘agrarian crisis’ began to take hold, reflected most visibly in the growing incidence of farmer suicides across various regions of the country” (Jodhka, 2021, p.1361).

including its welfare function (Carter, 2008; Harvey, 2005). CF² has been one of the mechanisms endorsed by Indian states as an alternative undertaking within the framework of neoliberal policy reforms. It encourages private sector involvement in agriculture, to help smallholder farmers access domestic and international markets, mitigate challenges in high-value crops, improve access to input and output markets, and enhance production and income. Furthermore, certain states have specifically advanced the cause of CF, to varying degrees, in the name of agricultural development (Shrimali, 2021).

Contract farming is not a new phenomenon, as this form of farming was operational during the colonial period when Indian farmers were forced to cultivate cotton, indigo, and tobacco for English factories, which extended to the cultivation of sugarcane and seeds in the early 1950s (Deshpande, 2005). Modern CF development started with PepsiCo installing a few new plants for potato and tomato cultivation in Punjab, Maharashtra and West Bengal in the early 1990s (Chaturvedi, 2013; Swain, 2020). Later, CF became a legal practice in many states of the country following the Model Agricultural Produce Marketing Committee (APMC henceforth) Act, 2003 (Singh, 2022).

Recently, there is renewed attention to CF in critical agrarian studies and policy debate circles, especially following the announcement of the 'Farm Bills 2020', which later became Acts (now, repealed) of Parliament and the long-standing nationwide farmer protests and agitation (e.g., Baviskar & Levien, 2021; Jodhka, 2021; Krishnamurthy, 2021; Kumar, 2021; Lerche, 2021; Ramakumar, 2021). In September 2020, the Government of India passed three agriculture bills commonly known as *Farm Bills 2020*. The Lok Sabha (lower House of the Parliament) approved the bills on 17th September 2020 and later the Rajya Sabha (upper House of Parliament) on 20th September 2020. With the assent of President of India, these three bills become Acts of Parliament on 27th September 2020, in which the “Farmers (Empowerment and Protection) Agreement of Price Assurance, Farm Services Act, 2020” is known as the Union Contract Farming Act 2020. After the long farmer protests and agitation against these three Acts, on 19th November 2021, the Prime Minister of India announced the withdrawal of the three Farm Laws, including the Union Contract Farming Act 2020. These three Acts were designed to

². Contract farming is an agriculture or farming agreement between producers or farmers and buyer firms in which the terms of the arrangements are often pre-determined (Grosh, 1994; Singh, 2002).

liberalise and deregulate agriculture markets in India. In particular, the Union Contract Farming Act 2020 received criticism from different stakeholders, and they have raised concerns about the lack of efficiency in protecting the interests of small and marginal farmers (see Barik, 2021; Chatterjee, 2021; Swain, 2020; Saha et al., 2021; Nair et al., 2022; Singh, 2022; Shakeel et al., 2023).

Critics argue that it would have facilitated corporate interests, leading smallholders to lose power over production and farming decisions to the hands of big corporations. However, the critics neglected the issues of CF and corporate exploitations that farmers face from the existing practices, which could be controlled to some extent if the new Act had been appropriately implemented. The recent farmer protests and debates on CF have motivated me to design this study to examine the consequences of CF practice from the perspective of smallholder farmers. I undertook this study to examine CF through the lens of structural conditions of power asymmetries among different actors involved in farming practices.

1.2 Introduction

Contract farming in developing countries is presented in light of market failure and is seen as an alternative way to connect smallholders to markets (export), ultimately improving welfare. However, several studies have shown mixed outcomes at the farm level. Although it often enables farmers to access domestic and international markets, it challenges the idea that it is an unambiguous solution to improve welfare. Additionally, it can lead to over-exploitation, power imbalances, and loss of control on agricultural land, labour, and production to corporations (e.g., Little & Watts, 1994; Meemken & Bellemare, 2019; Singh, 2002; Vicol et al., 2022; Wangh et al., 2014).

Empirical studies on CF in India primarily focus on production, income, and employment opportunities. One category of studies adopts quantitative research methods to evaluate the impact of CF on these aspects. These studies often oversimplify CF by portraying it as a remedy for market failure and highlighting positive impacts at the farm level.³ These group of scholars evaluate CF by drawing a “win-win” narrative situation for both parties. CF is seen as a strategy to address the risks and uncertainties

³. For example, see these studies (Dileep et al., 2002; BIRTHAL et al., 2005; Tripathi et al., 2005; Singh and Meena, 2012; Narayanan, 2014; Pandit et al., 2015; Sharma, 2016; Mishra et al., 2018; Kar et al., 2020; Yadav et al., 2020; Kumar et al., 2023).

associated with agricultural production, including price, income, and access to international markets, particularly for high-value crops. In contrast, some other scholars, raise concerns about unequal power relations, leading to corporate exploitation, gender issues, environmental degradation, and other relevant matters.⁴

Contract farming is in practice in many states in India, and despite renewed policy debates and comprehensive empirical studies, how it affects or is affected by *social relations of production* is overlooked. Even after the resurgence of policy discussions, and extensive empirical research over the last two decades, little is known about how CF influences, or is influenced by social relations of production. Understanding how CF affects the relationship between smallholder farmers, intermediaries, and companies in the rural economy is crucial. Particularly in India where social discrimination persists regarding access to resources, like means of production, capital, employment, and social capital. This can impact who becomes an intermediary, and who participates in CF. These persistent inequalities within the rural economy, make it crucial, to examine the role of CF in shaping these interactions and agrarian relations. Moreover, despite renewed policy and academic debates on CF in India, the *fairness of contracts*, and the transparency of advance agreements or arrangements, have not received much attention in critical agrarian studies. Although there is a discussion about the exploitation and control over production and farming decision in CF, however there is no theoretical framework to comprehensively measure the unfairness in such an arrangement. Furthermore, an investigation into the deficient *legal framework* governing CF, through which corporate firms interface with small and marginal farmers⁵, is essential.

Against this backdrop, this thesis presents empirical evidence and a theoretical explanation of power relations, exploitation, and the fairness aspects of CF arrangements. This study explores the position of smallholder farmers, in their interactions with intermediaries and corporate firms. The present study is situated within the contextual framework of potato CF in West Bengal, India, where small and marginal

⁴ For example, see these studies (Singh, 2002, 2003, 2012; Narayanan, 2014; Shrimali, 2016; Vicol, 2015, 2017, 2019; Mitra and Rao, 2021; Kaur et al., 2022).

⁵ The Agricultural Census of India defines holdings 1-2 hectares as smallholders and less than 1 hectare as marginal holders.

farmers dominate. The study focuses on the dynamics of CF, within the purview of a prominent agribusiness entity, i.e., PepsiCo. This examination considers the imbalanced power dynamics, wherein smallholder farmers may be susceptible to corporate exploitation and the dangers of monopsony power. The prevailing microeconomic studies in India examined the effects of CF on production, income, and employment, but the impacts on small-scale farming were relatively neglected. By gathering empirical evidence, this thesis intends to shed light on the implications and benefits of CF for small and marginal farmers in the context of potato cultivation.

The thesis consists of seven chapters, each analysis chapter addressing a specific research question.

Chapter 1: Introduction and Literature Review

Following the setting of the scene and introduction, the forthcoming section presents a systematic literature review consisting of theories of CF and different types of models and critically examines the previous studies in particular to India. So, I have divided the literature review into four sections, the first section (see 1.3.1) discusses the major theories, terms and conditions of contract and practising models in India. The neoclassical theories present contract farming against market failure and reduce transaction costs for firms. The model of practice in India indicates that CF primarily operates through an intermediary-led approach. In this model, agribusiness firms engage with farmers through middlemen. However, previous studies have mentioned the presence of intermediaries without addressing their socio-economic identities and roles within contract arrangements. So, in the next section (see 1.3.2), I developed a Composite Conceptual Framework (CCF), compiling three different theories and guidelines to measure the fairness in such arrangements where small farmers may face controls from intermediaries and influential firms. The following section (see 1.3.3) discusses the CF value chain and highlights the gaps in understanding the position of small farmers in such unequal power relations. The final section (see 1.3.4) highlights the previous studies that present CF benefit farmers with better production and income. However, the impact on small farmers did not receive sufficient attention. So, in next section I have highlights the research gaps (see 1.3.5) and presents the statement of the problem for the present study (see 1.4). The final part of this chapter discuss the major objectives and research questions (see 1.5).

Chapter 2: Research Methodology and Study Location

This chapter introduces the study area and the selection of districts, blocks, and villages. It discusses the reasons behind the selection of the study districts, considering the concentration of potato cultivation, landholding size, agroecological factors and socio-economic criteria. Before that, I highlighted why this study chose West Bengal as a case. The political economy and scale of production have significantly motivated the selection of the state for the present study. The following section briefly discusses the research methods, tools and techniques, and details of the sample population.

Chapter 3: Contract Farming Model, Social Relations of Production and Power Dynamics

This chapter addressed the first objective and two research questions in it. The first section (see 3.2) of the chapter discusses the CF framework/model, explains the scale of the business, and identifies the actors involved. In this chapter, I presented the CF model and the position of smallholder farmers within the model in interaction with the intermediaries and PepsiCo. I have highlighted how PepsiCo initially started CF in the study villages through the cooperative society later they shifted to private parties to reduce the transaction costs and secure the supply of quality raw materials on time for their plant. This enables PepsiCo to transfer the capital risk intermediaries they invest in the business and production risks to farmers through providing secure fixed prices and commissions. The following section (see 3.3) discusses the social relation of production and the role of intermediaries in the farming process. This chapter examines the factors that favour a particular group to become an intermediary and examines their power relation with PepsiCo and farmers. Moreover, it examines how social relations of productions affect the CF practice and power dynamics. The social dominance of the upper caste over the rural economy significantly influenced the emergence of new actors in CF practice in the process of agricultural corporations and commodity exchange.

Chapter 4: Impact of Contract Farming on Production and Income: Comparison Between Contract and Non-Contract Potato Farming

First section (see 4.2) of this chapter compares CF and NCF households in terms of demography, social characterises, assets and access to credit markers. I found relatively small and marginal farmers, primarily from the socially disadvantaged caste, such as OBC and Schedule castes, prefer to cultivate

under CF. The second part of the chapter (see 4.3) presents the distribution of production costs and farm returns for the season 2021-22. The results suggest that CF returned less than NCF for the season 2021-22 to potato farmers. I have highlighted the limitation of the fixed price that caused a lower return for CF and asked for compensation to benefit farmers in such production loss and open market price movement situations.

Chapter 5: Contract Farming Value Chain and Fairness of Arrangement

The first part (see 5.2) of the chapter presents the CF value chain. It explains how it helps contract farmers access markets and the challenges they face throughout the process. I highlighted although CF helps farmers access inputs, extension and market (price), the value chain remains an unequal power hierarchy where farmers' voices are not considered. The following section (see 5.4) discusses the various forms of unfairness that farmers face during cultivation by PepsiCo and intermediaries. The evidence suggests that although the CF has improved to some extent in the value chain of cultivating high-value crops, the arrangements are still not fair enough. Many of the unfair acts from PepsiCo and intermediaries become faceable due to the absence of the contract specification or legal arrangement.

Chapter 6: Contract Farming Policy and Future Debates in India

Following the unfairness in CF practice, which became easy for PepsiCo and intermediaries, as I stated in the previous chapter, due to the absence of a legal framework or contract specifications. So, in this chapter, I critically discuss the policies progress and major policies regarding CF first (see 6.2 to 6.4). The policy analysis suggests that currently, there is no dedicated central agency or legal framework regarding CF in India as well as in West Bengal. I argue when corporations are allowed to engage in agriculture and, importantly, with small and marginal farmers, there should be certain rules or contract mechanisms to protect small farmers from exploitation. I provide recommendations based on the field evidence, that future policy focus may consider, to protect smallholder interests from corporate exploitations.

Chapter 7: Summary and Conclusion

The concluding chapter summarises the thesis, highlights the significant contribution to the existing literature, and acknowledges the limitations.

1.3 Literature Review

In the past few decades, there has been a growing trend of increased adoption of CF in developing countries. However, the foundational principles of CF vary between developed and developing countries, because the latter groups of countries are inescapably linked to smallholder farmers' welfare. Such a distinction poses significant considerations for governments, particularly in developing countries, as they grapple with decisions on endorsing, regulating, hindering, or maintaining the current state of CF development. The global perspective suggests several reasons for the progress of CF in developing countries. In Asia and Latin America, the expansion of markets in food retailing, which demands quality, time, and a steady supply of produce, has contributed to a growing CF practice (Feigenbaum et al., 2002; Singh, 2006). Some others argue that CF has expanded with the growing cultivation of high-value crops such as fruits and vegetables in developing countries (e.g., Fischer & Qaim, 2012; Oya, 2012; Poole et al., 2003; Reardon et al., 2003; Trebbin, 2014). Further, the limited role of the state, and the withdrawal of state control, in support of inputs, marketing, and other farmer services encouraged the expansion of CF (Key & Runsten, 1999).

Research conducted in developing countries indicates that CF has a positive impact on the well-being of smallholder farmers by increasing their production and income (e.g., Erappa, 2006; Gill & Gill, 1990; Glover & Kusterer, 1990; Mishra et al., 2016; Narayanan, 2014; Rao & Qaim, 2011) and reducing poverty (e.g., Bellemare & Bloem, 2018; Kirsten, 2002). This practice has garnered academic attention for many years, leading to extensive empirical research, that spans various disciplines and ideological viewpoints. This thesis conducted a systematic literature review to develop a comprehensive understanding of the theoretical, conceptual, and empirical aspects of CF. The review involved searching for relevant literature using several keywords, including 'contract', 'contract farming', 'contract farming theories', 'contract farming model', 'contract farming impacts', 'smallholder', 'contract farming in India.' These searches were conducted across various sources, such as Scopus, Web of Science, JSTOR, and Google Scholar. The final selection of papers, books, news articles, and government reports was made through manual screening, which involved reviewing the titles and abstracts.

I briefly discuss some facts about CF from the existing literature in different sections. The first part (1.3.1) is titled '*Contract Farming Theory: Major Terms and Conditions and Model in Practice*'. This part discusses some relevant theories that explain CF development and structure. Also, I highlight the significant terms and conditions associated with contract arrangement. Finally, some previous studies that present the CF model and the participation of different actors are reviewed to understand the types of farmer engagement in India across states and commodities. The complexity of contract terms and conditions varies depending on the nature of the crops, the actors involved, and the capabilities of the firms. From this section, we understand that CF in India is primarily practiced through *intermediaries*, and the terms and conditions of such contract arrangements are most often *oral agreements*.

Since CF in India is primarily practiced as an oral agreement, the following section focuses on how to examine the fairness and transparency of such oral arrangements. In this section, I developed the concept of *fairness* in CF and value chain arrangements, reviewing theories and concepts. Further, different actors are involved in CF, and smallholder farmers are exposed to powerful actors; therefore, this section provides a theoretical understanding of power relations and measure of fairness. So, the second part is (1.3.2), '*Fairness of contract: Composite Conceptual Framework*', discusses the concepts from different theories and guidelines to conceptualise the idea of fairness in CF and to identify the unfairness and transparency of such relations. This helped me develop a CCF that explains the different types of unfair acts in the CF arrangement in the study villages.

The proponents argue that CF links small farmers to markets in the cultivation of high-value crops. Therefore, developing countries promoted CF to link smallholder farmers to the market (export) and improve access to inputs and output support for the cultivation of high-value crops. Against this backdrop, the following part (1.3.3), '*Contract farming value chain and farm supports*,' highlights the issues that smallholders face in the cultivation of higher-value crops and how the CF value chains help to overcome some of those issues. Focus has been given to critically reviewing literature from developing countries to know if CF connects small farmers to the modern value chain.

The final part of the literature review is titled (1.3.4), '*Previous studies on contract farming in India*,' This part critically reviews previous studies from India to understand the impact of CF on production

and income. This section reviews studies that focus on CF practice across varied commodities from different states in India.

1.3.1 Contract Farming Theory: Major Terms and Conditions and Models in Practice

The benefit of CF has been a subject of interest and controversy since the 1970s, particularly in developing and transitioning economies (Miyata et al., 2009). The debates on CF are often ideological, which leads to overly simplified narratives of "win-win" or "win-lose" (Vicol, 2017, p, 157). Several theoretical and ideological perspectives persist in the discussion of CF, which often polarised the real stories and overly simplified the narratives. By the early 1990s, Glover and Kusterer (1990: p, 11-12) classified academic studies into three groups or schools based on methodology and ideological stand in the analysis of CF. (i) The first is project evaluations done by development practitioners. (ii) The second group of studies, termed the 'Food First' approach, is highly critical of agribusiness for diverting resources from staple food to cash crop production and exerting monopoly power over peasant producers. (iii) The third school of thought, termed the business school approach, tends to examine agribusiness in terms of the challenges it presents to firms and the concerns for grower welfare. Later, the political economy and critical agrarian groups emerged, as can be seen in notable works by Little and Watts (1994), Daviron and Gibbon (2002), and Singh (2002). Although leading studies, including those from the early 2000s in India, view CF, as an alternative institutional arrangement beneficial for small firms against market failures, I will address this in more detail later.

In the late 1990s and the early 2000s, CF emerged in many developing countries. Scholars have documented both successful and unsuccessful cases of CF. I summarise various studies across different ideological and methodological perspectives in this section. Smalley (2013: p, 3) argues that since the 1990s, the debate surrounding CF has been influenced by perspectives from New Institutional Economics (NIE), typically reaching more optimistic conclusions. However, the debate on CF has evolved over time, and it is challenging to distinguish different approaches based on timelines.

Some scholars argue that CF contributes to agricultural development and the welfare of smallholder farmers in developing countries. From the perspective of agricultural microeconomics, the proponents

argue that CF, positively influences production, income, access to inputs and output markets, resource allocation, risk management, and the overall economic outcomes of individual farmers. Further, CF works as a response to market imperfections and provides easy access to credit, insurance, and information over production and markets (Bijman, 2008; Key & Rusten, 1999; Birtal et al., 2005; Joshi & Gulati, 2014). Further, it reduces risk management (Key & Rusten, 1999) associated with price volatility and market access by securing guaranteed price (Bellemare, 2012; Eaton & Shepherd, 2001; Joshi et al., 2004; Prowse, 2012; Singh, 2002) and positive income (Bellemare, 2012; Bellemare & Bloem, 2018; Miyata et al., 2009; Rao & Qaim, 2011; Reardon et al., 2009), ultimately reducing income uncertainty and making more stable investment decisions. From the point of view of the profitability of the firms, CF reduces transaction costs (North, 1990; Williamson, 2008) and improves resource allocation (Glover & Kusterer, 1990; Minot & Sawyer, 2016), thereby refining production efficiency (Barrett et al., 2012) and farm profitability (Kumar et al., 2016; Minten et al., 2009).

The Global Value Chain (GVC) perspective on CF examines how agricultural production is integrated into global markets and how value is added at different stages of the production process. This approach focuses on the roles of different actors, governance structures, and the distribution of benefits within the chain, from small-scale farmers to multinational corporations. This is seen as a mechanism for integrating small farmers into the market and access to inputs and new technology, leading to better production and income. Agribusinesses often govern the chain by setting production standards, prices, and delivery schedules, which can influence the outcomes for farmers. (Gereffi et al., 2005). The GVC analysis examines the governance structures within value chains, identifying how power and control are distributed among different actors (Ponte & Ewert, 2009). CF can provide opportunities to farmers for expanding their activities into higher-value activities within the chain, such as processing and marketing. This can enhance their incomes and capabilities but require finance, training and supportive policies (Humphrey & Schmitz, 2002). Furthermore, to access quality and premium markets, farmers often need to comply with complex and cash-intensive procedures (Reardon et al., 2009). Farmers engaged in CF are exposed to challenges and risks, including dependency on single buyers, exposure to global market volatility, and the potential for unequal power dynamics (Gibbon & Ponte, 2005).

Some scholars, from a Marxist political economy perspective, critically analyse CF within the broader context of capitalist relations of production. They explain how CF fits into capitalist modes of production, dynamics of corporate exploitation, with implications for rural labour and social relations (Little & Watts, 1994; Glover, 1990; McMaicheal, 2013; Oya, 2012). Vicol et al. (2021) argue that the publication of 'Living Under Contract: Contract Farming and Agrarian Transformation in Sub-Saharan Africa' by Peter Little and Michael Watts (1994) marked a seminal moment in critical studies on CF in the developing world.

Contract farming involves the extraction of surplus value from farmers through unequal exchange relations, and the control of the production process by agribusiness (McMichael, 1994). Farmers become dependent on agribusiness, reinforcing unequal exchange relations, where farmers receive lower prices for their produce than the value-added further downstream in the value chain (Glover & Kusterer, 1990; Grossman, 1998). Agribusiness firms, extract surplus value from farmers, by setting prices, and implementing other contractual terms and conditions, that favour capital accumulation (Clapp, 1994; Veldwisch, 2015; White & Wijaya, 2022).

Contract farming consolidates market control in the hands of large agribusinesses, often leading to monopolistic practices that dictate terms and prices to farmers. Such control, limits farmers' ability to negotiate fair terms and prices for their produce (Bernstein, 2016; Prowse, 2012), creating a divide between capitalist farmers who benefit from contract arrangements and proletarianised smallholders. This differentiation is exacerbated by unequal resource access, market power, and income inequality (Singh, 2002).

The political economy approach highlights asymmetry in relationships between the agribusinesses and farmers. The agribusinesses wield significant power, dictating terms, prices, and production methods (Little & Watts, 1994; Singh, 2002). However, effective regulation and support can mitigate some of the negative impacts and ensure more equitable benefits (Barrett et al., 2012). CF schemes often give buyers, aggregators, and processors significant indirect control over land use. This can affect the autonomy and independence of smallholder farmers, who are the direct producers of agricultural commodities (Vicol, 2018; Vicol & Nino, 2023).

Within the broader land-grabbing debates, CF is argued to serve as an alternative that allows corporate control over land, labour and resources without dispossession of the owner (Hall, 2011; Vermeulen & Cotula, 2010; White et al., 2012). Moreover, CF has brought into focus gender-related issues (Navarra, 2019; Shaffril et al., 2010) and environmental degradation through the exploitation of natural resources and the overuse of chemicals, fertilisers and pesticides (Anand, 2021; Morvaridi, 1995; Mitra & Rao, 2021).

There is an extensive literature on the political economy frame of food regimes that warrants attention in this context. CF is deeply embedded in the corporate-controlled *third food regime* theory that integrates food supply chains prioritising efficiency and profits. There is a large and growing literature that highlights the complex interplay of power dynamics in the frame of food regimes. It is long argued that national agricultural production and policies, are closely linked to their geopolitical and economic interacts. This is particularly applicable to nations influenced by colonial and post-colonial dynamics (Friedman & McMichael, 1989). Calling the division between advanced capitalist economies and peripheral economies as outdated and inaccurate, Friedman and McMichael have argued that transnational capital movements have challenged the viability of national economies to regulate and balance their agricultural and industrial sectors independently. Using the concept of “food regimes” they explain shifts in international relations of food production and consumption since the broader economic transformations since 1870. McMichael (2009) highlights three food regimes: (1) First food regime (1870-1930s) involving colonial and settler colonial patterns emphasizing cheap food to support industrial growth in Europe. (2) Second food regime (1950s-70s) being United States led distribution of food grains during the Cold War period to foster market relations. India was a significant recipient of food aid during this period. (3) Third food regime (late 1980s onwards) which started experiencing dominance of transnational corporations, along with the emerging global issues of food security and environmental sustainability. With the increasing complexities of interactions between food regimes and global capitalist dynamics, a need for updated analytical frameworks was highlighted as a major area of future work.

Bernstein (2016) proposed the Corporate food regime within the scope of the third food regime, highlighting transformations within the neoliberal globalisation framework. In critically engaging with the food regime theory, Bernstein discusses the “peasant turn” emphasising the role of peasant and smallholders in sustaining the corporate food regime. There are, however, empirical challenges in defining and substantiating the claims of a new and distinct corporate food regime. Bernstein's analysis of the “peasant turn” is both a critique of contemporary trends in agrarian political economy and an acknowledgement of integrating the experiences of peasants in the broader analysis of food systems. The peasants in this context, are not merely victims of global processes but key actors in resisting and shaping these processes.

There is also a significant global North-South agenda in the context of agribusiness firms and food production systems, reflecting disparities in power, resources, and economic interests between developed and developing regions. For example, Guatemala experienced a significant growth in the oil palm industry driven by the global demand for biodiesel and vegetable oil. At the national level, however, the expansion was fueled by local elite interests with international financial support aligned with State policies promoting free trade and private investments (Pietilainen and Otero, 2019). The Guatemalan State played a critical role in promoting corporate interests through “nonregulation” at the expense of smallholder and indigenous farmers. Deregulation, privatisation, and reduction in state intervention are the broad measures aligning neoliberal agenda that ultimately supports corporate interests. The scholars argue that such unregulated progress of corporate interests in Guatemala’s oil palm industry led to increased poverty, landlessness, and food insecurity among rural populations. Over time, local communities have increasingly resisted corporate encroachments on their lands, striving to protect their way of life and giving rise to a food sovereignty movement (Pietilainen and Otero, 2019).

China has similarly taken recourse to international agribusiness investments to overcome domestic agricultural resource shortages (Lin, 2023a). For example, Chinese state-owned enterprises acquired companies like COFCO and ChemChina to position them as the world’s leading food traders and agrochemical corporations. The Chinese agribusiness strategy has been to integrate their state-owned agribusiness enterprises into the global soybean commodity chain through strategic acquisitions and

investments in Latin America and Southeast Asia. Lin (2023a) comprehensively examines how by the processes of liberalisation, technologicalisation, securitisation, and accumulation processes, China's actions are altering the structure of the global food regime. Significant portions of the soybean market have shifted from the traditional powers in Global North to Chinese control.⁶ Lin (2023c) also highlight ChemChina (China National Chemical Corporation) and Shenghong Holding Group to illustrate the growing influence of Asia-Pacific corporations. Such developments have reshaped the food sovereignty movement by altering the traditional North-South dynamics.

India's engagement with corporate farming began in the early 2000s, with more prominent discussions over the past decade. Although India opened up its economy in 1991, large-scale corporate farming started gaining traction much later, when the government sought to integrate modern technology and improve agricultural productivity. For example, Special Economic Zones were formally introduced in India as recently as 2005, allowing for more corporate investment in various areas, including agriculture. These zones provided incentives for corporate entities to invest in large-scale farming operations, although the focus was more on manufacturing and services (e.g., Aggarwal, 2006; Palit and Bhattacharjee, 2008; Mukherjee, 2009; Jenkins, Kennedy, and Mukhopadhyay, 2014). However, the Indian position in the context of food regimes theory is not straightforward. Food security is a major political issue in India due to its large population. India has been active in negotiating trade agreements that affect its agricultural sector, especially on issues like agricultural subsidies. There are also strong movement towards food sovereignty, with numerous grassroots organisations advocating for the rights of farmers and opposing the corporatization of agriculture. India has not been at the forefront of the new wave of regionalism driven by countries in the Asia-Pacific, but it is actively engaged in shaping its trade policies to protect its agricultural interests and food security concerns. Constitutionally, agriculture in India is listed as a state subject, meaning that the Indian states have significant power to

⁶ Lin (2023b) explains third regionalism as a framework shaping trade and economic policies in the Asia-Pacific region. Taiwan engaged in third regionalism through participation in various free trade agreements and economic partnerships. A food sovereignty movement emerged as a response to the changes brought by third regionalism. The Taiwan Rural Front (TRF) joined and promoted the global food sovereignty movement spearheaded by La Via Campesina. Taiwan's experience is unique as it is a state-guided corporate food regime and differs from the corporate-dominated models seen in other regions.

influence agriculture policies. Thus, India's approach involved both integration into and cautious engagement with global food regimes.

1.3.1.1 Contract Farming Theories

The benefit of CF has garnered significant attention and considerable debate, particularly within the context of developing and transitioning economies (Morrisey, 1974; Miyata et al., 2009). Proponents of CF argue that it serves as a mechanism for integrating smallholder farmers into commercial agricultural markets, thereby fostering income growth and poverty alleviation. CF operates as a form of vertical coordination, wherein processors establish contractual relationships with growers, to produce agricultural commodities (Bijman, 2008). Such arrangements often yield mutual benefits by mitigating transaction costs (Grosh, 1994; Key & Runsten, 1999), providing partial insurance against market failures, and reducing income variability (Bellemare et al., 2021; Grosh, 1994).

The corporate farming practice varies based on the crops, contracting agency, technology, and local and national context (Singh, 2005). Several theoretical frameworks have been proposed to elucidate the structural dynamics of CF, developmental trajectories, and operational modalities. In this regard, this section explores the Transaction Costs Theory, Principal Agent Theory, and Social Capital Theory, as particularly pertinent, for elucidating the development and functioning of the potato CF value chain.

Principal Agent Theory

Under the framework of New Institutional Economics (NIE), principal agent theory emerged during the 1970s (Irmer, 2001; Moe, 1984; Miller, 1992; Picot et al., 1999; Williamson, 1975; 1985). The principal agent relationship often arises, when one individual or group, known as the 'agent', represents another person or group, referred to as the 'principal'. These studies examined service relationships, as client-contractor dynamics, as principal agent relationships, taking into account information asymmetry and varying degrees of risk aversion (Cheon et al., 1995; Ebers & Gotsch, 2006; Picot et al., 1999; Rehber, 2007). In an agency relationship, the agent (e.g., farmer) is expected to work in accordance with the instructions of the principal (e.g., leaders, wholesalers, etc.).

The principal actor may dispose of resources, but they may not have adequate skills; in such cases, they contract with the agent who has appropriate skills to meet the needs of the principal (Coleman, 1990, p. 146). This helps to reduce transaction costs and smoothly run resource exchanges. We can explain it in a farming context; for example, a specific agribusiness firm needs a steady and timely supply of quality raw materials to maintain the demand for its products and quality standards. However, the agribusiness firm does not have land to cultivate specific crops, cannot get specific crops from the open market, and cannot reach numerous smallholder farmers for such specific crops. In such conditions, they would hire someone from the farming community who has better control over the farming community, or is located in the farming setting, and has some management skills to work as an agent of the firm on some commission. This will eventually reduce transaction costs of dealing with many farmers and help maintain the quality and timely supply of raw materials for firms. However, in such arrangements, two collective action problems may emerge: moral hazard and adverse selection, leading to cheating, stealing and maximisation of self-welfare by those agents (Williamson, 1985, p. 47).

Transaction Cost Theory

Contract farming in developing countries has been explained mainly through the aspects of transaction costs theory. According to the prevalent understanding of transaction cost economics, CF represents a form of vertical coordination, combining the advantages of vertical integration and spot market transactions (Valentinov et al., 2024). Transaction costs lead to market failure, by reducing exchange and innovation, and increasing poverty. Higher transaction costs are evident in imperfect markets such as developing country agricultural markets (Williamson, 1979). Transaction costs include the costs of finding a market, negotiating, enforcing contracts, and all lost opportunities (Coase, 1988; Williamson, 1985). Firms are established to reduce transaction costs. If it becomes more expensive for them to purchase inputs from external sources, they may choose to vertically integrate into the production of those inputs, thereby lowering transaction costs (Coase, 1988).

In a transaction, one party is often more potent than another in terms of information or resources. For example, often, the buyer has better information about the market, while the producer has better

information on the quality of produce. Bijman (2008) explains that the more incomplete the information and the greater the information asymmetry, the higher the transaction costs. This is because transaction partners will need to spend resources on addressing the information gaps. CF can be understood from the perspective of transaction costs, a key component of NIE (Meshesha, 2011). By establishing a mutual pre-agreed contract on production and marketing, CF can reduce transaction costs for both parties involved (Bijman, 2008). For farmers, CF can lower cultivation costs by providing inputs and promoting efficient production methods.

Social Capital Theory

Social capital theory has gained widespread attention, particularly in the context of rural development, and highlights the importance of social connections and networking. The theory suggests that networks formed through social relationships create mutual value, trust, and obligation through the exchange of valuable resources between collaborating parties or organisations (Abbasi et al., 2021; Blois, 2002; Huo et al., 2016; Ostrom, 2000; Sezen Yilmaz, 2007). According to Lin (2002, p. 3), capital is the "investment of resources with expected returns in the marketplace." When individuals establish social relationships, they can capture resources and benefits from these connections. This process involves a set of mechanisms and processes that allow individuals to invest in and leverage their social capital. Social capital can be understood by examining how these mechanisms and processes bridge the gap between macro-level social structures and individual actions (ibid).

The ability of cultural capital in agriculture, to generate social capital, relies on their social status within the farming community, which is key to understanding farmers' decisions (Burton et al., 2008; Sutherland & Burton, 2011). Therefore, the central position of social capital is that 'relationships matter', and social networks are valuable assets for individuals (Clairidge, 2018). In developing countries, particularly India, CF is primarily oral/verbal without legal or written agreement (see Mishra et al., 2018; Narayanan, 2014; Swain, 2012; Sharma, 2016). Narayanan (2012) argues that CF in India is seen more as a relationship, and less as a contract, with minimum formal enforcement mechanisms. Moreover, agriculture needs to be seen as relational (Borras, 2009), as it has different practices specific

to different social and historical conditions (Harriss, 1992). In this context, it would be interesting to see how social capital works in unequal power relations, where smallholders are expected to compete with industrial capital and intermediaries.

1.3.1.2 Major Terms and Conditions in Contract Farming

Form of Contract

The contractual agreement may manifest either in written or oral form. A written agreement encompasses all terms, conditions, and commitments, providing the added advantage of legal recourse, if any party contravenes the agreement's stipulations. Typically, such agreements are executed between sponsors and farmers, though tripartite or multipartite agreements may involve additional parties (Kumar et al., 2020; Singh, 2006). In cases involving intermediary contracts, sponsors engage with intermediaries, who coordinate arrangements with a considerable number of farmers (Eaton & Shepherd, 2001). Contract agreement in developing countries, particularly India, contract farming agreements are often practiced as oral agreements (see Barik, 2021; Chakraborty, 2009; Dev & Rao, 2005; Kumar et al., 2013; Mishra et al., 2016; Narayanan, 2012, 2014; Singh, 2002; 2005; Swain, 2012). The sponsoring and dominant groups often violate such oral agreements.

Types of Contracts

Diverse criteria, including crop nature, demand and supply, quality, payment methods, and control over processing, influence the categorisation of contract types. Contract durations range from *short-term* or *seasonal agreements*, suitable for vegetables and fruits, to *long-term* investments involving crops like oil palm, tea, or sugar. Contracts may facilitate access to local or international markets, necessitating sponsors to explain terms and conditions comprehensively. Compliance with basic contract laws, whether oral or written, is obligatory for sponsors, with local practices impacting agreements in non-compliance with national laws. Informal registration practices are prevalent in many developing countries (McGregor & Eaton, 1989). Legal actions may be pursued by sponsoring companies against farmers violating contractual terms. However, such actions may threaten the collaborative partnership between farmers and firms, emphasising the importance of fidelity to the contract.

Specification in the Contract

Specifications in contracts include market specifications, resource specifications, management and income specifications, and land ownership and tenure specifications. Market specifications, often employed by individual developers, involve pre-harvest agreements crucial to farmers' production decisions. Contracts confer decision rights on farm assets and activities to farmers. Resource specifications outline the inputs provided by firms/processors, including credits recoverable upon product delivery. Management and income specifications, prevalent in multipartite, centralised, and nucleus estate models, delegate weighty decision rights to sponsors, who oversee production processes and assume most marketing risks. Land ownership and tenure specifications extend beyond management and income models, incorporating additional considerations such as land leasing by sponsor companies or government institutions. These specifications may also include stipulations on allowable crops near the contracted crop to mitigate disease risks (Eaton & Shepherd, 2001).

Contract Elements

Contracts necessitate specifications on aspects like contract duration and quality standards. Contract duration varies based on crop nature, with seasonal contracts for short-term crops and long-term contracts for crops like tea, coffee, sugarcane, and cocoa. Quality standards are critical for market acceptance, and are specified in contracts, detailing crop size and weight criteria. Market characteristics, including seasonal fluctuations and market competition, influence contract pricing structures. Various pricing methods include fixed prices, flexible prices, prices calculated on spot-market values, prices on a consignment basis, and split pricing. Each method has complexities and implications for farmers and sponsors, requiring a nuanced understanding of market dynamics and product quality.

Given the inherent risks in agriculture, insurance coverage for contract crops is imperative. Risks may arise from natural conditions, poor management, or market failures, necessitating suitable insurance strategies. Four types of crop insurance are classified based on their comprehensiveness in covering risks: Acts of God, destruction of specified assets, loan default prevention, and production and income loss. The implementation of the CF system varies based on crop nature, objectives, sponsor firm

resources, and farmer experience, with flexibility in contracting various products through different models (Eaton & Shepherd, 2001).

1.3.1.3 Contract Farming Model: Models Practiced in India

The primary prerequisite for any investment in CF is its anticipated profitability. Contracting firms tend to prefer markets that offer a promising and favourable environment, encompassing agro-ecological and political factors. The CF has been classified broadly into five models depending on the product, the resources of the contracting company and the intensity of the relationship between farmers and firms. Eaton and Shepherd (2001) classified CF into five models: *Centralised, Nucleus estate, Multi-party, Informal, and Intermediary led models*.

Centralised Model

This model is often called an outgrowing scheme with limited government involvement (Rehber, 2007). In this model, a large firm, typically a prominent processor, establishes contracts with numerous farmers, imposing stringent requirements regarding both quantity and quality (Prowse, 2012). It is common for a single company to engage with thousands of small-scale farmers. This model is commonly observed in cultivating tree crops such as coffee, tea, cocoa, rubber, cotton, sugarcane, and bananas. However, contracting firms have no specific requirement to provide inputs and extension services. The provision of input support may vary among companies (Eaton & Shepherd, 2001).

Nucleus Estate Model

State development agencies and private or public plantations frequently organise CF of this nature. The contracting firm can adopt a CF approach either by utilising an estate, or plantation, or by directly engaging with individual producers, as noted by Prowse (2012). Furthermore, alongside the contract farmers, these firms may establish a central firm unit (Rehber, (2007). Such estates are commonly associated with resettlement or transmigration schemes in Indonesia and Papua New Guinea, particularly for cultivating crops like oil palm and other agricultural commodities (Eaton & Shepherd, 2001).

Multipartite Model

This type of CF practice involves a combination of state development agencies, state marketing authorities, the private corporate sector, landowners, and farmer cooperatives. The government, an NGO, or a private firm actively participates in this model (Rehber, 2007). This model is a joint venture between a public entity and a private firm contract with farmers. The government often controls power and may work as an adviser agency (Prowse, 2012). Sometimes, other parties, like insurance companies or extension providers, can also participate in this model (Eaton & Shepherd, 2001). Contracting firms often employ this CF model primarily for perishable crops such as fruits, vegetables, and dairy.

Intermediary Model

Some intermediaries, like collectors or farmer organisations, play a role between farmers and industry (Rehber, 2007). This model is quite popular in Thailand and Indonesia (Prowse, 2012). For example, food processing companies and fresh vegetable entrepreneurs in Thailand purchase crops from individual collectors or farmers' committees, which have informal arrangements with the producer (Eaton & Shepherd, 2001). The intermediary model is often suitable in collaboration with many small farmers, which reduces transaction costs.

Informal Model

Mostly, individual entrepreneurs or small companies involved in informal production contracts, usually on a seasonal basis, arrange this type of contract. They often require government services, e.g., research and extension. This arrangement involves more significant risks of extra-contractual marketing (Eaton & Shepherd, 2001). In developing countries, contract practice is more informal. Further, Singh (2004, 2005) mentioned bi-partite, tri-partite, state-lead, quad-parties, and six-party models based on the involvement of the stakeholders in the CF practice. Following the contract terms and conditions suggested model in CF, it is apparent that the engagement framework and the diversification of contractual arrangements hinge upon the nature of the crops, the capacity of corporate entities to provide requisite inputs, and the extent of institutional backing furnished by the government.

Following the five models of CF that were classified by Eaton & Shepherd (2001), it has been observed that there are several types of practices and actors involved in CF in India across states (see **Table 1**). A comprehensive examination of CF practices in the country reveals a wide array of engagement approaches. These approaches include direct engagement with farmers or involvement through intermediaries. Additionally, there are variations in the types of agreements, including written or oral contracts, and the types of input support provided. Nevertheless, a common characteristic observed across all these models is that firms or corporations connect with farmers or growers through *intermediaries* or other relevant entities. Regarding pricing arrangements, it is common for farmers to receive *fixed, pre-determined prices*.

Several scholarly investigations have highlighted the participation of intermediaries within the context of CF in India. However, a significant gap persists in the understanding of their precise roles, relative bargaining power dynamics, and the corresponding positions of farmers involved in such arrangements. With the evolving dynamics of agricultural relations, where corporations oversee farming and production through intermediaries, it is crucial to examine the identities and socioeconomic backgrounds of these intermediaries critically. However, such analysis is currently lacking.

Table 1 Model of Contract Farming Practice in India

Author(s) & Year	State	Firms & crops	Model	Function/engagement of contract
Singh, 2000; Singh, 2004	Punjab	Mahindra Shubh Labh Services Limited (MSSL) Maize and basmati paddy	Multi-party Model	This model includes retailers, agri input companies, logistic companies, farm equipment companies, food companies, agri finance corporations, and banks beside agriculture universities and research centres. All of them follow a consortium approach. The ICICI bank lays down pre-set criteria for farmer selection. It informs the input company to arrange documentation with farmers on the agreement. An MoU is signed between the bank and companies in this scheme. The input companies supply inputs and share the details of accounts with the bank, which debits farmers' accounts and credits to the input company account. After harvest, the processing or marketing company collects produce, pays back its dues, and the rest to the farmer.
Singh, 2004; Singh & Bhaumik, 2008	Punjab	Punjab Agro Industries Corporation (PAIC), Punjab Agro Foodgrains Corporation (PAFC), and private companies	State-led Multi-party Model	The PAFC provide seeds, technical supervision, and agronomist services to contract growers. The agreement is signed on a fixed-price contract by three parties: PAFC, seed companies, and farmers. Farmers are responsible for delivering high-quality produce to a pre-determined location. Payment is made within two days of delivery. PAFC is the sole decider of produce weight and the only arbiter in case of any breach of contract. Most issues that farmers faced were related to production and quality, a lack of marketing of produce because the open market could handle contract produce. Because of this experience, most farmers were unwilling to arrive at another contract arrangement.

Jain, 2008	Maharashtra	Jain Irrigation Systems Ltd. (JISL) White onion	Direct Contract	The company supplies high-yielding onion varieties to their registered growers, but farmers bear the expenses for resources. They provide farmer extension services through regular field visits, advice, and input supplies. It offers guaranteed buy-back prices and intervention to improve productivity and quality. The company has appointed well-trained, devoted young Jain Gram Sevaks (agronomists) who are involved in extension, convincing the grower of the benefits of high solid white onion cultivation. They follow a 'double price formula', which provides guaranteed prices and a prevailing market rate at price fluctuation. There is an absence of intermediaries and brokerage charges. The banks (SBI and UBI) provide crop and term loans for purchasing capital equipment. The company acts as the intermediary, liaising between farmers and banks, and repays debts directly to banks.
Dev & Rao, 2005	Andhra Pradesh	Private and Corporate Entrepreneurs Oil Palm	State-led Multi-party Model	The state government assigns zones to the processing industry under an MoU. The price fixation committee in the state fixes prices with them quarterly. The company provides extension services to farmers. Entrepreneurs are responsible for providing planting materials, raising seedlings in nurseries, distributing them to farmers, and arranging inputs and technical advice. They deduct input costs from the payment to be made for the fresh fruit bunches. They also claim the subsidy amount from the government. A written agreement backs the engagement between farmers and companies but relaxes open-market selling. However, the government has assigned each growing zone to a specific processing company, and others cannot set up a factory there. Therefore, growers rely solely on those factories because the harvest must be disposed of immediately due to its perishable nature. They later opened collection centres operated by big farmers (commission agents) responsible for collection and management.

Birthal et al., 2009	All India	Firms Milk	Intermediary Model	The milk CF in India engages through an intermediary, i.e., agents who procure milk, help the firm disseminate information, distribute inputs, provide services, and make payments. The agreement is informal, but it specifies the term and conditions, including quality, quantity and price, duration, mode of payment, sharing risks and dispute settlement. The agent provides space for collection centres, and the firm provides necessary equipment, i.e., weight scales, water geyser, storage container, etc. The agent bears the operational expenses while the firm bears the costs. Farmers have an informal understanding with the agent over the contract. They receive a passbook for recording the transactions for quantity and quality. The price is determined based on fat and solids contents, but in some cases, the firm also considers the prices other firms pay.
Ramaswami et al., 2009	Andhra Pradesh	Firms Poultry	Direct Contract	The integrator firms supply day-old chicks, feed, and veterinary services to farmers. In contrast, growers employ land, labour, and capital. The integrator firms returned the grown broilers and sold them in wholesale markets. At the end of the production cycle, the grower receives a net price (by weight) that is pegged to an industry price set by a group of integrators (not the retail price). In case of sharp upward deviations of the retail price from the industry price, growers receive an incentive. The growers are insured for mortality rates up to 5 per cent, beyond that, they bear the risks of loss. The company appoints representatives who are responsible for visits to inspect the growth.
Motkuri & Veslawatha, 2005	Karnataka	Global Green Company Cucumber	Direct Formal Contract	Global Green involves CF supplying world-class fruits and vegetables at an internationally competitive price. The firm enters a written contract with farmers selected based on their land suitability to cultivate cucumbers. This is a bilateral and written contract agreement on the back of the crop at pre-agreed prices. Farmers hold a passbook in which records of crop purchases and inputs are entered. Depending on the harvesting season, produce is collected from one or

Vicol, 2017	Maharashtra	PepsiCo Potato	Intermediary Model	more buying points after checking the quality by mechanical devices. Farmers are paid based on grades and weights recorded when buying. The firm arranges a computerised management information system that enables farmer details and crop arrival forecasting, allowing for planning of sowing to meet customer orders. The firm has an extension team comprising senior managers, area managers, extension officers and village-level workers who maintain the arrangements with farmers. The firm maintains the use of environmentally friendly plant protection chemical uses.
				PepsiCo contract scheme in Maharashtra is an intermediary model that operates through local agents who are responsible for recruiting farmers for the day-to-day operations of the scheme. The firm appoints agents to reduce the transition costs of dealing with hundreds of small farmers. The agreement is made between the farmer and PepsiCo. The firm agrees to pay the farmer a fixed harvest price and provide inputs at a pre-determined price. The farmer agrees to cultivate the specific processing varieties of potato on a specified schedule and with a pre-determined input. Farmers are extended credit to pay for seed and inputs by a local bank in partnership with PepsiCo. The company reduces farmer price risks, but production risks are transferred to them because processing varieties of potatoes are more susceptible to crop loss from disease or unfavourable weather conditions.

Source: Author's compilation based on literature review.

1.3.2 Fairness of Contract: Composite Conceptual Framework (CCF)

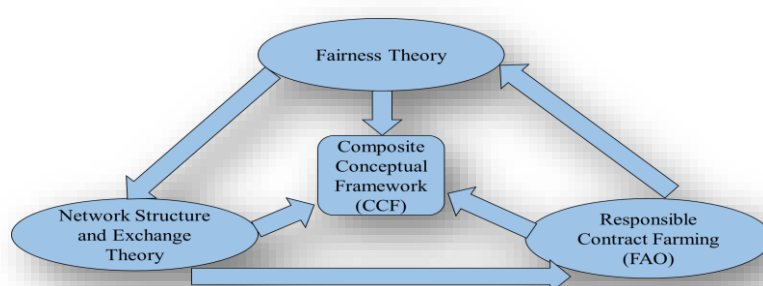
The debate over CF is often ideological, with one group supporting the practice for the benefits it offers to farmers when working with agribusiness corporations. On the other side, the critics of CF raise concerns over corporate control of small farmers, losing their autonomy, and so on. Vicol (2018) argues that debates around ideology often result in simplified narratives of "win-win" or "win-lose." Reviewing the leading literature on CF in India, we can see these two types of ideological narratives in which one group of scholars from the lens of political economy, gender and environmental approach critically review this practice (e.g., Faizi & Saha, 2014; Kaur et al., 2022; Mitra & Rao, 2021; Singh, 2002, 2012; Shrimali, 2016; Vicol, 2017, 2019; Vicol et al., 2022). Whereas another group of scholars from the microeconomic aspects emphasises the production, income and employment at the farm level (e.g., BIRTHAL et al., 2005; Dileep et al., 2002; Mishra et al., 2018; Pandit et al., 2015; Singh & Meena, 2012; Sharma, 2016; Tripathi et al., 2005).

Despite the considerable amount of research and ongoing discussions surrounding CF in India, there is a lack of attention given to whether contract arrangements are fair and transparent. Although some studies in India highlight the exploitation and dominance of corporate firms, there is a lack of explanation of such acts with adequate theoretical evidence. Some international literature in recent times raised concerns about fairness in agri-food markets, value chains, transparency in contracts, and farmer satisfaction (e.g., Hoang et al., 2021; Hambloch, 2022; Ruml & Qaim, 2021; Samoggia & Beyhan, 2022). However, with specific reference to India, where the majority of the farming community comprises small and marginal farmers, there is a notable absence of discourse and clarification regarding the fairness of contract arrangements. Furthermore, a dearth of theoretical explanations exists concerning instances of unfairness in such contractual frameworks. Consequently, instead of merely asserting the presence of exploitation or unfair practices by corporations or other stakeholders, this study explains the concept of fairness and formulates a comprehensive definition. This undertaking is intended to facilitate the identification of potentially unfair scenarios within CF and provide a theoretical foundation for explicating claims pertaining to unfairness.

Defining fairness in CF is a difficult task, especially when it comes to measurement. This difficulty becomes more pronounced when contract clauses that benefit one party are seen as burdensome or exploitative to others, especially when the contracting parties are from unequal classes. Additionally, contracts that are biased and unamendable by counter offers may exacerbate issues of fairness. Some scholars argue that fairness is a crucial aspect of sustainability in the food value chain. However, its perception and determination often depend on the position of participants within the value chain and their expectations. Fairness is achieved if their expectations are met; if not, it is considered unfair (Hendrickson & James, 2016; Hendrickson et al., 2018; James et al., 2023).

Recent studies have employed various theoretical perspectives and analytical tools to assess fairness in different contexts, such as the food system, supply chains, and agricultural and local food markets. These approaches include fairness theory, exchange network analysis, power structures and relations, and statistical methods (e.g., Gudbrandsdottir et al., 2021; Hendrickson et al., 2018; Nakandala et al., 2020; Ruml & Qaim, 2021; Saulters et al., 2018; Samoggia & Beyhan, 2022). The complexities of CF surpass traditional practices due to the various factors involved, including quality, quantity, timely supply, and predetermined pricing structures. Considering this involved complexity, it is posited that a single theoretical framework may prove insufficient in comprehensively elucidating the dimensions of unfairness in such arrangements. Consequently, eschewing a unilaterally oriented approach, this thesis proposed a multidimensional theoretical stance, integrating key tenets from the *fairness theory*, *network analysis and exchange theory*, and the *FAO's Guiding Principles for Responsible Contract Farming* (see **Figure 1**).

Figure 1 Interaction of Theories and Guidelines



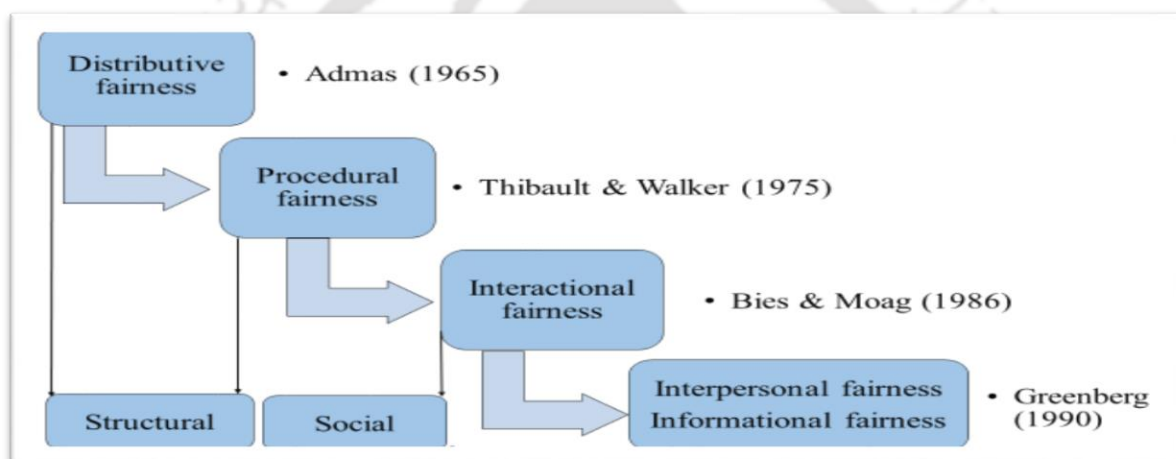
Source: Author's compilation

This conceptual framework is posited as a more robust strategy for developing a nuanced understanding of the concept of fairness within the realm of CF.

1.3.2.1 Fairness Theory

Gudbrandsdottir et al. (2021) provide insight into the evolution of fairness across distinct phases (see **Figure 2**). The authors describe two main aspects of fairness theory: *structural* and *social*. Structural fairness includes distributive and procedural fairness, while social fairness encompasses interactional, interpersonal, and informational fairness.

Figure 2 Evolution of the ‘Fairness’ Concept



Source: Adopted from Gudbrandsdottir et al., 2021.

Distributive fairness, first described by Adams (1965), pertains to whether outcomes or resources are perceived as fairly distributed or allocated. Thibaut and Walker (1975) introduced the concept of *procedural fairness*, which is concerned with the fairness of the procedure used to determine the distribution or allocation of outcomes. Incorporating the social aspect, Bies and Moag (1986) introduced interactional fairness, which is closely associated with transparency. Interactional fairness is divided by Greenberg (1990) into *interpersonal fairness*, which encompasses behaviours such as dignity and politeness, and *informational fairness*, which pertains to the quality of the information provided about procedures. Overall, this model provides a framework for understanding the various components of fairness and how they have evolved. It can be used to evaluate fairness in different contexts and to identify areas where improvements can be made to ensure greater fairness.

Distributive and procedural fairness concepts have gained popularity in the study of supply chain relationships (Kumar et al., 1995; Suh, 2005; Sun et al., 2018; Yilmaz et al., 2004). Distributive fairness is closely related to the concepts of equity and equality. In the context of CF, where prices or inputs are controlled by the same firm or intermediaries with persistent equal norms, all actors are expected to receive the same price or revenue. Thus, the concept of distributive fairness is often associated with the fair allocation of prices across actors in the chain (Lu et al., 2021). To measure distributive fairness in CF, it is essential to examine the extent to which farmers receive a fair price for their harvest, the quality of inputs and other opportunities. In cases where there is a difference, it may be considered a violation of fairness. However, they may not be aware of the situation due to a lack of communication among farmers or the absence of information sharing. In such cases, an outsider can compare the available information to understand the fairness of the practice.

Procedural fairness is a significant consideration in CF, particularly when contract clauses are fixed and may be perceived as one-sided. It raises questions about the participation of all parties involved in the decision-making process. Maintaining procedural fairness involves ensuring that all parties participate in the negotiation of contract terms and conditions. Del Prete and Samoggie (2023) argue that procedural fairness is connected to the negotiation process, bargaining power, and decision-making in contract arrangements. Druckman and Wagner (2017) have emphasised the importance of fair play, fair representation, transparency, and voluntary negotiation discussion. Therefore, a procedure can be considered unfair if bargaining does not occur or if it is perceived as unfair. Farmer participation in fixing contract agreements, provisions, and price determinations and their voice in the bargaining process is significant in procedural fairness relations. This study aims to assess the openness of contract negotiations, the transparency of contract terms and conditions, and the extent of farmers' participation in the negotiation and implementation process to understand the degree of procedural fairness in CF.

Interactional fairness is concerned with how people are treated during the implementation of procedures and indicates whether the intention behind every action resulted in fair outcomes (Gudbrandsdottir et al., 2021). Interpersonal fairness, a component of interactional fairness, focuses on how people are treated with politeness, dignity, and respect by those who execute the procedures. Informational

fairness, another component, is related to the quality of the information provided about the procedures and aims to reduce information asymmetry and mutual uncertainty (Colquitt & Chertkoff, 2002). In the context of CF, the degree of interactional fairness depends on the accuracy of the information shared with farmers, the effectiveness of communication, the level of trust and respect demonstrated, and the willingness to accommodate their needs and concerns. The level of interactional fairness in a CF relationship can be assessed by evaluating the treatment of farmers during the execution of procedures, including whether they are treated with respect and dignity. Additionally, the quality of the information provided to farmers about the procedures and any accommodations made to meet their needs and concerns can be assessed to evaluate informational fairness.

1.3.2.2 Network Analysis and Exchange Theory

Hendrickson et al. (2018) discussed how network analysis and exchange theory can be used to identify sources of expectations and link them to fairness in assessing claims of unfairness. Expectations are influenced by the position of an individual in the network structure, and for a claim of unfairness to be valid, expectations should be reasonable. The distribution of power and relationships among actors in the networks affects their expectations and the perceptions they form regarding fair partnerships. Therefore, the network structure determines the bargaining power of actors in a market network or supply chain (Charness et al., 2007). The expectations and perceptions of actors, particularly farmers, have implications for the efficiency and sustainability of the network. Understanding network structure, power dynamics, dependency, and expectations is crucial for measuring fairness.

Network Structure, Power, and Dependency

An exchange network comprises various actors, such as buyers, sellers, and others (Emerson, 1972). The positioning of actors within the network structure and their relative power play a crucial role in determining their bargaining capability and access to alternative exchange options. The structure of the network, combined with the level of dependency, further influences the range of opportunities available to actors. For instance, if a buyer has multiple sellers to choose from, their dependence on any particular seller will be relatively low, as discussed by Hendrickson et al. (2018). Conversely, in cases with a

limited number of buyers, resulting in a monopsonistic market, sellers may find themselves in a position of dependency and subject to potential dominance. The power dynamics between contract farmers, intermediaries, and agri-business firms significantly impact their bargaining power concerning pricing, inputs, incentives, and other exchange opportunities. The assessment of fairness in contractual agreements necessitates a comprehensive understanding of these power relations within the network.

Dependency and Claims of Unfairness

The claims of unfairness are reliant on the dependency of actors. Power imbalances arise from the unequal dependencies of potential exchange partners. Agents or actors who rely on others are vulnerable and may face limitations, such as insufficient control over terms, conditions, and decision-making within the partnership (James et al., 2013; Hendrickson & James, 2016). Scholars (James et al., 2013; Hendrickson & James, 2016; Hendrickson et al., 2018) emphasise fairness claims concerning network structure and dependency in the following ways:

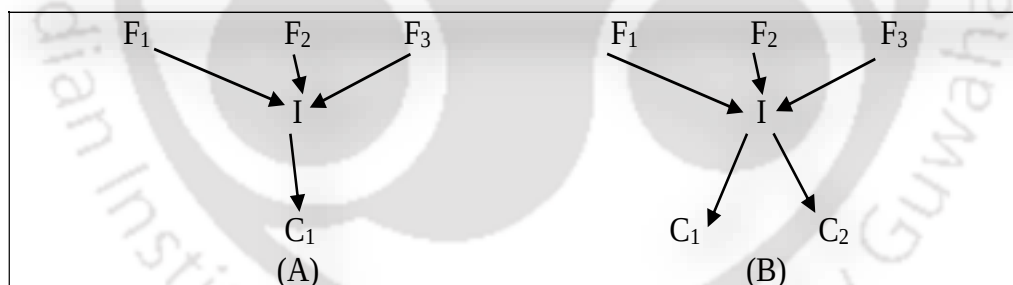
First, relative dependency is necessary but insufficient to claim unfairness; it can be linked to such claims. Additional considerations are required before conclusively establishing claims of unfairness. Within a market network, if all the actors share the balanced power, they are unlikely to sustain a claim of unfairness. Similarly, actors in a position of power are not at risk. Further, actors with less power may be unable to sustain a claim of unfairness if safeguards or rules are in place to control it. However, the absence of safeguards protecting the weaker actor can validate the unfairness claim. Moreover, a power imbalance increases the likelihood of validating claims of unfairness. Claims made by small and marginal farmers against intermediaries or corporate firms in CF may be validated if there are no alternative means of protection against exploitation.

Second, limited exchange opportunities within the network structure can validate claims of unfairness. Conversely, ample exchange opportunities reduce relative dependency, thereby mitigating the potential claim of unfairness. For example, farmers with an advance agreement in the contract must be bound to supply the produce to the respective buyer at the price they agreed upon, even if there is a chance to avail of a better price. This is if there is limited opportunity for selling the produce in the open market

due to the nature of crops or limited access to buyers. This condition may increase reliance on a specific agent and reduce opportunities for farmers to exchange commodities.

Third, finally, for the unfairness claims, it is necessary to consider how much value an actor within the network places on a particular exchange (see **Figure 3**). The similar structure of both networks (A) and (B) do not vary, but the additional customer 'C₂' in the second case (B) can increase the value of 'I' over the exchange with 'F'. This suggests that a claim of unfairness that F₁ raises against 'I' might be mitigated because 'I' in case (B) has relatively less excess power over F₁ than 'I' in case of (A). With the addition of C₂, the dependency of 'I' on C₁ is less, as 'I' can now exchange with two corporates (C₁ and C₂), and both corporates depend on one intermediary (I). Moreover, if F₁ does not claim unfairness against 'I', it would be difficult for F₂ or F₃ to sustain the claim of unfairness if the aspect of intermediaries with each farmer is not unique. The aspects of the contract under PepsiCo should be equal for all farmers regardless of their association. So, if an individual or specific group of farmers claims unfairness, it may validate the claim.

Figure 3 Comparison of Two Network Structures



Source: Adopted from Hendrickson et al., 2018. *F: Farmer, I: Intermediaries, C: Corporate firm.*

Fairness and Expectations

Fairness connects with expectations, which give strong belief or expectation that something will happen (James et al., 2021). An individual's power influences expectations and contributes to expectation formation (Sawaoka et al., 2015). Thus, influential people may expect to be treated fairly and claim faster against unjust treatment. Similarly, an individual may be conditioned to have low expectations due to social and economic structures and past experiences. Regardless of how these expectations are

formed, it is unlikely that the individual would make an unfair claim if they are unaware that their expectations were violated. However, an outsider can observe and validate claims of unfairness or fairness by individuals (Hendrickson et al., 2018). Thus, analysing the farmers' expectations and violations in CF is paramount to measuring the fairness of partnership, terms, and conditions.

Reference Points and Expectations

The first reference point for assessing unfairness is based on structural equivalence, where actors within a network structure who share common nodes with similar roles or positions are referred to as equivalents (Hendrickson et al., 2018). Structural equivalence is often considered a measure of structural affinity or similarity in alliance portfolios (Maoz et al., 2003; Maoz et al., 2006; Van & Poortinga, 2002). Consequently, structural equivalence results in similarities in the behaviour of actors and perspectives (Burt, 1987; Cook & Whitmeyer, 1992; Lorraine & White, 1971).

For instance, CF working with the same agribusiness firm or intermediaries may form similar expectations regarding contract prices and other opportunities. In cases where an outsider observes or perceives differential treatment, structurally equivalent farmers may leverage their perceived equivalence to claim unfair treatment. Hendrickson et al. (2018) argue that even if the network structure or other conditions change, consistent or repeated behaviours or actions over time can create an expectation that such behaviours or actions will persist. For instance, specific varieties of processed crops may be patented by agribusiness companies under national laws, prohibiting farmers from saving and selling seeds to other farmers or traders outside the contract. Despite this restriction, some farmers may maintain an expectation of seed saving for future use or share with neighbours based on historical precedents.

1.3.2.3 Guiding Principles for Responsible Contract Farming Operations

The Food and Agriculture Organisation (FAO) is a prominent institution that advocates for CF to achieve inclusive growth and market access (Silva & Ranking, 2013). To facilitate responsible CF that is transparent and fair, FAO has developed a document outlining a set of guiding principles (FAO, 2012). These guidelines aim to assist farmers and other actors within the network in fostering a

favourable business environment characterised by trust and mutual respect (see **Table 2**). Contract farming is expected to grow significantly to connect smallholder farmers to markets. Therefore, it is crucial to minimise conflicts within the network and prioritise the potential benefits for all partners while promoting equitable practices. The 14 guidelines include (1) common purpose, (2) adherence to a legal framework, (3) clear documentation, (4) readability of contract, (5) due attention and review, (6) disclosure, (7) transparency in price determination, (8) transparency and fairness in clauses relating to quality, (9) transparency and fairness in clauses relating to input supply and use, (10) fairness in risk sharing- force majeure and contractual flexibility, (11) prevention of unfair practices in buyer-farmer relations, (12) honouring contractual terms, (13) open dialogue, (14) clear mechanism to settle disputes. Some guiding principles are generic, while others are crucial to protect the interest of both parties transparently and fairly.

I considered these concepts from the theories above and guiding principles to create a CCF for measuring fairness and power relations in CF arrangements. One of these theories alone cannot measure all the phenomena of CF, such as the power structure, positions, expectations, and domination of corporate firms and intermediaries. In its place, a composite framework could be an advanced way to cover the overall aspects. In measuring fairness, I preferred the farmer perspective, considering that they are the vulnerable actors in unequal power relations. At the same time, I have also taken some explanations from the intermediaries. I have not made any changes in the guidelines although some of the aspects are overlapping and talking more or less similar things. Since there is no established framework to measure the fairness in CF practice so I have considered all the indicators within the CCF to understand the fairness in the small farmers involve CF under PepsiCo.

Table 2 Guiding Principles for Responsible Contract Farming by FAO

Sl No.	Guiding Principles	Explanation of Principles
1	Common Purpose	It says farmers and buyers should have a common purpose to entitle duties and facilitate the enforcement of contractual obligations when engaging in CF. The motive of the agreement should be to promote agriculture production and guarantee a secure market for the commodity. This will increase revenue for farmers and buyers to obtain returns on their investments (the so-called win-win situation).
2	Adherence to a Legal Framework	There should be an agreement backing legally between farmers and buyers, also specify the role of other parties. It must include detailing of the duties of farmers and buyers and responsibilities, i.e., 'cause' or 'consideration' in legal terminology. This must include price, payment method and cause, and consideration must be lawful, not contrary to public policy.
3	Clear Documentation	The terms and considerations should be in written format so that it can be drawn up to provide clear guidelines on the agreed price, payment, and product delivery to prevent misunderstanding. This should be done in the presence of one or more witnesses who have no economic relationship between the parties involved in the practice.
4	Readability of Contracts	The agreement should be written in coherent language so that one with average education and experience can understand it. The agreement should be drafted in the language with which all parties are familiar. In the case where farmers are illiterate, a third party should explain the agreement.
5	Due Attention and Review	Buyers should allow sufficient time for farmers to take legal advice to understand the draft before signing. And they should also grant the right to cancel the contract within a designated period. After finalising the agreement, the buyer should give one copy to the farmers.
6	Disclosure	Both parties should fully disclose all information, and it should be transparent. The quality, timing, and specification of the delivery and its costs and inputs should be implicit in the agreement. Product price determination and their means of verification should also be specified clearly.

7	Transparency in Price Determination	Price and payment are crucial elements of the contract that the parties must clearly understand and agree upon. Both parties should agree upon the price. It should ensure price determination and payment procedures are transparent. The buyer must disclose any fees charged for inputs or extension services. It must allow for price renegotiation in the event of significant changes in market conditions resulting in a large price difference concerning the contracted terms.
8	Transparency and Fairness in Clauses Relating to Quality	Farmers must use inputs correctly and maintain hygienic conditions, which must be agreed upon. It must also specify the post-harvest handling materials, as well as who will provide them and at what cost. Buyers must strictly adhere to agreed-upon commodity grades and promote fair and transparent access to quality. Farmers and their representatives should be entitled to an explanation in the event of rejection or downgrading.
9	Transparency and Fairness in Clauses Related to Input Supply and Use	The contract should stipulate which party will be responsible for supplying and applying farming inputs. If provided by buyers, inputs defined in the contract should meet necessary quality standards at prices that are no higher than prevailing commercial prices. Buyer could consider deducting the cost upon delivery of produce. Farmers should also follow recommended practices and use them for contracted crops only.
10	Fairness in Risk Sharing- Force Majeure and Contractual Flexibility	The agreement should specify the issues of sharing production risks among parties. Problems caused by inadequate inputs or input advice should not result in economic loss for farmers. In uncontrolled events, e.g., weather-related or manmade disasters can be classified as force majeure, and neither party is responsible for not fulfilling the expected produce; in such circumstances, the contract should have a provision for renegotiation. Insurance programmes should also be evaluated as a means of risk management.
11	Prevention of Unfair Practices in Buyer-farmer Relations	Farmers should not be restricted from discussing with other farmers to compare contractual clauses or address concerns. Buyers should not discriminate against farmers who exercise their rights against them. Buyers should avoid unequal treatment of farmers, delay payments, insufficient inputs, extension services or poor technical advice. They should not change the pre-agreed production quotas to reduce procurement quantity in the event of

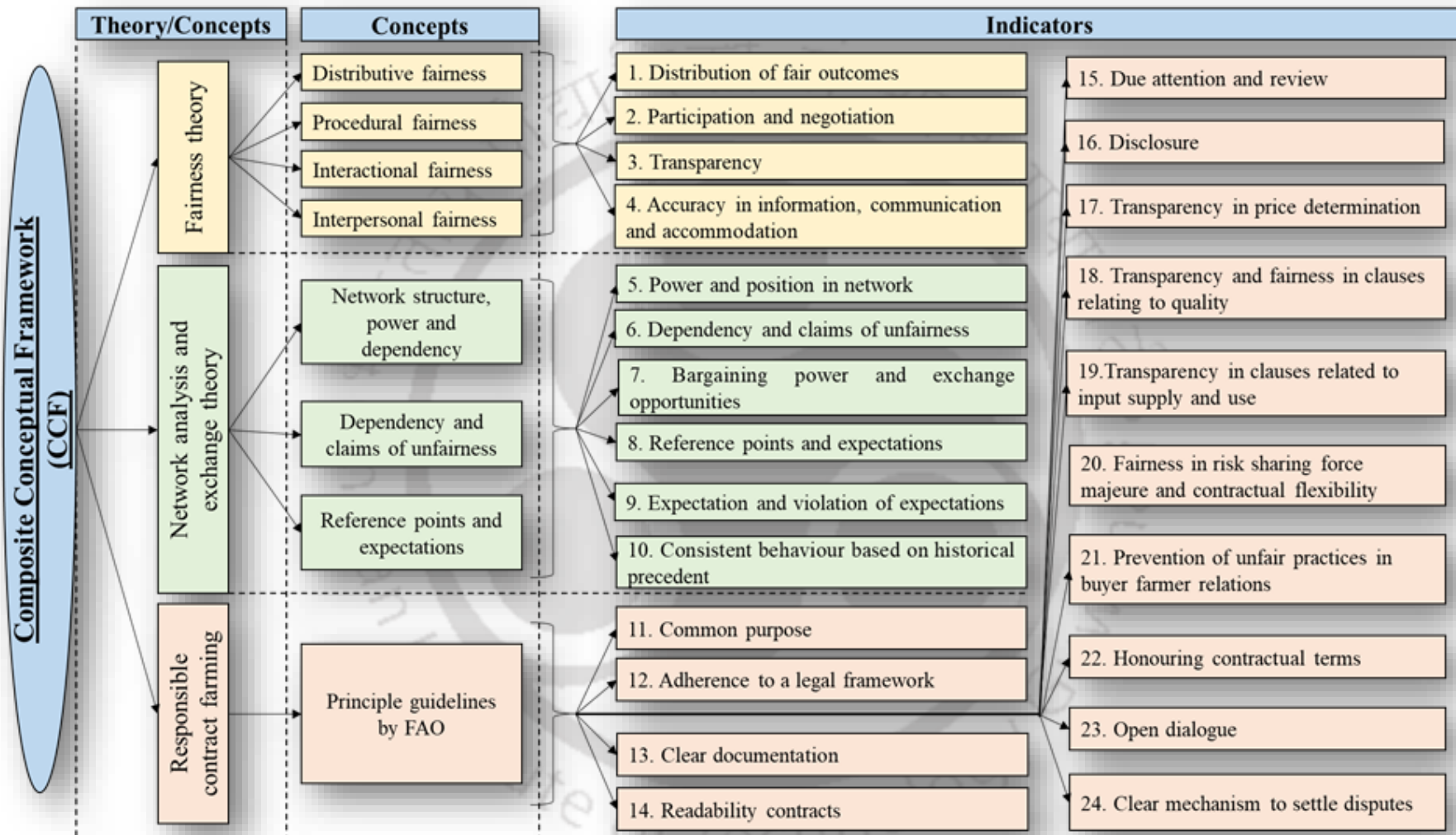
		changing market conditions. To maintain trust and respect, they should ensure transparency and fairness during the buying process.
12	Honouring Contractual Terms	Mutual trust and respect are important for the success of contract operations. They both should ensure production and procurement as per scheduled and agreement. Farmers should not sell part, or all produce outside, i.e., side-selling the agreed buyer, unless it has a provision for an alternative market. In case of rejection, the buyer should notify farmers and allow them to inspect it again or by a third party.
13	Open Dialogue	Lack of communication can lead to misunderstanding, so there should be an open dialogue between farmers and buyers. It is advisable to meet before sowing to discuss management and other duties.
14	Clear Mechanism to Settle Disputes	Farmers and buyers should agree on a contract with a neutral third party to assist in case of any dispute. And both parties should endeavour to resolve them amicably. If the buyer is the subsidiary of a parent company, this parent company should be liable to the farmer for any debts and claims against the buyer.

Source: FAO Principle Guidelines for Responsible Contract Farming, 2012

Some of the indicators of FAO guidelines and concepts of Fairness theory and Network Exchange theory talk about similar things which I could avoid for example, the Distribution fairness concept talks about the distribution of fair outcomes. Similarly, the FAO indicators (18 & 19) also talk about the Transparency and Fairness Clauses Related to Quality and Inputs Supply. Since there is no theoretical framework to measure fairness or transparency in such unequal power relations (as experienced in contract farming), I thought I would bring some theories and concepts that could comprehensively explain the unfairness of contract arrangements. Therefore, I made no changes to the original concepts or indicators. Similarly, there are some redundancies which I could exclude; for example, (15) Due Attention and Review talks about the review of contract provisions for farmers before signing the agreement. Since there is no agreement with farmers, there is no scope for them to review; therefore, I could exclude it.

I keep it in my CCF because even if there are written contracts, there is no guarantee that the agribusiness firms or intermediary would have allowed to bargain over the terms and conditions. So, I thought to keep these concepts as it is for implications of the CCF in another contract arrangement, which future study may consider. Some of the indicators are repetitive or overlapping in my CCF. However, my idea was to bring some relevant concepts together to develop a broad framework that could explain the unfairness of the contract arrangements. That is why I did not make any changes to the original concepts. Instead, I have highlighted some new points that none of these concepts discussed, such as the Compensation Mechanism (see 5.4.8).

Figure 4 Composite Conceptual Framework (CCF)



Source: Author's compilation based on literature review.

1.3.3 Contract Farming Value Chain and Farm Supports

Contract farming is an emerging practice linking smallholders in developing countries to access markets (Federgruen et al., 2019; Mwambi et al., 2016; Tabe-Ojong et al., 2023). In developing countries, the agricultural value chain functions dually, with both informal or traditional channels and formal or modern channels operating concurrently for the same product. Smallholder farmers are commonly involved in the informal chains, supplying their produce to local traders or stores.

This section aims to comprehend the challenges frequently encountered by smallholders within these markets and explore how efficient value chains can alleviate some of these constraints. The subsequent discussion focuses on examining the distinct characteristics of the value chain to discern the role of CF within this system. By differentiating between the informal and formal value chains, we can gain insights into where CF practices fit in and how they contribute to the farmers. Furthermore, a critical review and analysis of relevant studies from developing countries are undertaken, explicitly emphasising the CF value chain and the participation of farmers. These studies provide valuable insights into the opportunities and potential drawbacks associated with CF practices within the broader context of the agricultural value chain.

1.3.3.1 Challenges for Smallholder Farmers

Agriculture plays a crucial role in alleviating rural poverty (Swamy & Dharani, 2016). With economic reforms in the 1990s, the agricultural and agri-food markets have experienced significant economic and socio-cultural transformations (Birthal et al., 2009). The market dynamics have shifted towards vertical coordination, driven by the increasing demand for high-value agricultural products that require consistent quality and affordable prices (Hellin & Erenstein, 2009). However, small and marginal farmers, who constitute most of the farming community,⁷ face numerous challenges as agriculture moves towards commercialisation (Chand, 2012; Miller & Jones, 2010; Reddy, 2013; Swinnen & Maertens, 2014). The transition to a demand-driven production system presents both obstacles and opportunities for these smallholder producers.

⁷ The small and marginal holders share 86.10 per cent of operational holding in which 68.5 per cent are marginal.

Smallholder farmers face constraints related to access to credit, technology, market information, infrastructure, and land fragmentation (Chand, 2012; Miller & Jones, 2010). At the same time, they also have the potential to benefit from market-driven agriculture by tapping into new market opportunities, enhancing productivity, and improving their income and livelihoods (Swinnen & Maertens, 2014). In addition, smallholder farmers often struggle to sell their limited surplus produce in distant markets at profitable prices due to various challenges such as inadequate market information, transportation difficulties, and lack of cold storage facilities (Reddy, 2013).

Several market-based interventions have been implemented to address these constraints and enable smallholders to access and thrive in high-value crop markets. Value chains have emerged as a significant focus, as they offer a framework to facilitate smallholder farmers' entry into profitable markets while reducing food insecurity and poverty (Donovan et al., 2015; Staritz, 2012). By integrating farmers into value chains, agricultural productivity can be enhanced, household welfare and social capital can be improved, and labour-intensive enterprises such as horticulture, animal husbandry, and fisheries can be strengthened (Birthal et al., 2014; Rutherford et al., 2016). Moreover, the value chain interventions work to enhance farmers' accessibility to inputs, market information, credit, technology, and infrastructure, thereby enabling them to participate in agricultural activities with high-value crops. Through the establishment of linkages between smallholder farmers and stakeholders such as buyers, processors, and other actors involved in the value chain, these interventions generate avenues for smallholder farmers to augment their income levels, attain sustainable livelihoods, and make significant contributions to the overall advancement of the agricultural sector within the region.

A value chain encompasses a range of actors and activities involved in enhancing the value of agricultural products before they reach end consumers (Chengappa, 2018; Miller, 2012). These actors include integrators, retailers, lead firms, component suppliers (Sturgeon, 2001), and service providers (ABD, 2013). The traditional market system in India has historically relied heavily on intermediaries between producers and consumers, resulting in significant price disparities. However, this traditional market structure has undergone substantial transformations following post-liberalisation with the

emergence of integrated food supply chains that coordinate farmers, processors, retailers, and other stakeholders (Chengappa, 2018).

This shift toward integrated supply chains presents opportunities for the adoption of modern agricultural technologies, which can enhance the productivity and well-being of smallholder and impoverished farmers, thus contributing to poverty reduction and rural development (Sheahan & Barrett, 2014; Swinnen & Kuijpers, 2016). Value chains connect smallholder farmers with modern markets, replacing traditional arms-length transactions with structured buyer-supplier networks and CF schemes (Briones, 2015; Chen et al., 2015). This transition is associated with quality differentiation and value addition from the consumer's perspective. At the same time, suppliers focus on efficiency, coordination and facilitating the smooth movement of produce from "*farm to fork*" (Reardon, 2015).

Contract farming has been proposed as a potential solution to address the challenges farmers face by establishing a connection between them and alternative markets while offering the necessary support for cultivating high-value crops. Consequently, CF is increasingly viewed as an alternative institutional framework that can effectively mitigate market risks, boost production levels, and ensure a minimum income for smallholder farmers.

1.3.3.2 Traditional Supply Chain vs Modern Value Chain and Contract Farming

There is a fundamental difference in the supply chain and value chain concepts. Supplying one product from one end to another is commonly known as a supply chain. In the latter case, it adds value to the product throughout the process (Feller et al., 2006; Holweg & Helo, 2014). The supply chain is a set of activities aiming to meet the final consumer requirements by smoothly and economically getting raw materials and subassemblies into a manufacturing operation (Reddy, 2013). The value chain sets of operations in which products pass through all activating of the chain by adding some value to each activity (Feller et al., 2006), right down to disposing of the package after use (Hellin & Meijer, 2006; Reddy, 2013). In common parlance, these two are complementary views of an extended imitative with the integrated business process on one hand that enables flows of products and services and value as represented by demand and cash flow on the other (Ramsay, 2005).

The relationships between buyers and sellers and other actors within the chains determine the linkages and structure of the engagement. Models of value chains primarily depend on such arrangements. Gouri and Mahajan (2017) discuss three types of supply chains. The simplest form is instant or spot market sales, where the producer carries out produce for immediate payment and prompt delivery, where the scope for price fluctuations is high. The second type is a contract, where buyers and sellers are bound with a commitment to producing and selling to known buyers at an assured price. In this arrangement, the producer does not get the advantage of the open market price if it is higher than the agreed-upon price. The third type is an informal arrangement between buyers and sellers based on mutual trust or interdependency. The modern value chain is divided primarily into four types: the producer-driven model, the buyer-driven model, the facilitator-driven model, and the integrated value chains model.

Producer-driven Models

Producer-driven models are typically associations of farmers from neighbouring villages who band together to achieve a common goal. Producer-driven models are driven from the bottom end of the chain (Miller & Jones, 2010; Vorley et al., 2009). This association is registered as a cooperative commonly known as Farmer Producer Companies (FPCs) in India (Gouri & Mahajan, 2017). The main motive is to promote sustainable and equitable agriculture through adequate credit support, related services, and market linkages to link the smallholder to the market (NABARD, 2015). Some issues with the model are that the producer associations are at the bottom end of the value chain and do not understand the other stakeholders nearer to the end users (Gouri & Mahajan, 2017). A recent study that reviewed the performance of FPCs in India claimed that the current strategy of targeted approach in FPCs establishment is unsustainable (Padmaja et al., 2019).

Buyer-Driven Models

Contract farming is commonly known as a buyer-driven value chain model (Miller & Jones, 2010; Miller, 2012; Vorley et al., 2009). The contracts may involve advancing finance, inputs, technical support, or output sales with conditions such as price, quantity, quality, and delivery dates (Gouri & Mahajan, 2017; Miller & Jones, 2010; Vorley et al., 2009; Winn et al., 2009). Several types of models

in CF value chains are being practised in India. The success of this arrangement solely depends on the honesty of both parties in carrying out their contractual obligations (Gouri & Mahajan, 2017).

Facilitator-driven Models

The development organisations, e.g., NGOs and other supportive agencies, and the government support smallholder farmers in value chain integration, known as facilitator-driven models (Gouri & Mahajan, 2017; Miller & Jones, 2010; Miller, 2012). Those supportive agencies help farmers access inputs and technical assistance and regulate the entire function. The rationale of this model is to make the markets work for people with low incomes and regional or local development (Miller & Jones, 2010; Miller, 2012). The supportive agencies often assist farmers in getting loans and other financial support (Gouri & Mahajan, 2017).

Integrated Value Chain Models

Several parties, including lead firms, supermarkets, multinationals, input suppliers, and other service providers, connect producers under this integrated value chain (Miller & Jones, 2010; Miller, 2012; Silva et al., 2009; Vorley et al., 2009). Vertical integration is the most common form of integrated model (Gouri & Mahajan, 2017). This model primarily practices fruit and vegetable cultivation.

Although CF is considered a buyer-driven value chain model, it is challenging to differentiate it from other models. Several actors are involved in CF, and it may vary from case to case depending on the nature of crops and the economic efficiency of contracting firms. CF may vary from case to case as a complex value chain comprising two or more models. Thus, the engagement of different actors in the value chains increases the complexity of the functions.

1.3.3.3 Contract Farming and Farm Support: Evidence from Developing Countries

The changing supply chain management focuses on market demand, especially the preference of consumers, which necessitates quality raw materials, maintaining the quality of produce, packaging and branding, efficient coordination, and lower operation costs. With the limitations and structural problems prevailing in the small farm sectors, their ability to meet buyer demand is a major concern in developing

countries. The conceivable way to overcome those challenges is to link farmers to the market and benefit them (Arumugam et al., 2010). CF, as an institutional innovation, can potentially reduce transition costs and connect farmers to the markets. The relationship between farmers and buyers could also contribute to widespread smallholder participation in contractual arrangements (Schipmann & Qaim, 2011). This section presents some reviews of CF value chains from developing countries in South and Southeast Asia. It highlights smallholder farmers' benefits and constraints in CF value chains.

Thailand is known as the pioneer of CF (Sharkar et al., 2010). The marketing behaviour of Thai sweet paper farmers shows that village traders have become an important marketing channel, and farmers prefer contract designs that include inputs and credit support (Schipmann & Qaim, 2011). In this case, farmers' preferences are influenced by the firm's input support, as well as the channel design and nodes. The easy accessibility of inputs from village traders encouraged smallholder farmers to join CF, i.e., village traders involved in the contract, against choosing outside players engaged in CF. The accessibility of inputs at the village level from village traders encouraged farmers to join. However, their social trust and bonding might have also influenced their reliance on village readers. Particularly in India, the rural society known for its religious, caste and class differences and dominance (Jodhka, 2002; Sharma, 1984), the relation and power hierarchy among actors needs special attention.

Farmers' participation in the supply chain through CF frequently reduces the number of intermediaries and stakeholders. A study examining the supply chain of exported Thai parboiled rice found that CF has minimised the role of the intermediary, and the procurement and stocking period can be shortened (Wattanuchariya et al., 2016). However, often, intermediary and agribusiness firms help smallholders connect to access the market and price stability in CF in China. While limited opportunities, particularly for smallholders, restrict the households more to connecting in CF than willing to participate (Guo & Jolley, 2009). So, intermediaries appear and often play a role in CF to link smallholders with firms and markets.

Another study discussed farmer participation under CF in the cultivation of fresh fruits and vegetables in Peninsular Malaysia. The study identifies market stability, marketing information and technology, improved farming practices, and input support as the primary reasons for farmers joining CF

(Arumugam et al., 2010). CF has integrated farmers into farm services that they lacked. Farmers now have access to farm services that they did not previously have. The CF supply chain successfully integrates farmers cultivating fruits, vegetables, or other higher-value crops. In Benin, farmers cultivate rice and get the supply chain benefits (Minten et al., 2013).

Poultry farming is another growing business in developing countries. Smallholder farmers benefit by joining CF from inputs, technical assistance, and secure prices. A study shows CF could be an authentic way to produce quality poultry products and has the potential to be adopted extensively throughout Bangladesh to meet domestic meat requirements and generate export market potential. However, CF is not a solution to all problems related to the production and marketing of poultry farms. However, this could be a way to minimise the issues of capital scarcity, quality inputs, modern technology adoption and output marketing for small farmers (Begum et al., 2013).

1.3.3.4 Challenges for Smallholder Farmer and Contract Farming in India

Farmers are often familiar with traditional crops and perhaps a few widely-grown commercial crops, but they often face difficulties in cultivating high-value commodities, which demand is growing rapidly (Minot & Sawyer, 2016). Smallholders come across formidable challenges as agriculture becomes more commercialised (Chand, 2012; Miller & Jones, 2010; Reddy, 2013; Swinnen & Maertens, 2014) in addition to land fragmentation, access to credit, deficient infrastructure, limited market access, extension services, and vulnerability to the impacts of climate change. However, agriculture commercialisation also presents opportunities for those smallholders to tap into new market dynamics, enhance productivity, and improve their income and livelihoods (Swinnen & Maertens, 2014). This is not to suggest that large farms are exempt from these difficulties. However, it is undeniable that the gravity of these difficulties is significantly less in comparison. Further, linking smallholders to commercial agriculture is viewed as a negative trend that leads to high risks, indebtedness, and income inequality (Little & Watts, 1994; Singh, 2002).

Agricultural policies to address the distress have shifted over time, such as during the Green revolution (1960s), aimed to enhance production and productivity by adopting modern technology, high-yielding

seeds, and chemical fertilisers, addressing food insecurity.⁸ Subsequently, policy emphasis shifted to market-oriented approaches and fostering private sector involvement in agriculture following economic reforms (1991). During this period, the structural adjustments and economic stabilisation measures predominantly focused on sectors like industry, tax restructuring, foreign trade, investments, banking, and capital markets, with no specific policy initiatives explicitly designed for agriculture (Dev, 2012). Furthermore, economic liberalisation entails a set of measures that are inimical to agriculture, and policies have a distinct class bias against petty producers and the poor (De Roy, 2017).

Although cropping patterns started towards high-value crops and commercial crops,⁹ agricultural policy focus, particularly after independence in India, primarily emphasised improving yield, production, and employment while ignoring the improvement of the value chain and market linkages. Further, while procurement and marketing are relatively advanced in the cereal and dairy sectors, farmers growing high-value crops such as fruits and vegetables encounter significant challenges in obtaining better prices (Gulati et al., 2022). Post-reform policies have encouraged the deregulation of agriculture markets and private sector participation like CF to link smallholder farmers with the market in cultivating those high-value crops. This shift towards integrated value chains in India can potentially enhance productivity and well-being for smallholders, contributing to poverty reduction and rural development (Sheahan & Barrett, 2014; Swinnen & Kuijpers, 2016).

Leading studies on CF in India have primarily examined the production, income and employment opportunities often found profitable for farmers in cultivating high-value crops, whether from better yield or better price. It often improves smallholder participation in high-value crops, individual income, and livelihoods (e.g., Birthal et al., 2005; Kumar et al., 2023; Mishra et al., 2018; Narayanan, 2014; Pandit et al., 2015; Ray et al., 2021; Singh & Meena, 2012; Tripathi et al., 2005; Vicol, 2017). Contract farmers are able to enhance crop yield, establish market linkages, mitigate post-harvest losses, shield

⁸ For more details on phase wise agriculture strategy in India (see Ramakumar, 2022, p. 7-15).

⁹ Indian horticulture sector contributes about 33% to the agriculture Gross Value Added (GVA) making very significant contribution to the Indian economy. Apart from ensuring nutritional security of the nation, it provides alternate rural employment opportunities, diversification in farm activities, and enhanced income to farmers. (see, <https://agriwelfare.gov.in/en/Horticulture>, accessed on 10:03:24).

themselves from distress sales and secure a reliable income stream (e.g., Bhanot et al., 2021; Behera & Swain, 2021; Dhillon et al., 2006; Kumar & Kumar, 2008; Ramaswami et al., 2009).

Most of those studies focus on production, income and employment aspects while overlooking social aspects of CF, and hardly any discussion about the structure and function of such smallholder integration into the value chains. Many studies show CF in India is in practice through intermediaries or agents, but their role and contribution to the farming process remain unknown (see Birthal & Joshi, 2009; Jain, 2008; Ramaswami et al., 2009; Singh, 2000; Singh, 2004; Singh & Bhaumik, 2008; Vicol, 2017). Several recent studies from West Bengal have also identified CF under PepsiCo as established through intermediaries (see Behera et al., 2022; Mukherjee, 2022; Pandit et al., 2015; Ray et al., 2021).

Scholars following the agrarian political economy discuss the political economy of CF, power relations and bargaining (e.g., Cohen et al., 2022; Singh, 2002; Singh, 2005; Vicol, 2017). Despite having several studies on the economics of value chains, the social aspects of value chains, and power relations, the class character of intermediaries and their role in inputs and outputs markets get less attention.

1.3.4 Previous Studies on Contract Farming in India

The leading existing literature on CF in India primarily focuses on economic aspects at the farm level. This section tried to understand the economics of CF versus NCF, as suggested by previous studies from the countryside.

1.3.4.1 Studies from Haryana

Based on primary data on tomato farming from Haryana, a study looking at the difference between contract and non-contract farmers reveals that contract farmers have larger holdings and incur higher costs but also achieve higher yields and gross returns compared to non-contract farmers. Price uncertainty is significantly reduced for contract farmers, as they receive a fixed contract price, whereas non-contract farmers face higher price uncertainty. The total cultivation cost is slightly higher for contract farmers due to higher variable input costs, but the per-hectare yield and gross returns are double compared to non-contract farmers. Net returns are also higher for contract farmers, primarily due to differences in yield (Dileep et al., 2002).

Another study from Haryana focusing on potato CF compares the costs, yields, and profitability of NCF. The findings show that the cost of cultivation is 17-24 per cent higher under CF, primarily due to increased investments in seeds, fertilisers, and machine power. Contract farms yield 8.84 per cent higher potato production (255.78 quintals per hectare) compared to NCF. Gross income is significantly higher in contract farms (₹99,753 per ha.) compared to non-contract farms (₹41,572 per ha.). The sale price of potatoes is also much higher for contract farms (Rs 390/q) compared to non-contract farms (Rs 177/q). Net returns over operational costs are more than five times higher under CF (Rs 62,982 per ha.) compared to NCF (Rs 11,882 per ha.) (Tripathi et al., 2005).

A similar recent study from Haryana surveyed a total of 754 wheat growers. Among the samples, 323 were adopters of CF. The study found that wheat yield and returns were significantly higher under CF than NCF. Specifically, the wheat yield was 21.68 quintals per acre under CF, which was 8.29 per cent higher than NCF. The net return under CF was 62.32 per cent higher, leading to a substantial difference in profitability between the two farming groups. This difference was primarily attributed to the higher yield achieved under CF and the higher prices paid by contracting firms to CF adapters (Paltasingh & Jena, 2023).

1.3.4.2 Studies from Punjab

Kumar (2006) examines CF followed in Punjab in the framework of small versus large farmers. The average size of operational holdings was 37.3 acres under CF and 22.6 acres for NCF. There were two types of contract arrangement direct and indirect. The average output value per household was nearly double that of direct contract farmers (Rs 1,387,000) compared to non-contract farmers (Rs 693,000). Whereas indirect contract farmers had lower output (Rs 1,122,000) than direct contract farmers but higher than non-contract. No significant differences were observed when comparing productivity per acre of cropped area. However, there was a notable contrast in crop productivity for direct and indirect contract crops. Direct contract crops exhibited almost twice the productivity per acre (Rs 27,900) compared to indirect contract crops (Rs 11,400), which was even lower than the productivity of non-contracted crops. The direct model of agribusiness firms provided free extension services and buyback

guarantees, which help farmers, while state-involved indirect contracts failed to provide those supports and benefits skewed towards large and medium farmers.

Another study that focused on Punjab showed that CF has a positive impact on crop productivity and farm income. Socioeconomic factors such as education, age, farm size, access to institutional credit, off-farm income, and organisational membership influence participation in CF. When comparing productivity levels, contract farmers demonstrate higher average yields of rice, including basmati and non-basmati varieties. Basmati rice yield is approximately 23 per cent higher under CF compared to NCF. This difference can be attributed to the use of better-quality seeds, improved crop management practices introduced by sponsors, and close monitoring of the crop at all stages. Although the average cost of production is higher on contract farms than on non-contract farms, the increased costs are offset by higher yields, resulting in overall economic benefits (Sharma, 2008).

A similar study from Punjab compares the economics of NCF and NCF of potato and basmati paddy. The findings reveal that, on average, contract farmers have higher farm returns and better resource use efficiency compared to non-contract farmers. The fixed contract price and better yield contribute to these higher returns under CF than NCF. However, the efficiency differences between the two categories are less pronounced in the case of basmati paddy. The sustainability of CF in basmati paddy is questioned due to informal contracts, low prices, and low yields (Sharma, 2016).

1.3.4.3 Studies from Karnataka

A study focusing on different crops under CF and NCF from Karnataka suggests average gross cropped area (GCA) was higher for contract (3.88 ha.) than for non-contract (2.76 ha.). The findings reveal that the average gross farm income was 96 per cent higher on contract farms (₹135,898) compared to non-contract farms (₹ 69,498). Among the contract crops, gherkin generated the highest income per hectare (₹77,066), followed by baby corn (₹ 64,681) and paddy (₹31,602). For non-contract crops, sunflowers contributed the most income (₹30,477 per hectare), followed by groundnut and paddy. Interestingly, the sunflower was the only crop that yielded higher income on non-contract farms than on contract farms. There is no explicit reason for higher returns, whether due to yield or contract crops. However,

it suggests CF employed more hired human labour compared to NCF, and there was also more family labour involved in crop production and livestock on contract farms. Female labour was observed to be more dominant than male labour on both types of farms (Kumar & Kumar, 2008).

Another study examines the economics of CF for green chillies and baby corn in Karnataka. The findings indicate that contract farmers have higher net returns compared to non-contract farmers. Within CF, domestic contracts yield higher net returns than foreign contracts for both baby corn and chilli production. For non-contract farmers, the net returns (₹3,035) are less than one-third of domestic contract farmers (₹10,610) and slightly more than one-third of foreign contract farmers (₹8,050). In terms of chilli production, domestic contract farmers achieve the highest net returns per acre, followed by foreign contract farmers and non-contract farmers. Additionally, the returns per rupee invested are higher in baby corn farming across all three categories compared to chilli farming. The study emphasises the economic benefits and variations in returns between the two crops, as well as the potential for CF to enhance income, employment, and technological access for farmers (Nagaraj et al., 2008).

1.3.4.4 Studies from Andhra Pradesh

Swain (2011) examines CF performance from Andhra Pradesh focusing on a case study of rice seed and gherkin compared to NCF. The average landholding size is larger for contract farm households compared to non-contract farm households. Contracted farmers receive prices approximately four times higher than the spot price for the consumption of rice. Contract farmers have higher total income from all sources compared to non-contract farmers, with an increase of 93.65 per cent in the rice seed-growing region and 64.78 per cent in the gherkin-growing region. Contract crop cultivation also requires more labour than non-contract crops (Swain, 2011).

In another study from Andhra Pradesh, findings show that contract growers experience higher gains compared to non-contract growers, especially in terms of the cost of funds. Contracting also shifts a sizeable portion of risks from growers to processors. The study reveals that contract production is more advantageous than independent poultry farming, as processors prefer growers with limited skills,

experience, and access to credit markets. Another significant benefit of CF is the adoption of improved technology and specialised management practices, leading to reduced feed consumption. The research suggests that CF serves as a valuable institutional arrangement for providing credit, insurance, and technology to farmers, addressing challenging issues that would otherwise be demanding for producers (Murthy & Madhuri, 2013).

1.3.4.5 Studies from Tamil Nadu

A study that focuses on southern India analyses information from 474 farmers involved in gherkins, papaya, marigold, and broiler commodity sectors. The findings reveal that the effects of CF vary significantly across different commodities. Participating in papaya and broiler contracting results in clear financial gains for farmers. However, marigold contracting leads to a deterioration in their financial situation. In the case of gherkins, participating farmers experience gains, but the extent of these gains depends on the contracting firms involved. Importantly, there is significant variability in profit outcomes, even within the same commodity sectors, as indicated by the substantial standard deviations of the treatment effect estimates. Therefore, regardless of the average treatment effects, CF arrangements have diverse impacts on individual farmers' income. These variations have potential implications for the sustained participation of farmers in high-value agriculture (Narayanan, 2014).

Cotton, which is used as an important input for the textile industry, farmers from Tamil Nadu state, found cultivation under the CF is more profitable as compared to NCF. A study revealed that transaction cost in NCF was higher which constituted 14.45 per cent. Cotton production in CF was about 32.23 per cent more than that for NCF. Therefore, farmers in CF receive more net revenue, which was 51 per cent, than for NCF (Senthilnathan et al., 2006).

1.3.4.6 Studies from Uttar Pradesh

A study indicates a positive impact of CF on yield and higher total income of basmati rice. While total input costs were slightly higher on contract farms, several factors were identified as influential in farmers' participation in CF. These factors included the provision of company guidance for adopting

scientific cultivation methods, the assurance of higher prices for produce by contracting firms, the guaranteed purchase of produce by contracting firms, and the age of the farmer (Kar et al., 2020).

Another study focuses on poultry farming to identify the constraints in CF and NCF from Azamgarh and Varanasi districts. The study revealed that despite the contract for the supply of inputs and sale of output, farmers in CF faced payment delays, supply of inputs, high feed prices and delays in lifting produce. However, NCF were affected by price fluctuations lack of cooperative marketing societies and no supporting price policy. The author argued it is not usual that CF is better than NCF in terms of marketing, however, it reduces risks and provides guaranteed income (Singh et al., 2018).

1.3.4.7 Studies from West Bengal

A study comprising 139 NCF and 144 CF households from West Bengal revealed that CF arrangements were primarily verbal, with no government involvement. Vendors appointed by the company managed operations in a group of villages. The fixed price for the crops varied across the state and was determined before planting. Non-contract farmers experienced losses, while contract farmers obtained net returns of approximately ₹15,000 per hectare. Despite having lower yield levels in CF, its net return was significantly higher than that of NCF. This was attributed to the higher prices received by contract farmers despite its lower yield per hectare (Pandit et al., 2015).

One study from West Bengal examines the market risks faced by small and marginal farmers, who comprise many farmers in the study villages. These farmers are exposed to market risks in both CF and NCF, with non-contract farmers vulnerable to price fluctuations and contract farmers vulnerable to meeting the quality requirements of the contract (Behera et al., 2022).

Another recent study from West Bengal focuses on CF models in the study area, examining the implications of different types of contracts and the characteristics of the crops involved. It also investigates the factors influencing CF among farmers of different sizes and compares CF through individual agents versus cooperatives using a logistic regression model. The study suggests that the success of CF, as an emerging alternative institution in line with the Farm Bill of 2020, depends on the specific product and the terms of the contract (Mukherjee, 2022).

1.3.4.8 From Other States of India

Birthal et al. (2005) investigate the institutional mechanisms used by firms to integrate small milk, broiler, and vegetable producers into the supply chain and their impact on transaction costs and farm profitability. The findings indicate that CF arrangements have significantly reduced transaction costs, enhanced market efficiency, and benefited smallholders. Transaction costs have decreased by more than 90 per cent for milk and vegetables and by 58 per cent for broilers through CF. Net revenue for contract producers is 2 to 4 times higher in milk and vegetables and 1.1 times higher in broilers. Smallholders with limited marketable surplus and high marketing costs have benefited the most from these arrangements. Additionally, the study shows that contract farmers receive relatively higher prices (4-25%) than non-contract farmers, contradicting the notion that CF exploits producers.

The stories from different states suggest that CF benefits farmers with better returns than NCF. Farmers in CF often receive better returns despite even higher production costs due to fixed prices.

1.3.5 Existing Research Gaps

There are diverse terms and conditions of contract arrangements; in particular, in India, it is often an oral or verbal arrangement without any legal or written specifications. Further we found there are several models in practice in India depending on crops and contracting firms. However, there is a lack of discussion on how such models are developed. Moreover, the political economy of such models and the expansion of CF are often overlooked. CF in India is dominant mainly by intermediaries involved or multi-parties model. Recent studies from West Bengal also mentioned the involvement of vendors as intermediaries (see Behera & Kodirekkala, 2022; Mukherjee, 2022). However, their identity, role, and power relations yet remain unknown. Moreover, it needs to examine how they interact with farmers to link them to the export market and their contribution to the input and output market. Additionally, the social and economic structures of these actors need to be examined, considering that social inequality has significant impacts on the rural economy, particularly the dominance of caste in India's rural social and economic life.

Fairness of contracts is not well understood in India, although many studies have claimed unequal power relations and corporate exploitation in CF arrangements. Although critics of CF have raised several issues, there is less discussion on fairness and how to conceptually measure it. Moreover, how, and when unfairness emerges must be understood to examine the transparency in contract arrangements and the sustainability of CF. There is no existing framework to measure fairness in contract arrangements. In this study, I developed the conceptual definition of fairness to measure the unfair acts and arrangements in CF. The theoretical framework I have developed would better explain unfairness in contracts and transparency in the arrangements.

In the third section, it is evident that CF often helps farmers connect with the market, provides input support, and improves access to technology. Studies have primarily examined the economic aspects while neglecting the social relationships and power dynamics between small farmers and corporate firms. The impact of the CF value chain on social relations and how they influence it is yet to be explored in India, especially considering the persistence of social discrimination and dominance in the rural economy.

The economics of CF studies indicate that farmers often obtained higher returns despite lower yields due to higher (fixed) prices. On the other hand, some researchers have emphasised that farmers benefit more from high yields and higher prices. Additionally, studies suggest that the fixed contract price is a 'win-win' condition for farmers under the contract. However, there has been less focus on how fixed price contracts affect the farm return of small and marginal farmers in India. Furthermore, the impact of CF on smallholders is not well understood in India, as most studies focus on agriculturally developed states.

1.4 Statement of the Problem and Scope of Study

Despite the considerable progress witnessed in CF within the Indian context over recent decades, prevailing research has concentrated on microeconomic dimensions such as production, income generation, and employment opportunities. Strikingly absent from the purview of mainstream economists is an exploration of how CF impacts agrarian relations or is reciprocally influenced by the

social relations of production. Furthermore, there exists a discernible lacuna in the comprehensive understanding of the *fairness of contracts* and the *legal framework* within which CF operates.

Moreover, the intricate social dynamics embedded within the CF value chain in India, where social discrimination and dominance exert a considerable influence on access to the means of production, credit facilities, income, and other pivotal activities, remain inadequately understood. While intermediaries have been identified as pivotal actors within the CF system through many studies, the factors dictating their emergence in the context of agrarian change and the motivations compelling corporate firms to engage with intermediaries remain obscured.

Furthermore, the consequential effects on production and income experienced by small-scale farmers within CF arrangements have not been subjected to exhaustive scrutiny. Despite the commendation accorded to *fixed pricing* in CF for affording farmers secure returns, mainstream economists have tended to overlook the constraints inherent in advance contracts, which may be binding and non-negotiable. This oversight warrants a more critical examination to delineate a more comprehensive understanding of the complexities inherent in the CF practice.

1.5 Research Objectives and Research Questions

The existing studies have limitations, including a lack of discussion about the position of smallholders in relation to other actors in the production process. While some studies have identified the existence of intermediaries in CF, it is still unknown who becomes intermediaries and what factors favour their emergence in the changing agrarian relations. Moreover, despite claims of power imbalances and corporate exploitation within CF arrangements, a dearth of comprehensive explanations exists regarding the measurement of fairness. Consequently, this thesis is motivated by the imperative to address these research gaps and is structured around four primary objectives aimed at enhancing our understanding of these critical dimensions within the context of potato CF. Initially, I developed three main objectives to understand the CF. After analyzing the evidence collected, I discovered that some issues with the CF arrangements stem from inadequate regulations due to the absence of a legal framework for contracts. Therefore, I added another objective to explore the legal framework in West Bengal and India.

Research Objective 1: To inquire into the contract farming framework and identification of actors.

- Research Question 1A: What model of potato contract farming is followed in West Bengal under PepsiCo?
- Research Question 1B: What role do intermediaries play in the input and output market?

Research Objective 2: To examine the contract farming value chain and fairness of arrangements.

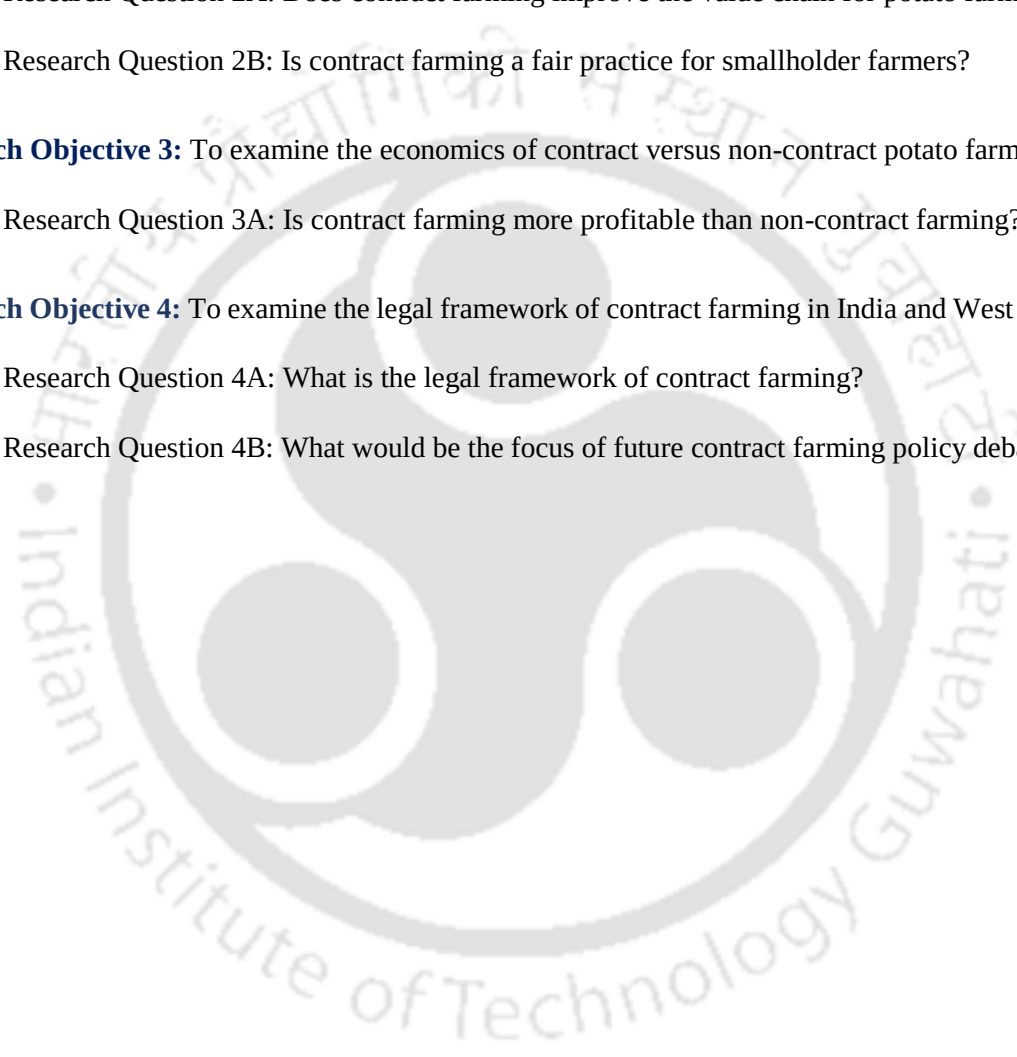
- Research Question 2A: Does contract farming improve the value chain for potato farmers?
- Research Question 2B: Is contract farming a fair practice for smallholder farmers?

Research Objective 3: To examine the economics of contract versus non-contract potato farming.

- Research Question 3A: Is contract farming more profitable than non-contract farming?

Research Objective 4: To examine the legal framework of contract farming in India and West Bengal.

- Research Question 4A: What is the legal framework of contract farming?
- Research Question 4B: What would be the focus of future contract farming policy debates?



Chapter 2. Research Methodology: Study Area and Research Design

The previous chapter presented a comprehensive literature review on CF that aids in outlining the research objectives and questions. This chapter describes the research methodology. This chapter first discusses why I selected West Bengal as a case, followed by factors considered to finalise two study districts: Bankura and Hooghly. Section 2.1 discusses the reason why West Bengal has been selected for the present study. I have highlight the political economy of the state make it unique to select for the present study. The study district, block, and village selection in section 2.2 follows this. I discuss the criteria about the availability of information in selection of specific block and villages. The next section 2.3 discusses the research design, explains the research methodology, and provides information about the sample population. I have highlights the need for a mixed methods research approach to understand the consequences of CF comprehensively which either qualitative or quantitative alone cannot capture. This section presents the details about the fieldwork and information.

2.1 Why West Bengal?

In West Bengal, over 95 per cent of total landholders belong to the small and marginal categories, possessing less than 2 hectares of land. These small and marginal landholders account for more than 80 per cent of total operational holdings. Presently, the average landholding in West Bengal is 0.76 hectares, lower than the national average of 1.08 hectares (Agriculture Census Report, 2015-16). West Bengal is the second-highest potato-producing state in India after Uttar Pradesh¹⁰. Tomatoes, onions, and potatoes, collectively known as TOP vegetables, are the three most cultivated, produced, and consumed vegetables in India. While the procurement and marketing of cereals and dairy products are relatively developed, farmers who cultivate high-value crops such as vegetables and fruits face acute challenges, including post-harvest losses and market failures (Gulati et al., 2022). Further West Bengal has shifted largest area under the cultivation of fruits and vegetables during the 2005-06 to 2015-16

¹⁰ As per monthly report for May 2020 by Horticulture Stastics Division, Department of Agriculture, Cooperation & Farmers Welfare, Ministry of Agriculture & Farmers Welfare, Government of India, West Bengal contributes 25.65 per cent after Uttar Pradesh of 27.30 per cent in total potato production in India.

agriculture census period. In which potato share the largest contribution in vegetables (see Barik and Bedamatta, 2024). These factors are considered while selecting the crop, i.e., potato, to see whether or not smallholder farmers benefit from CF cultivating high-value crops, like potatoes.

West Bengal's agrarian context provides several reasons for studying contract farming. Extensive tenancy reforms were carried out in West Bengal in the 1970s. While land reform initiatives in India have generally struggled to significantly redistribute land from landlords due to legal issues, they have been effective in distributing vested lands to landless households. Despite the limited overall success of land reforms in India, West Bengal, along with Tripura and Kerala, achieved notable success by redistributing 6.72 per cent of operated land by 1992, surpassing the national average of 1.34 per cent (Bardhan & Mookherjee, 2010; Ramakumar, 2022). Furthermore, a village-level study by Bakshi (2008) suggests that land reform initiatives have benefited socially disadvantaged groups such as Dalits, Adivasis, and Muslims. Additionally, West Bengal has a significant rural non-farm economy, contributing notably to employment and income (Pramanik, 2021).

Since 1978, the panchayat system has been a key institution in implementing development programs. It has decentralized political power, empowered people experiencing poverty and landlessness, and introduced a new social order with increased political participation (Acharya, 1993; Rawal, 2001).

A three-tier Panchayat system was envisaged in the West Bengal Panchayat Act 1973, which came into force in June 1978 when the first general election for the Zilla Parishads (ZPs), Panchayat Samitis (PSs) and Gram Panchayats (GPs) was held. Through this system, political power was decentralised at the village level which strengthened the political participation from rural areas.

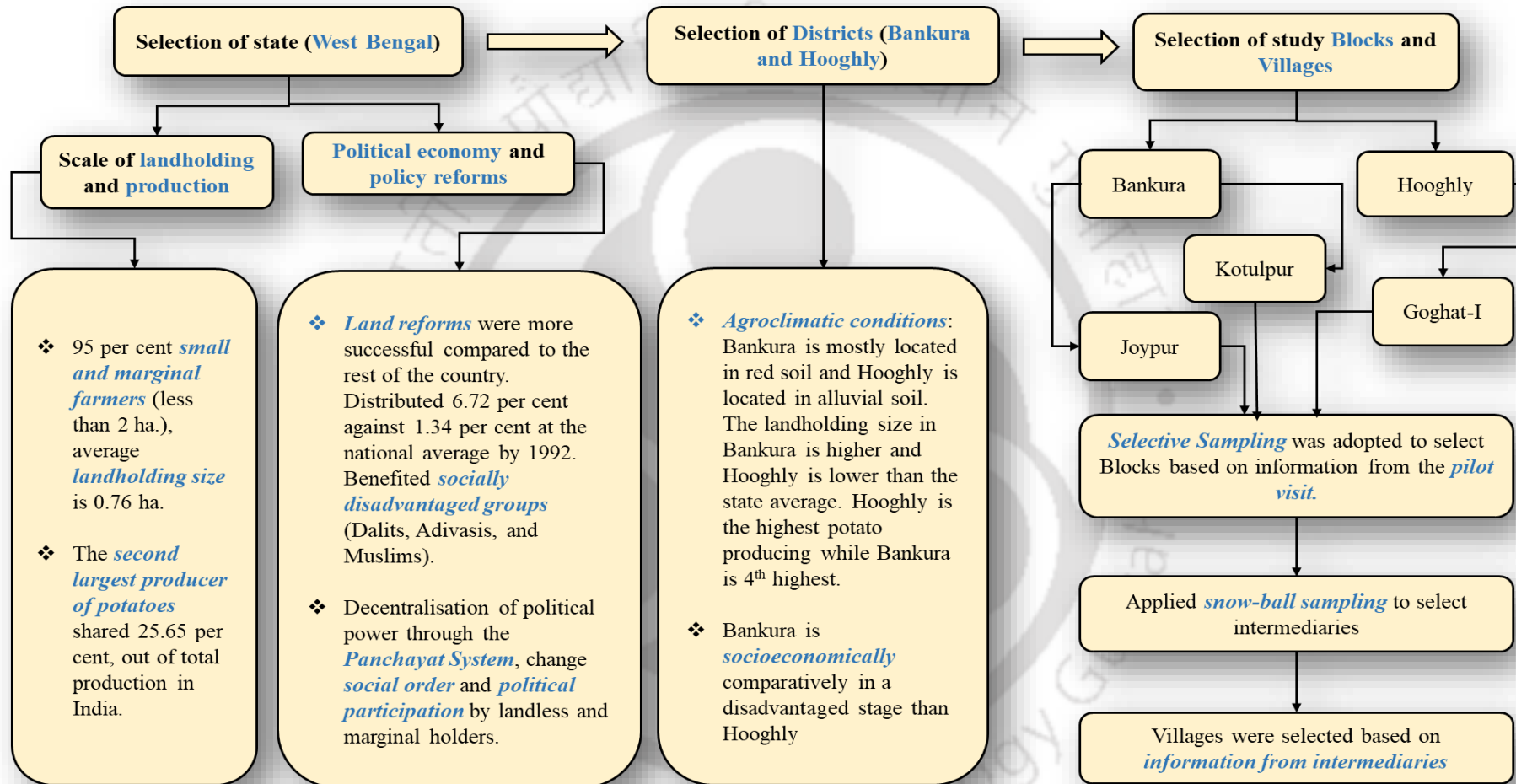
West Bengal politics has been characterised by competition between two leading parties, the Left Front coalition, and the Congress party. The Congress party dominated state politics until the mid-1960s, whose traditional base in rural areas has been dominated by big landlords. Since the late 1970s, the Left Front has dominated both the state legislature and local governments. It represents a constituency dominated by landless and marginal landholders,

with big landowners stated as the 'class enemy' in the party's ideology (Bardhan & Mookherjee, 2003, p.3).

I posited an argument that, given the dominant prevalence of smallholder farmers and non-farming opportunities, the impact of class dominance on the production process and power dynamics within the framework of CF remains unknown. This raises a simple question: *What kind of class relations are involved in CF?* Despite significant changes in social order and political participation following policy reforms, it is necessary to examine how the social relations of production affect the positions of smallholders. This study explores how social relations of production influence the CF model and its actors.



Figure 5 Criteria for the Selection of Study Area: State, Districts, Blocks and Villages



Source: Author's compilation

2.2 Selection of Study Area: District, Block, and Village

For this study, two districts, Bankura and Hooghly, were finalised out of the 23 districts in West Bengal¹¹. Five primary reasons motivated the selection of these two districts.

Agroclimatic Conditions:

The first reason pertains to the agroclimatic division, which acknowledges the variations in climate and environmental factors across different regions. This division is crucial for understanding the specific challenges and opportunities associated with potato cultivation in Bankura and Hooghly.

Landholding Pattern:

The second reason focuses on the distribution of landholdings, recognising that landholding patterns have a direct impact on agricultural practices and productivity. Understanding the landholding distribution in these districts is essential for understanding the socioeconomic dynamics of potato cultivation.

Concentration of Potatoes:

The third reason centres on the area dedicated to potato cultivation, as it indicates the significance of this crop in the agricultural landscape of Bankura and Hooghly.

The yield of potatoes:

The fourth reason is potato yield rate, which indicates the productivity and efficiency of potato farming in these districts.

Socioeconomic Parameters:

Finally, certain socioeconomic conditions were considered because they influence various aspects of agricultural practices and the livelihoods of farmers in the selected districts.

¹¹ India as a Union nation has 28 states and 8 Union Territories (UT), West Bengal is one of Eastern states, has 69 Sub-divisions (e.g., Arambag sub-division) in 23 Districts (e.g., Hooghly district). Sub-divisions are group of Blocks (e.g., Goghat-I, in Arambag sub-division of Hooghly district). Within each block there are several villages.

2.2.1 Agroclimatic Zones of West Bengal

West Bengal is broadly divided into six agroclimatic zones. These zones fall among three agroclimatic regions (*Eastern Himalaya Region, Lower Gangetic Plain, Eastern Plateau & Hill Region*) out of fifteen broad regions of India, classified by the Planning Commission¹², Government of India.

Considering the agroclimatic conditions, specifically the soil types, Bankura and Hooghly districts were selected from two distinct soil zones. Bankura district falls within the Red and Laterite Zone (see **Table 3**), with certain parts also situated in the Vindhyan Alluvial Zone. In contrast, Hooghly district is located entirely within the Vindhyan Alluvial Zone.

The primary objective of choosing districts from different agroclimatic zones was to observe potential regional variations in potato production and yield. This approach aimed to account for any differential impacts of agroecological conditions on agricultural outcomes in the respective regions. By considering districts from distinct agricultural zones, it is possible to capture and analyse potential regional disparities in potato production and yield that may be attributable to varying agroecological factors.

Therefore, to comprehensively understand the relationship between agroecological conditions and potato production, any regional variations arising from the diverse agroclimatic zones in Bankura and Hooghly districts should not be overlooked or disregarded.

¹² The planning commission, Government of India now known as the NITI Aayog serves as the apex public policy think tank of the Government of India.

Table 3 Distribution of Districts Under Agroclimatic Zones

Zones under the Indian Agroclimatic region	Agro-climatic Zone West Bengal	Soil Type and Area	District	Annual Rainfall Max ^m -Min ^m Temp
Eastern Himalayan Region	North Hill Zone	Brown Forest and Tarai Soil (3,68,642 ha)	Part of Darjeeling and Jalpaiguri	2500–3500 mm. 19.50C–4.80C
	Teesta-Tarai Alluvial Zone	Tarai Soil (11,45,443 ha)	Coochbehar, part of Darjeeling, Jalpaiguri and U. Dinajpur	2500–3500 mm. 19.50C–4.80C 2000–3000 mm. 32.30C–12.80C
Lower Gangetic Plain Region	Gangetic Alluvial Zone	Ganga Alluvial (20,84,540 ha)	D. Dinajpur, Malda, Nadia, Part of U. Dinajpur, Murshidabad, N. 24 PGS, S. 24 PGS, Howrah, Hoogly & Birbhum	1350–1650 mm. 35.0C–15.60C
	Vindhyan Alluvial Zone	Vindhyan Alluvial (17,71,472 ha)	Part of Murshidabad, Howrah, Hoogly, Burdwan, Birbhum, Bankura, Paschim and Purba Medinipur	1500–2000 mm. 35.50C–15.10C
	Coastal Saline Zone	Coastal saline (13,19,466 ha)	Part of N. 24 PGs, S. 24 PGS, Howrah and Purba Medinipur	1600–1800 mm. 34.0C–16.0C
Eastern Plateau and Hill Region	Red and Laterite Zones	Red Soil (19,97,887 ha)	Puruliya, Part of Burdwan, Birbhum, Bankura and Paschim Medinipur	1100 - 1400 mm. 37.0C–14.80C

Source: Department of Agriculture, Government of West Bengal.

2.2.2 Landholding Distribution Across Districts of West Bengal

Based on data obtained from the Department of Agriculture, Government of West Bengal, the average size of agricultural landholdings in the state is merely 0.77 hectares. However, there are significant disparities in distribution of operational holdings of land. I selected Bankura, having an average landholding size of 0.96 hectares, higher than the state average. The other district, Hooghly, had lower than state average landholding size of 0.62 hectares (see **Table 4**).

The purpose of considering these variations in landholding sizes is to explore and assess disparities in performance, production, and profits within the context of the CF. Critics of CF have expressed apprehensions regarding firms' preference for large landholders, in regions with more favourable resource endowments, thereby limiting the participation of smallholder farmers. Empirical studies conducted in India, have also revealed a bias among firms towards resource-rich and large landholding farmers, while imposing restrictions on smallholders (e.g., Narayanan, 2014; Swain, 2012; Sharma, 2016). Considering these concerns, the selection of districts in this study aims to examine whether firms or intermediaries indeed impose restrictions on farmers, based on their farm size. By analysing the chosen districts, this study investigates the extent to which CF arrangements favour large landholders, and limit the involvement of smallholders.

2.2.3 Concentration of Potato Cultivation Across the Districts

The diverse agroclimatic conditions of the state allow the cultivation of various crops throughout the year. As previously mentioned, West Bengal is the second-largest producer of potatoes after Uttar Pradesh. Some districts allocate more area under potatoes, whereas in other cases, it is less. Hooghly is the leading district that allocates the highest potato cultivation area, whereas Bankura is the 4th highest (see **Table 5**).

Table 4 District-Wise Average Size of Landholdings (in hectare)

Sl. No.	District	1970-71	1976-77	1980-81	1985-86	1990-91	1995-96	2000-01	2005-06	2010-11
1	Darjeeling	3.06	2.67	2.35	2.13	2.08	1.72	1.66	1.47	1.45
2	Jalpaiguri	2.40	2.00	1.67	1.66	1.62	1.45	1.24	1.20	1.20
3	Coochbehar	1.15	1.14	1.01	1.01	0.98	0.98	0.89	0.85	0.84
4	Uttar Dinajpur	1.67	1.29	1.07	1.10	1.08	1.08	0.96	0.89	0.88
5	Dakshin Dinajpur						0.97	0.95	0.91	0.86
6	Malda	1.24	0.89	0.89	0.90	0.87	0.86	0.82	0.79	0.75
7	Murshidabad	1.06	0.91	0.90	0.77	0.75	0.76	0.75	0.74	0.73
8	Nadia	1.31	1.03	0.97	0.97	0.96	0.94	0.88	0.84	0.83
9	N 24 Parganas	0.95	0.89	0.75	0.69	0.69	0.67	0.66	0.66	0.63
10	S 24 Parganas	0.95	0.69	0.66	0.70	0.71	0.61	0.60	0.59	0.60
11	Howrah	0.50	0.45	0.47	0.44	0.43	0.43	0.44	0.45	0.44
12	Hooghly	0.91	0.77	0.75	0.72	0.71	0.66	0.66	0.63	0.62
13	Burdwan	1.40	1.20	1.24	1.21	1.15	1.13	1.04	1.00	0.97
14	Birbhum	1.50	1.24	1.23	1.21	1.12	1.11	1.06	1.01	0.98
15	Bankura	1.39	1.07	1.13	1.13	1.12	1.11	1.06	1.00	0.96
16	Purulia	1.28	1.11	1.18	1.01	1.05	0.89	0.86	0.82	0.80
17	Paschim Medinipur	1.00	1.03	1.03	1.04	1.02	0.87	0.75	0.73	0.70
18	Purba Medinipur	1.00	0.63	0.61	0.58	0.57	0.55	0.53	0.53	0.52
	West Bengal	1.20	0.99	0.95	0.92	0.90	0.85	0.82	0.79	0.77

Source: Department of Agriculture Government of West Bengal.



Table 5 Area Under Potato by District in West Bengal (in 000 hectare)

Sl.No	District	2000-01	2010-11	2011-12	2012-13	2013-14	2014-15
1	Burdwan	42.1	53.0	49.0	56.9	57.8	60.1
2	Birbhum	12.8	18.0	17.9	17.9	18.2	16.2
3	Bankura	21.5	30.3	29.5	26.3	29.7	30.6
4	Purba Medinipur	20.6	4.9	4.4	4.3	3.8	2.8
5	Paschim Medinipur	39.8	64.7	60.0	58.6	61.3	63.5
6	Howrah	9.2	8.9	8.1	7.8	7.6	8.6
7	Hooghly	80.6	100.4	94.4	100.2	99.8	100.7
8	N 24 Parganas	8.5	9.2	7.0	6.4	8.7	9.8
9	S 24 Parganas	3.8	7.3	8.0	3.3	2.9	1.6
10	Nadia	3.5	7.1	5.2	5.6	5.0	5.4
11	Murshidabad	8.9	12.2	11.1	13.1	13.2	11.8
12	Uttar Dinajpur	6.7	11.3	10.7	11.7	9.8	8.3
13	Dakshin Dinajpur	4.7	6.3	5.9	5.6	5.0	4.9
14	Malda	2.4	5.0	3.9	4.9	5.1	5.5
15	Jalpaiguri	14.3	31.7	31.9	33.6	40.1	38.1
16	Darjeeling	7.1	7.5	7.4	7.4	7.4	7.2
17	Cooch Behar	12.2	30.0	23.7	24.6	35.1	36.6
18	Purulia	0.9	1.1	1.1	0.9	1.7	0.5
	West Bengal	299.7	408.8	379.2	389.1	412.2	412.2

Source: Statistical Abstract 2015 of West Bengal.



2.2.4 Yield Rates of Potatoes Across Districts

Generally, high yields are considered economically beneficial to farmers, contributing to high production and income. Despite the presence of favourable agroclimatic conditions, particularly the presence of alluvial soil known for its high fertility, the yield rate in the Hooghly district is observed to be lower than that in Bankura (see **Table 6**).

Bankura district exhibits a relatively higher average landholding size, which correlates positively with the higher yield rate observed in that region. One of the factors under consideration is the prevalence of smallholdings, which may impact overall productivity. Furthermore, it was deemed important to explore the difference in yield between CF and NCF if it persists within and across districts. This inquiry aimed to shed light on any disparities in agricultural output associated with the adoption of CF practices compared with traditional farming methods.

2.2.5 Socio-economic Conditions Across Districts (2011)

The NITI Aayog's district-level statistics on specific socioeconomic parameters reveal a significant disparity in West Bengal (see Table 7). The selected district, Hooghly, stands in better condition than Bankura. This study selected these two districts, considering the modern agriculture practises and adoption of new technologies associated with the socioeconomic conditions of farmers. Therefore, I have selected two districts with diverse agroecological and socioeconomic conditions to examine potential differences in farmers' participation in CF, production, and others.

Table 6 Potato Farming Concentration Across the Districts (yield rates in kg/ha)

Sl No	District	2000-01	2010-11	2011-12	2012-13	2013-14	2014-15
1.	Burdwan	26454	37645	27675	32578	22336	31968
2.	Birbhum	20826	28082	30013	30906	24458	30493
3.	Bankura	26622	39295	30531	26328	16115	37282
4.	Purba Medinipur	21424	26601	25170	25222	29972	26221
5.	Paschim Medinipur	28987	38378	19156	24973	19969	37996
6.	Howrah	26919	36458	21985	31866	32614	33917
7.	Hooghly	28997	35162	25837	32414	20811	34802
8.	N 24-Parganas	22364	36156	29242	31851	32150	33093
9.	S 24-Parganas	20521	25558	23688	23931	29088	24445
10.	Nadia	26999	27301	30959	31905	30590	40777
11.	Murshidabad	24094	30040	26390	27898	22656	33349
11.	Uttar Dinajpur	19789	29967	29452	30592	31391	26647
12.	Dakshin Dinajpur	18303	26738	26334	29108	26224	24989
13.	Malda	17642	29153	38048	36077	32175	36905
14.	Jalpaiguri	21638	23141	26531	31214	24710	31523
15.	Darjeeling	13759	16992	15662	16124	16434	16926
16.	Cooch Behar	23031	21707	25508	30291	17054	33107
17.	Purulia	14732	16167	16167	18842	25320	20954
	West Bengal	25606	32831	25641	29869	21955	33737

Source: Statistical Abstract 2015 of West Bengal.



Table 7 Socio-economic Condition Across Districts (2011)

Sl. No.	District	Health (Sex ratio)	Education (Literacy %)	Electricity (households %)	Water (households%)	Telephone (households %)
1	Burdwan	945	76.21	89.20	97.50	47.51
2	Birbhum	956	70.68	93.30	96.90	24.30
3	Bankura	957	70.26	84.8	95.1	27.30
4	Purba Medinipur	938	87.02	92.60	99.60	41.86
5	Paschim Medinipur	966	78	89.60	94.70	38.64
6	Howrah	939	83.31	96.90	100	55.58
7	Hooghly	961	81.80	91.80	100	52.08
8	N24-Parganas	955	84.06	92.4	99.7	54.30
9	S24-Parganas	956	77.51	84.20	99.90	45.30
10	Nadia	947	74.97	88.30	99.50	39.93
11	Murshidabad	958	66.59	86.50	99.50	31.06
12	Uttar Dinajpur	939	59.07	84.30	95.80	30.98
13	Dakshin Dinajpur	956	72.82	85.50	99.60	35.53
14	Malda	944	61.73	88.70	91.40	32.12
15	Jalpaiguri	953	73.25	82.90	87.40	34.00
16	Darjeeling	970	79.56	95.80	79.60	56.14
17	Cooch Behar	942	74.78	86.40	98.60	28.87
18	Purulia	957	64.48	81.60	85.90	30.78

Source: NITI Aayog, Government of India.



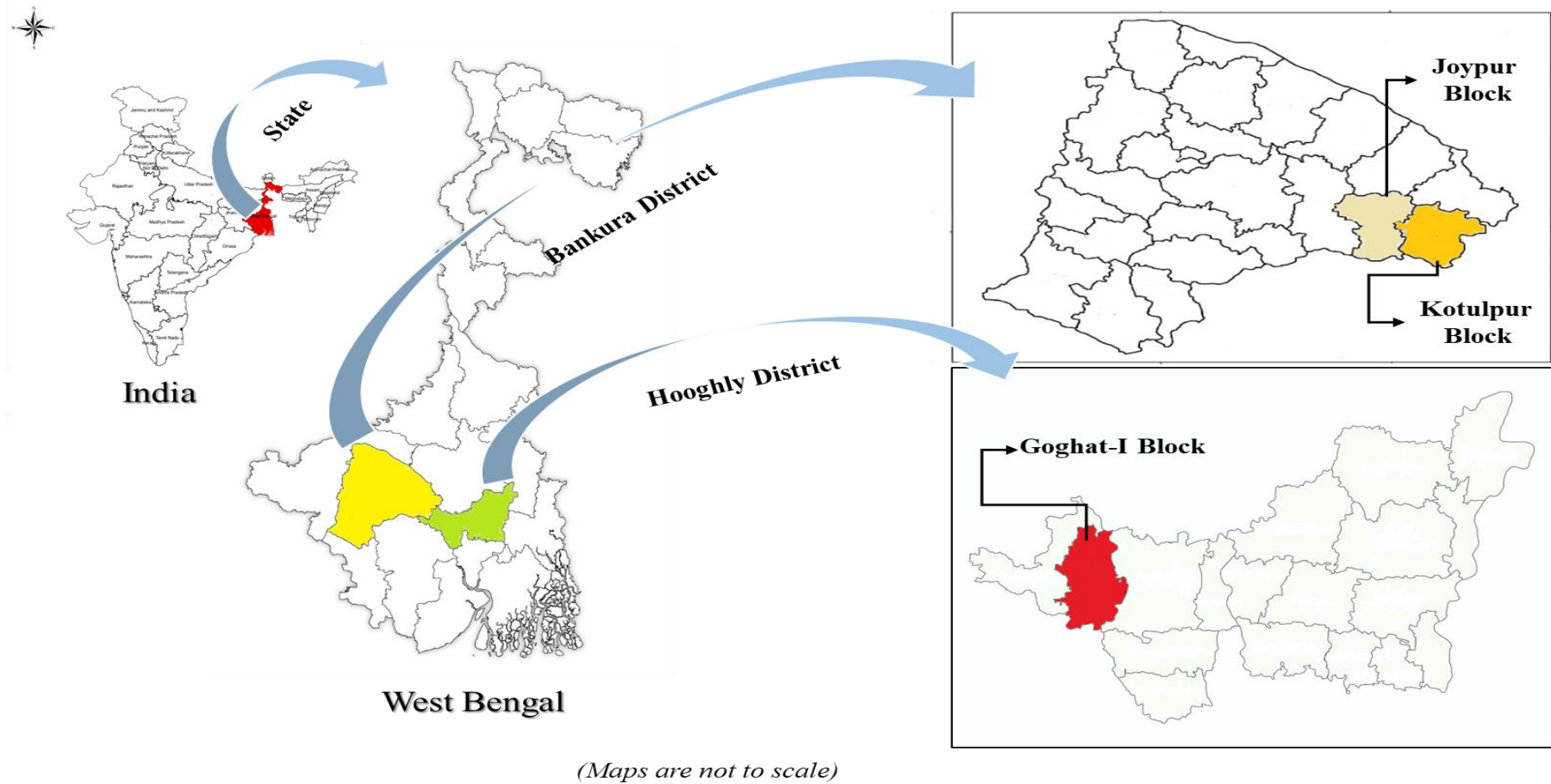
2.2.6 Selection of Study Block and Village

The preceding section discusses the rationale behind selecting the study districts. This section provides details regarding the blocks and villages included in this study. During the pilot visits, valuable information was obtained from participants regarding the locations of intermediaries and contract farmers. Subsequently, the selection of study blocks and villages was carried out purposefully, drawing upon the insights gained during the pilot visit to include sufficient intermediaries and contract farmers.

Before designing the survey schedule and finalising the study villages, I conducted a pilot visit in Hafizganj village under the Goghat-I block of Hooghly district in August 2020. The pilot visit covers one in-depth interview with a sub-vendor and one focus group discussion (FGD) with contract farmers from the same village. This helps to develop the structure of the survey schedule and questionnaire.

For this study, two blocks, namely Kotulpur and Jaypur, from the Bankura district and one block, Goghat-I, from the Hooghly district, were selected. The selection process considered the pilot visit experience, ensuring sufficient representation of intermediaries and contract farmers. Owing to the absence of available secondary information and the uneven distribution of intermediaries across various blocks and villages, identifying these actors posed a challenge. Therefore, the snowball strategy was employed to obtain location information for vendors and sub-vendors. This strategy involved leveraging existing connexions to expand the network and identify additional intermediaries. The location of the study area is presented on the map (see **Figure 6**). The visual representation illustrates the geographical positioning of the state i.e., West Bengal within India. The left side depicts the overall location of the state, and the right side explicitly highlights the two study districts within it.

Figure 6 Location of Study Area: State, Districts and Blocks



Source: Author's scheme

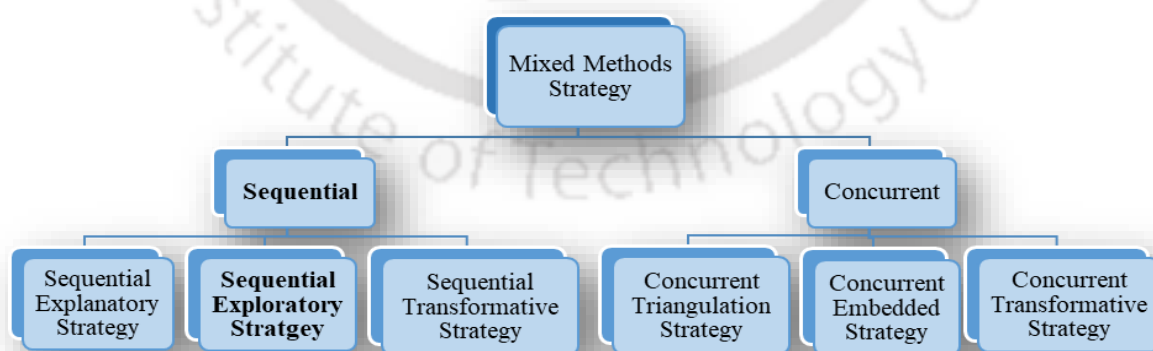
(The top left-hand map shows the location of West Bengal in India. The middle map shows the locations of the two districts in West Bengal. The right-hand top map shows the two blocks, Joypur and Kotulpur, in Bankura. The below right side map shows the Goghat-I block).

2.3 Research Design: Methods, Sample Population, Data Analysis Method and Steps

This study employs a mixed-methods research approach. A mixed methods approach incorporates the strengths of qualitative and quantitative information in a single study to address research questions. The data are collected concurrently or sequentially and involve integrating the data at one or more stages in the research process (e.g., Creswell et al., 2003). In the concurrent design, quantitative and qualitative data are collected simultaneously during the same phase. However, one form of data is given more weight than another. While the sequential design involves data collection in two or more phases, it may start with qualitative followed by quantitative, or it can be vice versa.

This study applies a sequential strategy to conduct data collection in two different phases to examine the consequences of CF in West Bengal. Sequential design, in which the researcher seeks to elaborate on or expand the results of one method with another. This procedure may involve beginning with a qualitative method for exploratory purposes and following up with a quantitative method with a large sample to generalise the results to a population. Alternatively, the study may begin with a quantitative method in which theories or concepts are tested, followed by a qualitative method involving a detailed exploration of a few cases or individuals (Creswell & Creswell, 2017). These two principal designs are again subdivided into six strategies (see **Figure 7**).

Figure 7 Mixed Methods Research Strategy



Source: Creswell and Creswell, 2017.

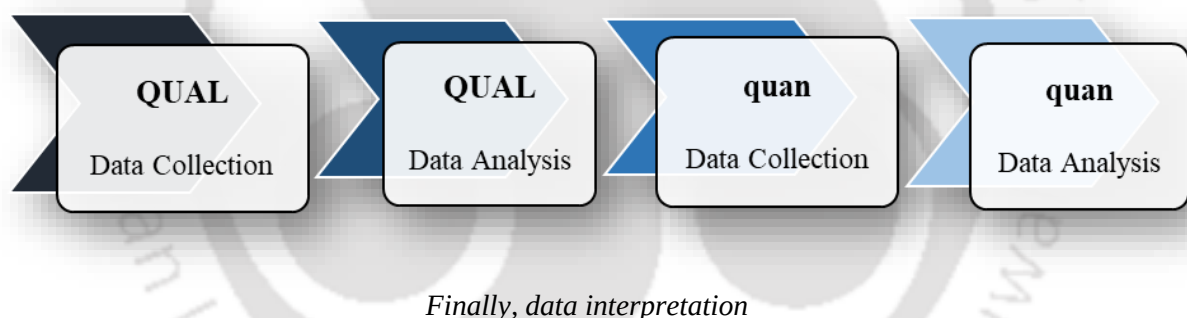
Reviewing the three strategies that fall under the sequential design, this study applied the *sequential exploratory strategy* (SES). The SES design is characterised by an initial phase of qualitative data

collection and analysis followed by a phase of quantitative data collection and analysis (Creswell et al., 2003). Therefore, priority has been given to the qualitative aspect of the study. The findings of these two phases are then integrated during the interpretation phase. The steps followed in the present study are elaborated through the following visual model (see **Figure 8**).

2.3.1 Visual Model for The Study

Applying the SES design, data are collected over a period of time in two consecutive phases. The second phase of data collection is followed by the outcomes of the first phase of fieldwork. This study gathered information using a qualitative approach during the initial data collection phase. It prioritised collecting qualitative information in the first phase based on the research objectives. The second phase of data collection focuses on quantitative aspects and is linked to the outcomes of the first phase.

Figure 8 Steps of Data Collection and Analysis



The visual model (see **Figure 8**) depicts the steps followed in this study. The word 'QUAL' in capital letters stands for qualitative, indicating that the study emphasised more on the qualitative aspect. The word 'quan' in the small letter stands for quantitative, implying that the study has given comparatively less emphasis on the quantitative aspects. The main motive of this method is to understand the context following the qualitative analysis of the first round of information and to reach a conclusion through quantitative analysis and backing comprising a large sample.

2.3.2 Methods and Tools for Data Collection

Thus far, the discussion deliberated the research strategy and research design applied in the study. However, in adopting the research design under the sequential strategy, the pilot visit has significantly

helped. The information I have gained during the pilot visit has assisted in planning the phase for fieldwork, and the tools and techniques for data collection.

The fieldwork plan was developed by considering the insights gained from the pilot visit, the duration of the potato season, and the various actors involved in CF. The pilot visit primarily focussed on investigating the contract arrangements under PepsiCo, which involved intermediaries such as vendors and sub-vendors. This preliminary visit served as a foundation for understanding the dynamics of CF within this context. The pilot visit also assisted in planning the fieldwork phases, tools and techniques, and target participants.

First Phase Fieldwork (December 2021 to February 2022):

The first phase of fieldwork was conducted immediately after the potato sowing. This study aimed to gather qualitative information about the key terms and conditions of the contracts to assess the fairness of the arrangements. This phase also aimed to identify the prevalent contract models employed and examine the roles played by various actors in both the input and output markets.

Second Phase Fieldwork (May 2022 to July 2022):

The second phase of data collection was conducted after the analysis of the first phase's information. The second phase primarily focussed on the quantitative aspect, including the cost and benefits of potato farming under CF and NCF households. The methods and tools of data collection applied in the study during the two phases are consolidated in Table 8.

Table 8 Methods and Tools for Data Collection

Phase	Purpose	Aspect	Methods and techniques	Tools	Participants
Phase -I	Understand ing model, 'fairness' and value chain	'QUAL' (Qualitative)	Focus group discussions (FGDs), and Key informant interviews (KIIs)	Semi-structured open-ended questionnaire.	Contract farmers, intermediaries, e.g., vendors and sub-vendors.
Phase-II	Impact of CF on smallholder	'quan' (Quantitative)	Household survey	Closed-ended survey schedule.	Contract farmers and non-contract farmers.

Source: Author's scheme.

Focus group discussions (FGDs) were conducted using a semi-structured open-ended questionnaire to investigate the model, actors and fairness of CF through an examination of its terms and conditions. Contract farmers actively participated in these FGDs, sharing their personal experiences and providing valuable insights into their CF engagements. The adaptation of a semi-structured questionnaire aimed to provide participants with ample opportunities to delve into specific details. The purpose of this study was to comprehensively explore the topic and uncover any previously unknown facts through their contributions.

To specifically examine the roles, contributions, and commissions of intermediaries, namely sub-vendors and vendors, Key Informant Interviews (KIIs) were conducted with these key actors. These interviews aimed to gain in-depth understanding and insights directly from the intermediaries themselves. While questionnaires were employed for data collection, audio recordings of the discussions and interviews were obtained with the explicit consent of the participants. These recordings served as valuable resources for subsequent transcription and analysis, thereby ensuring the achievement of the research objectives.

The study structured a closed-ended survey questionnaire to measure the farm return of potato farming by cost and profit analysis. The survey questionnaire was prepared following the guidelines of the Cost Study Division of the Directorate of Economics and Statistics, which provides a manual for measuring the *Cost of Cultivation for Principal Crops* (CCPC). Contract and non-contract farmers participated in the second phase of field data collection.

2.3.3 Sample Population

The first data collection phase involved engaging with contract farmers through FGDs and intermediaries through KIIs. A total of 12 FGDs were conducted, involving the participation of 90 contract farmers from 12 different villages. In addition, 31 KIIs were conducted with intermediaries, including 13 KIIs with vendors and 18 KIIs with sub-vendors. **Table 9** presents the breakdown of cases across districts, blocks, and villages, highlighting the specific locations covered in the study.

Table 9 Details of the Study Village Covered in Phase-I

District	Block	Tools	Village Name (original name changed) ¹³
Bankura	Kotulpur	Four FGDs	Divas, Monahar, Dogra, Kalitha
		Five KIIs of sub-vendors	Dogra, Sarberia, Divas, Kalitha, Monoharbat
		Three KIIs of Vendors	Kalitha, Madanchak, Sundarpur
	Joypur	Two FGDs	Silia, Debasan
		Four KIIs of sub-vendors	Sitarpur, Debasan, Silia, Virdha
		Five KIIs of vendors	Tukjora, Bhutkora, Suwadeghi, Nadhipar, Bhatagore
Hooghly	Goghat-I	Six FGDs	Monoharganj, Sundarpara, Devchawak, Bhabanipur, Deolahri, Pukuri
		Nine KIIs of sub-vendors	Monoharganj , Devchawak (2)*, Sundarpara, Deolahri , Dharma, Nadipar (2)*, Gopiballavpur
		Five KIIs of vendors	Bhabanipur, Telisanra, Deshogram, Daspur, Gopiballavpur

Source: Field data (2021-22). NB: (*) Indicates two participants from the same village took part.

The initial round of fieldwork comprised the participation of contract farmers and intermediaries in FGDs and KIIs. In the first phase of fieldwork, 12 FGDs were conducted, each representing a distinct village. However, considering the constraints of time and resources, covering all 12 villages for the second phase of the household survey was impossible. Therefore, we planned to include at least 50 per cent of villages of FGDs (i.e., 6 out of 12) for the second phase of data collection through the household survey.

To draw the sample population for the second phase of fieldwork, I utilized available information from secondary sources. Table 10 presents key details retrieved from the Population Census 2011 to provide essential background information on these selected villages. These details include the number of households, total population, literacy rate, and number of main cultivators in each village. Compared with the total number of cultivators recorded in the Population Census of 2011, which was 1,750 for the 6 (actually I covered 7 villages as one village at present is divided into two) selected villages, only 25.03 percent of the cultivators (as per information we got from intermediaries) were engaged in CF during the 2021–22 season. It should be noted that the actual percentage of CF cultivators is likely to

¹³ The study village names are changed to protect the privacy of participants.

be even less, as the number of cultivators at present would have increased because of the continuous process of land fragmentation.

Table 10 Basic Details of Population Across Villages

District Name	Block Name	Name of village	Number of households	Total population	Literacy	Cultivators	Total Contract Farmers
Bankura	Jaypur	Silia	348	1665	74.05	209	65
	Kotulpur	Divas	377	2130	58.36	323	52
		Kalitha	823	4261	68.62	654	128
		Dogra	297	1643	70.30	150	30
Hooghly	Goghat-I	Monoharganj*	501	2645	59.21	221	46
		Deolahri					87
		Nadipar	395	1909	60.61	241	30
		Total	2656	13687		1750	438

Source: Census of India (2011). *Note: The village Monoharganj and Deolahri was a single village in the Census 2011, known as Mandanpur. So, the study selected seven villages for the second phase of fieldwork.

As per the information I received from the intermediaries, a total of 438 farmers (which was 25.03 per cent of total cultivators) were doing CF under PepsiCo for the season 2021-22. I draw a sample of 30 per cent out of the total contract farmers for the second phase household survey. Therefore, out of the 438 households, 131 contract farmers were selected. To ensure a fair and equal comparison, the sample size for non-contract farmers was also set at 131. Consequently, the target was to include a minimum of 262 farmers in the study, comprising 131 contract farmers and 131 non-contract farmers. Although we covered a total of 263 farming households in the second phase from three blocks and 7 villages (see **Table 11**).

Table 11 Distribution of Sample Size Drawn and Covered in Phase-II

District Name	Block Name	Village Name	Total CF	The sample size (30%)		Total sample drawn	Survey covered		Total HH
				CF	NCF		CF	NCF	
Bankura	Jaypur	Silia	65	19	19	38	19	20	38
	Kotulpur	Divas	52	16	16	32	15	16	32
		Kalitha	128	38	38	76	38	38	76
		Dogra	30	9	9	18	9	9	18
Hooghly	Goghat-I	Monoharganj	46	14	14	28	14	14	28
		Deolahri	87	26	26	52	26	27	53
		Nadipar	30	9	9	18	9	9	18
Total			438	131	131	262	130	133	263

Source: Field data (2021-22)

To distribute the sample for each village, the study employed the principle of probability proportional to size sampling. This sampling involves sampling from a fixed population, where a measure of size is available for each unit within the population before sampling. The probability of selecting a particular unit is then proportional to its size (Skinner, 2014). Applying the principle of probability proportional sampling approach, the distribution of samples for each village was determined based on the number of contract farmers within that particular village. This ensured that the sample selection process accounted for the varying proportions of contract farmers in each village, allowing for a representative sample to be drawn from the population of interest. The study has drawn a sample of 262 participants to cover in the second phase household survey, including contract and non-contract farmers. However, I covered 263 participants, of which 130 were contracted potato households, and 133 were non-contract households.

2.3.4 Data Analysis Methods and Steps

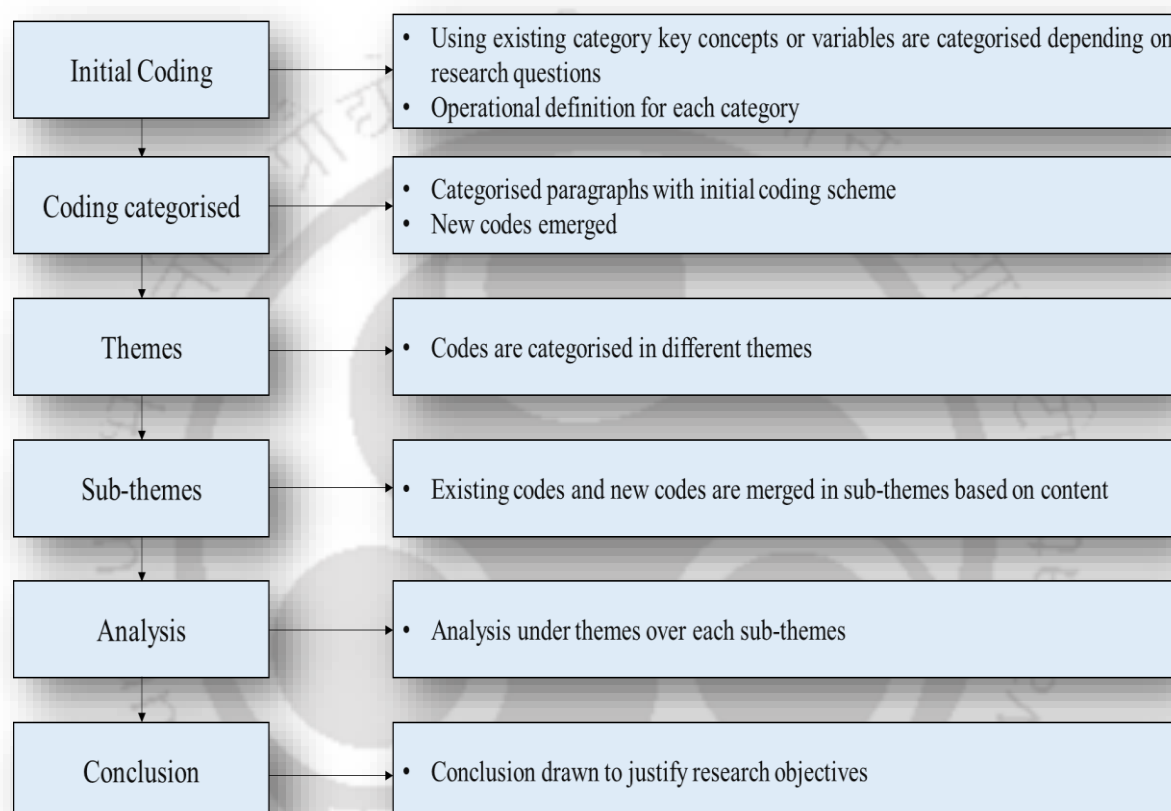
Content analysis has emerged as a prominent research method in health studies in recent years (see Hsieh & Shannon, 2005). Various methods can be employed for analysing textual data; however, in the present study, a *directed content analysis* (DCA) approach is deemed more appropriate. Unlike conventional approaches, DCA follows a more structured process guided by existing theories or research (Hickey & Kipping, 1996).

In this approach, the researcher describes research questions by drawing upon relevant theory or prior research. This allows the development of an initial coding scheme or identification of relationships between codes. In the context of the present study on CF, insights from literature reviews have provided valuable ideas about CF practices. In addition, the pilot visit has further aided in the development of initial codes for analysis. This study aims to enhance the systematic exploration of CF-related content and draw meaningful conclusions by employing the DCA approach. The purpose of using this approach was to capture all possible phenomena occurring in CF.

The information in the first phase was collected in a semi-structured manner with initially defined codes and concepts. Next I transcribed the information that has been collected in written and audio (Bengali

conversation) in English. I followed the next step by coding all the highlighted passages using the predetermined codes. However, much information did not fit the existing codes; therefore, I categorised them as new codes. Later, I described all the codes for a better understanding. The next step is a discussion of themes. The following chart shows the steps followed in the analysis (see **Figure 9**).

Figure 9 Steps Followed in the Content Analysis



Source: Author's elaboration.

Further, I have developed the *composite conceptual framework* (CCF) based on the concepts from the theories and guidelines discussed in the literature section. The CCF explains field evidence regarding the CF arrangements and framework to understand fairness and transparency in contract arrangements.

As previously stated, the data on costs and production for potato cultivation (2021-22 season) under CF and NCF was gathered in the second phase following the guidelines of the CCPC scheme. This information is tabulated and standardised in accordance with the scale of production of a unit of study

area. Farmers share information about their production and costs at regional or local levels. For example, they measure their agricultural operational land in Bigha and Katha, which I have converted to Acres. According to the information shared by the farmers, 1 Bigha is equal to 20 Katha and 2.5 Bigha is equal to 1 acre. Similarly, they also share the quantity of inputs in kilograms, which I have converted into quintals. Finally, I have applied the concepts of various costs of cultivation and farm returns used by Sharma (2016) to measure the costs and returns in potato cultivation under CF and NCF. I have calculated the individual household level return under CF and NCF and measured the average costs and income for the two types of households.



Part 2

Chapter 3. Contract Farming Model, Social Relations of Production and Power Dynamics

3.1 Introduction

The literature on CF in the first chapter suggests that diverse contract arrangements and models are practised across firms in India. Nevertheless, there exists a discernible gap in explaining the process connected with the development and operation of such models. Furthermore, previous studies have overlooked examining the political economy behind the development of such models or frameworks. Understanding the CF model is important for analysing the roles of different actors and the position of farmers within changing agrarian relationships. Therefore, this chapter examines two research questions. First: *What is the potato CF model followed in West Bengal, and who are the actors involved?* Second: *What role do intermediaries play in the input and output market?*

The first part of this chapter explores the CF model or framework and identifies actors involved in potato CF under PepsiCo. After the classification of the CF model, the subsequent section focuses on understanding how the model affects or is affected by the *social relations of production* in the CF practice. In the study area, the findings lead us to the intermediary-led CF model. PepsiCo in the study villages initially started CF through cooperative society later they shifted to private actors. Currently PepsiCo arrange the CF with potato farmers through intermediaries. Section 3.2 discusses the variants of the intermediary model followed in the Bankura and Hooghly districts of West Bengal. Section 3.3 discusses the social relations of production and how it affects the model and emergence of novel actors in CF. This section highlights how existing social inequalities within the rural economy influence the interactions between small farmers and PepsiCo. It demonstrates that socially marginalized castes, with limited access to means of production and markets, are more likely to engage in CF. In contrast, socially advantaged groups tend to assume roles as intermediaries or commission agents, leveraging these opportunities to diversify their sources of income. In the conclusion section 3.4, highlight social relations of production have affects the CF model in the study villages. Despite policy and institutional

changes in West Bengal, the existing social inequality over rural economy provide an advantage in the changing agrarian relations to diversify their income and control over farming business.

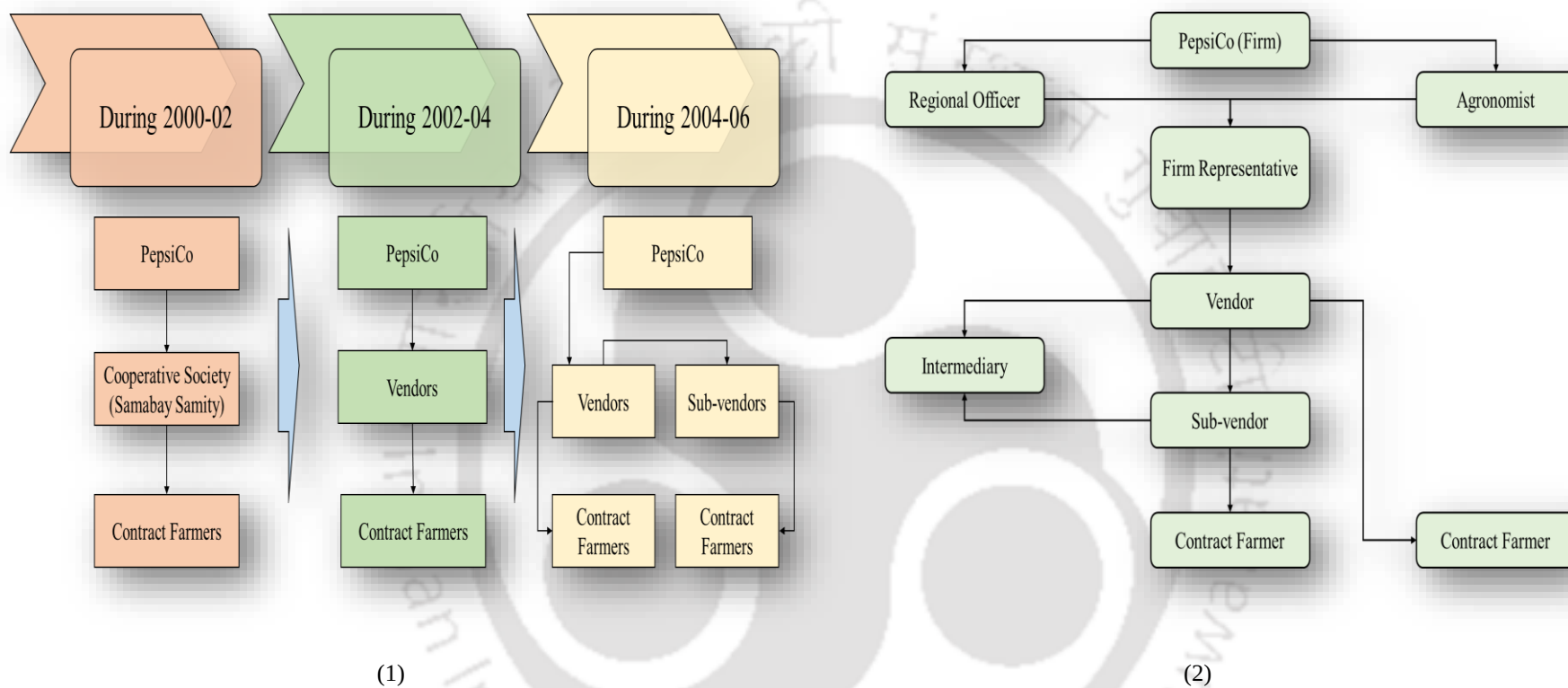
3.2 Contract Farming Model and Identification of Actors

Frito-Lay, a PepsiCo group company in 1987, installed its first potato chips plant in Channo, Sangrur district of Punjab. Later, two more plants were put up at Ranjangaon, Pune (Maharashtra), and Dhulagori, Howrah district of West Bengal. Although the CF model varies slightly from state to state, the primary operating model is the “Partners in Progress Model”. Under the “Partners in Progress Model”, Frito-Lay identifies cooperatives or locally evolved farmer organisations with whom involvement is established directly. These cooperatives or farmer organisations further identify suitable farmers who can produce the required quantity and maintain specific quality as per the pre-agreed requirement. The company procures as per the price pre-agreed. To drive quality and continuous supply, a pay-for-performance system exists where farmers are incentivized for high-quality produce (Chaturvedi, 2013).

PepsiCo is involved in potato CF arrangement in West Bengal as one of the leading agribusiness firm since last two decades (see Behera et al., 2022; Pandit et al., 2015; Ray et al., 2021). In the study villages, PepsiCo’s Frito Lays has come into a contract with the villagers to supply potato for the ‘Sankrail Food Park’ plant in Dhulagori, located in the Howrah district of West Bengal. PepsiCo’s Frito Lays, the dominant player in West Bengal, takes a margin of 45 per cent market share of a total of ₹19 billion, dealing particularly with processed potato foodstuffs in the state (Ray et al., 2021). CF is listed as “Partners in Progress Model” with farmers by PepsiCo (Chaturvedi, 2013; PepsiCo India¹⁴). Instead of calling CF a partnership with farmers, this study explores the relationship as a business between PepsiCo and intermediaries, i.e., *vendors*, where the farmers' participation is accidental. Based on the literature review, this study identified the PepsiCo West Bengal potato farming model as an intermediary-lead CF model (see **Figure 10**).

¹⁴ PepsiCo India “model of partnership with farmers” available at: <https://www.pepsicoindia.co.in/live/story/partnership-with-farmers> (Retrieved on 05/11/2022).

Figure 10 Progress of Contract Farming and Model of Practice in West Bengal



Source: Author's scheme

(The left side figure (1) represents the transformation of CF, and the right side figure (2) shows the overall model).

PepsiCo started CF in the study villages during 2000-02 through the Cooperative Society, locally known as *Samabay Samity* (in Bengali language). This is a well-established institution in the agriculture and rural society. This farmer cooperative institution provides inputs and credit support to farmers and has a good influence on the farming community. To build trust among farmers in its early stages (2000-02), PepsiCo introduced specific seed varieties (i.e., ATL, FC3), optimised for potato chips production through this established rural agricultural institution. These varieties of potatoes, known as *processing varieties potatoes*, suitable for potato chips, which PepsiCo cannot procure from the open market, as farmers cultivate the traditional varieties of potato such as Jyoti, Pokharj, Chandrmukhi, K22, etc. which are not suitable for processed chips. Farmers do not get encouraged to shift to alternative crops without a secure price or market for new varieties. PepsiCo availed state support to introduce their new variety of crops through an established institution, earning farmers' trust and facilitating easier adoption.

Some recent studies from West Bengal have found that farmers still participate through the cooperative society and cooperative system of cultivation in CF under PepsiCo (see Behera et al., 2022; Mukherjee, 2022). However, these studies lack to explore farmers' position and power relations and whether any advantages are availed by engaging through cooperative societies. However, this study found that contract farmers are involved only through intermediaries and not through cooperatives, nor does any other group contract exist in the study villages in both districts.

Participants during fieldwork informed that after two or three seasons of potato cultivation, PepsiCo has shifted from cooperatives to private actors. Around 2002-2004, PepsiCo began to involve private actors in the business as *commission agents*, locally known as *vendors*. PepsiCo selected vendors who were well established in farming-related businesses, such as those involved in fertiliser and pesticide shops or local potato traders. These vendors possess a strong network within the farming community as they are skilled in farming-related business and management. PepsiCo began contracting through intermediaries to reach out to more contract farmers. To initially encourage vendors' participation, PepsiCo assisted in obtaining bank loans. It provides inputs on credit to vendors, and then vendors supply it to farmers. However, once the CF business became well-known to the farming community and vendors began to secure profits from the commission, competition to become vendors increased

among private actors. PepsiCo stopped providing inputs on credit and no longer assisted in accessing bank loans. However, as vendors realised that the commission provided a steady source of income, they expanded the CF business by appointing some farmers (during 2004-2006) as their representatives to oversee the process, known as *sub-vendors*.

After reviewing various CF models by Eaton and Shepherd (2001) and practices in different commodities in India (see Birthal & Joshi, 2009; Jain, 2008; Ramaswami et al., 2009; Singh, 2000; Singh, 2004; Singh & Bhaumik, 2008; Vicol, 2017), I classified the PepsiCo CF model in West Bengal as an *intermediary-led* CF business model. There may be companies supplying inputs and other actors indirectly involved in farming. However, in this study, I considered only those actors who have a direct link with contract potato farmers.

The study has identified three main actors: (i) the *agribusiness firm* (i.e., PepsiCo), (ii) the *intermediary* (i.e., vendors and sub-vendors), and (iii) the primary *producer* (i.e., potato farmers). PepsiCo has a direct relationship with vendors and sub-vendors and connects farmers with the company. In this farming practice, I considered PepsiCo as the contracting firm, their employees (regional officers and agronomists) as *firm representatives*, vendors and sub-vendors as *intermediaries*, and potato farmers as primary producers. The literature (e.g., Narayanan, 2011; Singh, 2000; Singh, 2002; Vicol, 2017) has identified the contracting company as an agribusiness firm instead of a sponsor. This description is most appropriate for PepsiCo as they no longer invest in inputs.

3.2.1 Contract Farming Operation

PepsiCo exercises control over its potato farming business through intermediaries, namely vendors and sub-vendors who operate at the block and village levels. Most of the vendors are established in farming input-output businesses and have built social ties with the farming community. They invest their capital to purchase specific inputs such as seeds and pesticide kits from PepsiCo through respective regional officers and agronomists and supply them to farmers on credit. At the time of sowing, contract farmers are not required to make payments to respective vendors or sub-vendors to access specific inputs. This

significantly reduces farmer credit constraints in the cultivation of high-value crops, which are cash intensive.

Sub-vendors are relatively progressive farmers with a dynamic nature who can quickly adopt new practices and manage the CF business smoothly with fellow farmers. Sub-vendors represent vendors who make arrangements and supervise the contract throughout the season. These sub-vendors invest at risk, in supervising labour to overlook the whole process in this potato farming business under a specific vendor to earn commission as an additional income. Potato farmers, who are the producers, invest their land, family labour, and capital in producing marketable commodities, particularly processed *variety potatoes*,¹⁵ to meet the raw materials demand of PepsiCo.

The regional officer and agronomist are responsible for arranging and regulating the contract agreement with vendors. Vendors are investors in the business who take capital risks by supplying inputs to farmers on credit. Sub-vendors, on the other hand, do not usually invest capital; instead, they supervise the arrangement on behalf of vendors for a fixed commission from the respective vendor. PepsiCo does not endorse or restrict the number of contract farmers or expand the business through sub-vendors. The business expansion depends on the participation of sub-vendors and farmers driven by their socio-economic capacity to invest and operate the business.

During the fieldwork, some vendors and sub-vendors refused to reveal information about the location of other vendors and sub-vendors. Other vendors explained that they were afraid of losing vendorship from PepsiCo. PepsiCo has mandated not to share information with any parties or hold meetings with them.

“PepsiCo strictly said not to do any meetings among us; if we do, they will terminate the vendorships. They do not want us to become a unit to bargain with them for better commissions.”—Vendor, KII, Goghat-I block, Hooghly district.

¹⁵ FC₃, ATL are some of the specific types of potatoes which farmers cultivate under CF. These potatoes are suitable for making potato chips (crisps-food), so known as processed varieties. Whereas traditionally farmers cultivate the local varieties such as Jyoti, Chandramukhi and hybrid varieties like Super S1, Super 6 and Pokhraj.

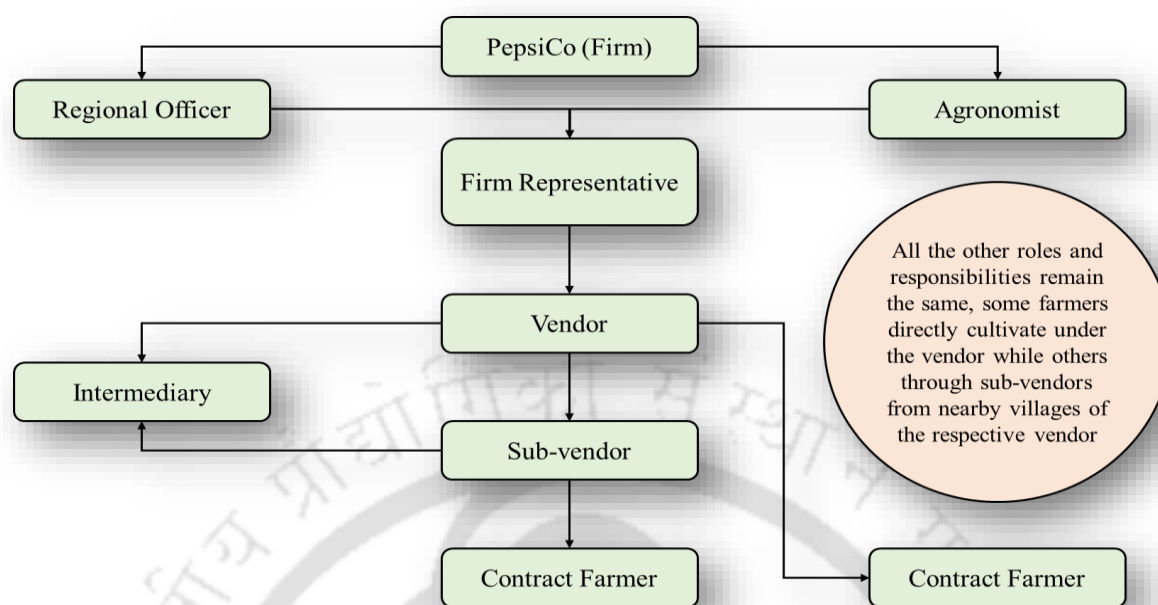
PepsiCo does not allow vendors or sub-vendors to hold meetings to prevent collusion and to control their bargaining power over intermediaries and contract farmers. Despite adopting an intermediary model for potato farming, the vendors' economic and social capital has resulted in three distinct types (explained below) of business expansion and farmer participation. The difference in farming engagement under CF also depends on the time duration of the vendors spent on the business, who have expanded their business through sub-vendors.

The economic conditions of vendors, their access to capital, and their engagement in farming-related business influence the business scale. Vendors with more capital to invest and having good connections with farmers, due to their long-standing relationships within the farming community, have expanded their business through sub-vendors. Meanwhile, vendors who recently joined the business with limited capital, primarily depending on agricultural income, are limited in their capacity to expand the business through sub-vendors to enhance their farmer reach. Instead, they only invest a certain amount to ensure a steady and secure income from commission. I identified three types of farmer participation in the potato CF under PepsiCo as follows—

3.2.1.1 Farmer Participation Through Vendor and Sub-Vendors

I conducted 31 KIIs of intermediaries in which 13 vendors and 18 sub-vendors participated. Out of the 13 vendors, 11 participants reported they have expanded their CF business through sub-vendors. The respondents held relatively greater land parcels, and own fertiliser & pesticide shops, or have worked as traditional potato traders for long time. Throughout their farming-related business, they have established social ties and social capital with the farming community. These vendors often directly supply inputs to farmers from their villages to nearby villages. Simultaneously, they supply inputs to farmers in far-off villages through sub-vendors (see **Figure 11**). Thus, they make significant interventions to the inputs market. They have successfully expanded the CF business through their network of sub-vendors to supply more produce to PepsiCo and accumulate more capital through commissions.

Figure 11 Farmer Participation Through Vendor and Sub-Vendors



Source: Field data (2021-22).

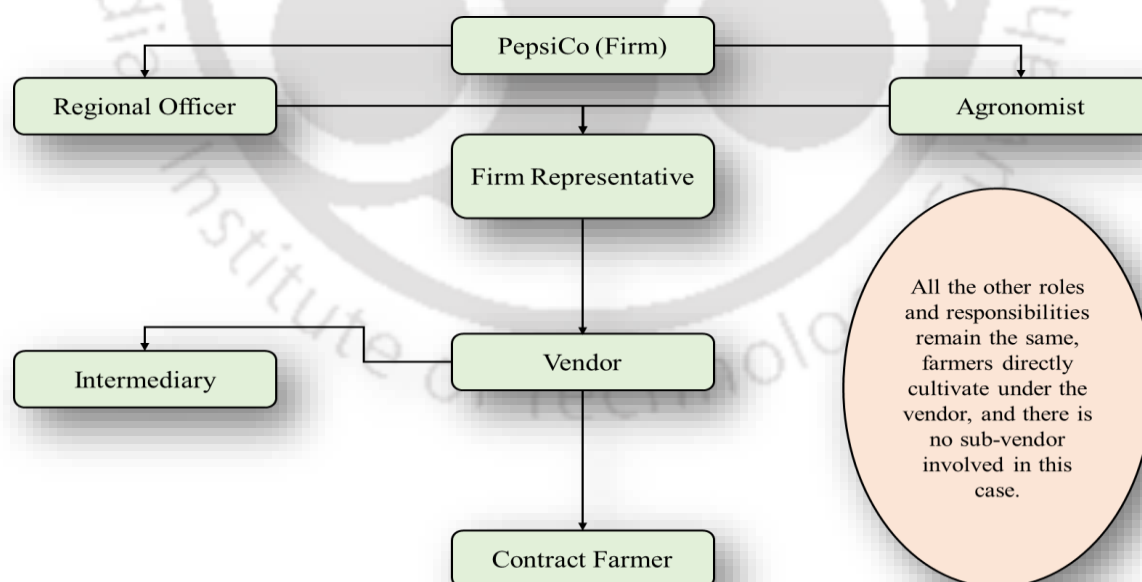
To illustrate the volume of reach and production, a vendor of the above type hired a maximum of 14 sub-vendors and supplied 32,000 quintals of potatoes to PepsiCo in the 2020-21 season. The minimum number of sub-vendors that a vendor had was 2, and they supplied 11,000 quintals of potatoes in the same season. There are no restrictions imposed by the vendors on the entry of sub-vendors and farmers into their business. It entirely depends on the vendor's business competence and the capital they could invest in the input market. Sub-vendors work as representatives of vendors. They arrange the pre-sowing meeting and distribute inputs from the vendor to the farmers. They keep records of inputs, produce, and payments. Farmers can contact regional officers or agronomists regarding production issues despite participation through intermediaries. However, procuring the inputs and output (harvest) is done only by the respective vendors. In this case, the sub-vendor puts in supervision labour, and supervision costs are borne by the vendors.

3.2.2.2 Farmer Participation Without Sub-Vendors

One vendor from the Goghat-I block of the Hooghly district does not hire any sub-vendor. Instead, the vendor directly supplies inputs to farmers (see **Figure 12**). This vendor runs a farming-related business

that has leveraged social ties within the farming community and successfully convinced farmers into the fold of contract farming. This vendor had been involved in CF for 6-7 years (by 2021-22). However, his limited access to capital did not allow him to expand his business through sub-vendors. The vendor claimed it is better to appoint a hired worker with supervisory skills rather than give a substantial part of a commission to sub-vendors in this arrangement, as the latter do not invest capital in the business. Furthermore, the vendor shared that PepsiCo did not initiate the engagement of sub-vendors. Some vendors have the capital and capture the business through sub-vendors to accumulate more capital through a network of sub-vendors who can bring more and more farmers into the fold of contract farming. This farmer's narrative suggests that despite having an established network within the farming community, limited access to capital can significantly impact business expansion and, ultimately, capital accumulation. Although this vendor disagreed with involving sub-vendors, his business has the potential of taking the shape of vendor & sub-vendor model, once the vendor has sufficient capital. It is likely only a matter of time and the scale of capital investment needed.

Figure 12 Farmer Participation Without Sub-Vendors



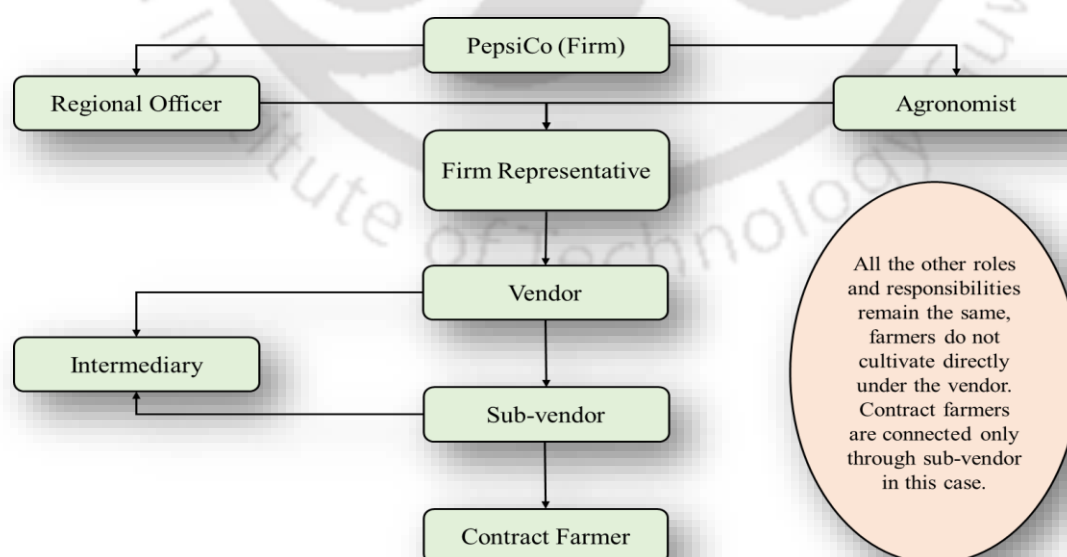
Source: Field data (2021-22).

"To arrange among many farmers, you must have huge capital, and any production loss due to weather may cause a huge loss, as this year, we will lose a massive. If you invest according to your strengths, the risk is relatively low. Yes, some Babu (rich and influential) have huge capital, expanding the business and capturing other villages by hiring sub-vendors," —Vendor, KII, Goghat-I Block, Bankura District.

3.2.2.3 Farmer Participation Only Through Sub-Vendors

This particular engagement network differs from the previous two business frameworks in terms of farmer participation and the association of sub-vendors. Specifically, the vendor does not engage with farmers directly or arrange the farming practice independently. The study identified only one such vendor from the Kotulpur block of the Bankura district who controls the CF practice solely through sub-vendors (see **Figure 13**). The vendor does not supply inputs directly to farmers or purchase harvests directly from them. Instead, he invests his capital to purchase the inputs and sells them to sub-vendors on credit. The sub-vendors collect the inputs and distribute them to farmers as needed. Notably, the main difference is that the vendor does not allow direct engagement under him; farmers only participate through sub-vendors.

Figure 13 Farmer Participation Only Through Sub-Vendors



Source: Field data (2021-22).

The vendor can be regarded as an urban investor with a minor presence in the input-output market. Unlike traditional farmers, he does not possess any agricultural knowledge or own farming land. However, he has the necessary capital to invest in farming. The vendor revealed that his involvement in the procurement of traditional potato varieties prevents him from engaging directly with farmers in CF. Instead, he prefers to delegate responsibility to sub-vendors, to whom he provides input supplies on credit, in return for a small commission. Although the farmers are engaged solely through sub-vendors, the vendor maintains direct communication with contract farmers and visits their fields to observe the crop growth and listen to their concerns. The vendor asserts that if he had handled the CF arrangements himself, he would not have been able to trade in traditional potato varieties, which serve as a significant source of income. However, despite the vendor's explanation, it is evident that he has limited social capital and is not well-established in the farming community. Additionally, he has only been in the CF business for a relatively short period and lacks any notable farm relations with the farmers.

3.2.2.4 What Does this Model and Business Expansion Explain?

The vendors act as key players between PepsiCo and the other actors in the CF network, such as sub-vendors and contract farmers, interacting with agronomists and regional officers from the company. While the farming guidelines established by PepsiCo bind contract farmers, it is the vendors who oversee the actual execution of these guidelines, often through sub-vendors. So, sub-vendors and contract farmers are directly dependent on vendors and indirectly on PepsiCo. Although the type of farmer association in the contract differs slightly, the intermediary model highlights that PepsiCo and vendors hold power in this business.

Reviewing the contract framework or model across India, in which the intermediary model dominates the CF. However, some multipartite and direct models that rely on commodities and agribusiness firms have been identified (see Dev & Rao, 2005; Jain, 2008; Ramaswami et al., 2009; Singh, 2000; Singh, 2004). PepsiCo across states practices the same model, i.e., the intermediary model (see Behera et al., 2021; Pandit et al., 2015; Ray et al., 2021; Singh, 2002; Vicol, 2017). The approach of the intermediary model can be explained well in light of the *principal-agent strategy* of agribusiness firms. Agribusiness

or contracting agribusiness firms prefer the intermediary model to minimise transaction costs by contracting large numbers of small and marginal farmers.

Following the principal-agent theory I have discussed in the literature review section, it can be inferred that PepsiCo adopted this strategy by engaging vendors as representatives of the farming community to negotiate with and oversee many smallholders and marginal farmers. The vendors chosen by PepsiCo were well-established entities in farming-related industries, exhibiting proficiency in potato cultivation and agricultural management and maintaining strong connections within the farming community. This strategy enables PepsiCo to leverage the vendors' social capital, network and geographical reach to communicate with farmers in far-flung areas, thereby streamlining the CF process. PepsiCo cannot manage the entire process without the assistance of vendors, who are private actors who take charge of capital investment, input supply, harvest grading, and payment disbursement, among other responsibilities. Therefore, vendors act as intermediaries who bear capital and supervision risks and work according to PepsiCo instructions. For PepsiCo, vendors are critical pillars of its CF business as they ensure a steady supply of high-quality raw materials for its operations and reduce transaction costs.

The transformation of the CF model and its current structure is influenced by the political economy of the state and corporate strategy. In the case of West Bengal, the average landholding size is too small (average 0.76-0.77 hectares), which possibly causes PepsiCo to promote their business through the intermediaries. They also control farming and secure the supply of quality potatoes by appointing agents, i.e., vendors on commissions. PepsiCo no longer provides credit inputs to farmers. Vendors invest capital in the business. PepsiCo knew that when private actors invested capital, they would be more responsible for arranging the practice and successfully and smoothly running the venture. So, they mostly select vendors from the village who have a good influence on farming-related businesses. This secures no need for PepsiCo to sign an agreement with farmers; instead, they do an agreement with vendors to control as per their comforts that will ultimately control the farm communities.

The first business engagement (see **Figure 11**) is predominant in this potato CF practice, which entirely depends on vendors' social ties and economic capacity. In this engagement, vendors have been engaged in farming-related business for a long time and have created social capital among the farming

community. They found CF an alternative opportunity for secure income and expanding the farm input business. Thus, vendors who are rich in social and economic capital expand the business by appointing more sub-vendors to reach out to more farmers, ultimately increasing the supply of produce and earning commissions.

The following business engagement (see **Figure 12**) suggests that despite the vendor's involvement in the farming input business and strong social network. He could not scale up his business through sub-vendors due to limited access to credit. This difference could be minimised when the vendors can access capital in future. The final business engagement (see **Figure 13**) is structurally also different as no farmers operate directly under the vendor; instead, they are engaged through sub-vendor only. This vendor is not a big player in the agriculture input market. He lacks social as well as economic capital. He only has some capital and arrangement skills which he applies to gain commission from this business.

These three engagements explain that social and economically established vendors expanded their business through more sub-vendors. However, despite having social capital, vendors could not expand their business because they lacked economic capital. The engagement discloses that profits accrue to vendors at scale and over a period of trust. The difference in engagement could not make any significant difference for farmers as they are in a position of dependent actor whether they join under sub-vendors or vendors. However, vendors with better access to capital and established input markets often help farmers access other input supports for other non-contract crops.

Although India took the neoliberal market reforms in the 1990s, the adaptation started during the 2000s at the state level. It is part of the neoliberal market reforms when the state government of West Bengal promoted and allowed agribusiness firms like PepsiCo to link farmers with the market through a cooperative society. The performance of small farmers in contract through the cooperative society provides some collective bargaining power to negotiate with large corporations for better prices of inputs. However, as I have pointed out in the Indian context, CF is primarily through intermediaries and state or government-regulated control is limited.

Since the state has not taken any initiative to control or regulate the CF. After a certain time, the firm transformed the business as per their comfort to an intermediary-led model. However, the socioeconomic condition of intermediaries (vendors) again shaped the structure of the potato CF model. From this discussion, we understood how the potato CF model has shifted from a cooperative-led model to an entirely intermediary-led model. We identify the different actors in this farming business where vendors, in particular, become the key actors. As we experienced, intermediaries, particularly vendors, play a crucial role in the potato CF business. The following section examines what are the factors that favour them to become the key players in the changing agriculture production process.

3.3 Social Relations of Production and Power Dynamics

In this section, I explore whether CF affects or is affected by social relations of production. Understanding these relationships within CF is important, considering social dominance and discrimination persisting in land ownership, occupation, access to capital, and social capital in the rural economy. Moreover, this section focuses on how the power is distributed among the actors. In this regard, the *four key political economy questions* that addressed the agrarian questions are important to understand the fate of small and marginal farmers, their implications for agrarian societies, and emerging capitalist relations of production in CF. Bernstein (2010, p 22-23) mentions the following four key questions regarding the social relations of production and reproduction.

- (1) *Who owns what? (denotes the social relations of property).*
- (2) *Who does what? (which means the social division of labour).*
- (3) *Who gets what? (the social division or distribution of income).*
- (4) *What do they do with it? (social relations of consumption, reproduction and accumulation).*

In the following section, the conceptualisation of the social relations of production within the ambit of the four overarching political economy questions has been undertaken. Primarily, an examination of Marx's conceptual framework about the *forces of production* and *social relations of production* is presented. Subsequently, an investigation into the criteria employed by prominent agricultural studies to measure agrarian class divisions in the context of India is explained. Following these analytical

perspectives, a synthesis of criteria deemed essential for understanding the social relations of production within the framework of CF practices is proffered.

3.3.1 Understanding the Social Relations of Production

“*Social relation*” is a key idea in Marx's work (Furner, 2018). Marx posits that each social formation is characterised by a prevailing mode of production, wherein the production process occurs through productive forces and specific production relations (Beetz & Schwab, 2018). The crucial factor in determining the form and development of any society relies on how it interacts with the material environment; that is known as the mode of production. The interaction relies on the technological powers, i.e., *forces of production*, and the economic structure, i.e., *relations of production*. Forces of production are defined as what can be used for the production process to produce things (Laibman, 2019, p.77). According to Marx, “the mode of production of material life conditions the social, political, and intellectual life process in general” (McLellan, 1987, p. 425).

Forces of production comprise the means of production (e.g., tools, machines, and raw materials) and the labour power of workers (e.g., skill and knowledge). Relations of production are defined as the relations of social relations of control over forces of production that can be both means of production as well as labour power. The social relations of production indicate the connections between ownership by individuals of productive forces and the conditions that necessitate such ownership relations. The term ‘ownership’ represents power and control over persons and things (Suchting, 1982; Gottlieb, 1985; Coram, 1989). The unequal ownership of power and distribution of power within society will reflect society into economic classes through the production process and will create unequal wealth outcomes. Therefore, some of the relations of production will be social when they depend on rights, power, authority or ownership and controls (Coram, 1989).

I applied the concepts of *forces of production* and *relations of production* and intended to see how these factors among the different actors in the CF have influenced the production process. More specifically, the means of production, ownership, instrumental materials, skills, and control of labour, distributed

among the CF actors and how it affected the production process. I propose that those factors have a significant influence on CF, and that must be explored.

3.3.2 Agrarian Class Structure in India: Criteria for Class Divisions

Agrarian class relations and criteria for class divisions are much more complex in the countryside, considering differences in social dominance, land tenancy, policy reforms, and changes. However, this section highlights the specific criteria for class division and broad agrarian class in India, which were discussed by prominent scholars.

Patnaik (1976) argues that the Marxist position in class relations looked at the possession of the means of production and broadly classified two classes. The *landless and near-landless* possession or minimal means of production primarily depend on working for others. The *landlords and capitalists* concentrate sufficient means of production, and they need not work themselves as labourers. Instead, they hire labourers. She categorised the middle class as *petty producers* who do not occupy enough means of production and survive with family labour, neither hired labour nor work for others.

In the classical analysis, Rudra (1978) argues that *landlords* are defined as those who do not work on the land; however, they either lease out or hire labour to cultivate exclusively. The *rich peasants* actively participate and rely primarily on hired labour. He claimed that this distinction under Indian conditions does not carry significance as there will be a caste factor in participation or non-participation in cultivation. Even small and improvised landholders from the upper castes may not participate in cultivation, but they may depend on labourers or tenants.

Based on the wide range of village-level studies under the Project on Agrarian Relations in India (PARI), scholars connected with the Foundation of Agrarian Studies (FAS) broadly classified the agricultural class as *landlords*, *manual workers*, and the *peasantry* (Ramachandran, 2011). The definition of each class is similar to that of Patnaik's (1976) classification. However, Ramachandran identifies two major challenges in the process:

“On the one hand, to establish certain general theoretical categories and criteria to distinguish classes in the countryside, and, on the other hand, to identify classes in situ, that is, in the specific agro-economic and social circumstances that prevail in different regions and localities” (Ramachandran, 2011, pp. 57-58).

He argues that criteria for class structure are neither static nor uniform across regions, so one must be applied carefully and modified for other regions. So, they considered three criteria to classify households into socioeconomic classes: *productive assets* owned by the household, *labour employed*, *labour power expended* and *income and surpluses gained* from various sources. Apart from these divisions, they propose some intermediate classes, such as *big capitalist farmers* and *other households* between landlords and labourers (e.g., Ramachandran et al., 2010; Swaminathan & Rawal, 2015).

Caste has always had a considerable influence on rural socioeconomic life in India. Access to landownership, capital, and other resources is lower for socially disadvantaged households, which often affects economic and social outcomes (Kumar, 2013; Khan et al., 2021; Rao, 2017; Yadav, 2022).

Omvedt (1983) argues that no class analysis in rural India can be complete without caste consideration. He classified the agricultural class as *rich farmers*, including *capitalists and landlords* primarily from the upper caste (e.g., Brahmins, Rajputs, Bhumihars, Nairs, Vellars, etc.). The *middle peasants* contain almost none or very few upper castes (Brahmins, etc.) and many artisan-service castes. The *rural semi-proletariat* belongs to landed and landless Dalits (i.e., Scheduled Caste), Adivasis (i.e., Scheduled Tribes), and the Other categories represent the Muslims, Christians, Buddhists, and Hindus of artisan and kisan or non-dalit low castes.

Jodhka (2012), based on a revisit to two villages of Haryana after 20 years, argues that despite many radical changes in rural social life over the last century, the agrarian economy of villages remains almost entirely controlled by the dominant and upper class. Another recent study from the same state showed that caste controls rural class, economic activity, and diversification (Yadav, 2022).

The broader criteria for examining the agrarian class and empirical evidence advocate that class and caste are complex for studying the socioeconomic life of rural India. Some scholars advocate that the

means of production and labour use are crucial in the classification of agrarian class in the countryside, while others highlight that social factors such as caste are also significant in this process. Despite examining the agrarian class relations, I proposed to identify the forces of production and how those things are distributed within CF actors and interact with relations of production.

3.3.3 Social Relations of Production in Contract Farming and Power Dynamics

First I did a comprehensive examination of the social relations of production within the context of CF has been undertaken. Subsequently, the discourse delves into an analysis of the power dynamics existing among the various actors involved in the CF framework.

3.3.3.1 Social Relations of Production in Contract Farming

Intermediaries, such as vendors, have emerged as prominent actors for PepsiCo, making substantial contributions in terms of capital and control over the CF value chain. **Table 12** represents information on caste, land ownership, access to credit and other sources of income of intermediaries. The table also explicitly shows the caste representation of two types of farming households and their landholding characteristics. Caste significantly influences rural assets, such as land ownership and access to credit. It helps the upper-caste (i.e., General) rural elite diversify their source of income by investing in CF businesses. For the study area, CF led to the emergence of an intermediary belonging to the upper caste and holding better landholding size. The table shows that over 88.89 per cent of vendors operate any farming-related business, which helps them establish social capital and social ties among the farming community to convince them to contract crops.

Comparatively, smallholder farmers from the upper caste became sub-vendors. Only one sub-vendor was from the OBC category (11.11%). They had limited access to capital and limited controls in farming-related businesses (16.67%). Land ownership, which helps to access better capital and farming-related business, helps build the social network among the farming community and advantage the upper caste in this farming business. Some vendors had a better social standing in the village because of political representation and better landholding status, favouring them to become vendors.

Table 12 Details of Contract Farming Actors Across the District and Overall

Intermediaries	Details		Caste (%)		Land ownership		Access to Credit		Other sources of income (%)	
	District	Intermediaries	General	OBC	Ownership holding (%)	Average (Acre)	Availed loan (%)	Average (in ₹)	Businesses, vendorship and farming	Only vendorship and farming
	Bankura	Sub-vendor	100	0	100	1.32	88.89	75562	11.11	88.89
		Vendor	100	0	77.78	4.57	77.78	2721428	55.56	44.44
	Hooghly	Sub-vendor	88.89	11.11	100	1.4	100	102333	22.22	77.77
		Vendor	0	0	100	1.8	60	1200000	100	0
Contract and Non-contract farmers	Overall	Sub-vendor	94.44	5.55	100	1.36	94.44	89735	16.67	83.33
		Vendor	100	0	66.67	3.42	77.78	1625000	55.56	44.44
	Farming type	District	Caste (%)			Landholding (Acre)				
			General	OBC	SC	Ownership holding		Fixed Tenant land		Average operational landholding (Acre)
						Household holds land (%)	Average (Acre)	Household holds land (%)	Average (Acre)	
	Contract	Bankura	69.14	3.7	27.16	97.53	1.1	51.85	0.99	1.69
		Hooghly	71.08	1.2	27.71	100	1	57.14	1.02	1.6
	Non-contract	Bankura	57.14	14.29	28.57	100	0.97	32.53	1.21	1.77
		Hooghly	70	14	16	96	1.08	56	1.43	1.6
	Overall	Contract	63.14	9	27.87	98.56	1.12	53.85	1.03	1.66
		Non-contract	70.54	7.6	21.86	98.5	1.3	42.31	1.01	1.7

Source: Field data 2021-22

“I was a Gram Panchayet (Village Member) member before I joined as the vendor, although that played no part in the selection. Yes, I have a good reputation and connections in my village that help me approach farmers to grow PepsiCo seeds,”—Vendor, KII, Kotulpur block, Bankura district.

“We have around 12 acres of agricultural land and run a family trader business. We are known as progressive farmers in the locality, as I was probably the first who brought a paddy harvest machine in our district long back, I used to supply potatoes to Nepal and other states. PepsiCo was looking for someone who could bring other farmers into the cultivation of CF, so they offered me to join as a vendor” — Vendor, KII, Joypur block, Bankura district.

The caste composition of households engaged in CF compared with those in NCF reveals an exciting finding. More contract farmers (36.86 %) belong to socially and economically disadvantaged groups such as Scheduled Castes (SC) and Other Backward Classes (OBC). Specifically, during the 2021-22 season under PepsiCo, contract farmers from SC and OBC categories constituted 27.87 per cent and 9 per cent of the total households, making up 36.86 per cent of the households engaged in CF. In contrast, non-contract farmers from SC and OBC categories constituted 21.86 per cent and 7.6 per cent of the total households, making up 29.46 per cent of the NCF households. Therefore, CF households have relatively better SC and OBC caste representation than NCF households. Farmers engaged in CF cited various reasons for their participation, including a guaranteed minimum price in case of market failure and credit-based input support from the vendor. Analysis of landholding size indicates that contract farmers have relatively small and marginal farms (1.66 acres) compared with non-contract farmers (1.70 acres). Additionally, a higher percentage of CF households (53.85%) cultivate land under fixed tenants than NCF households (42.31%).

The available data on caste composition, landholding size, and tenancy arrangements, particularly fixed tenant land, highlight significant disparities between households engaged in CF and NCF. This proposes that relatively smallholders and marginal farmers from socially disadvantaged groups taking land under fixed tenant are more inclined towards CF under PepsiCo with the controls of the upper caste rural elite, i.e., vendors for secure income from fixed price and input supports. In contrast, relatively higher-sized

smallholders and marginal farmers tend to take open market price risks and only cultivate traditional potatoes, expecting better prices rather than relying on fixed contract prices. Farmers under fixed tenants must pay a specific rent to the owner regardless of poor crop yields or low market prices. To survive throughout the year and repay fixed rent to the landowners, small farmers often prefer to cultivate under fixed-price contracts, allowing them to cover their rent with their minimum income. On the other hand, farmers who own their land prefer to take the open market risks and cultivate traditional varieties.

The prevalence of smallholder and marginal farmers notwithstanding, the upper caste's social advantage in diversifying into non-farming economic activities and better means of production allows for a new class character within the rural economy. This class brings capital into the new production process and enforces corporate controls over smallholder farmers. Both farmers and sub-vendors in the two districts have referred to their vendors as "Babu," indicating the social dominance and status of the elite. Furthermore, among the intermediaries, unequal access to capital and control over farming communities through farming-related businesses shape the economics of CF regarding business expansion and capital accumulation. While most vendors run farming-related businesses (55.56%), many vendors (44.44%) do not. Differences in forces of production, such as the appearance of farming-related businesses, access to capital, and social ties of vendors, shape farmers' engagement and business expansion into three distinct types.

I initially examined how the principal-agent and transaction costs theory explains the CF model and strategy of agribusiness firms in controlling small and marginal farmers through intermediaries to reduce transaction costs and ensure a timely supply of high-quality raw materials. Through the discussion on social relations, we revealed how social capital significantly influences the CF model and leads to the emergence of new actors from socially advantaged castes. The social capital of a particular group and their control over the farming community help them find alternative livelihood opportunities within the potato CF system.

3.3.3.2 Power Dynamics Among Contract Farming Actors

Contract farming is an interlocking of unequal power relations among actors: smallholder farmers, intermediaries and agribusiness firms. Critical view of CF often raises concerns about the unequal

power relation in which smallholder face exploitations. However, there is lack of empirical evidences on how such unequal power relations in CF affects the outcome and what are the major incidents that influenced by power dynamics of intermediaries or agribusiness firms. The power narrative suggests that in absence of public institutions it creates power vacuum which private sector can take over. Valentinov et al., (2024) argues that in CF intermediaries exercise power which significantly influence over economic outcome and social well-being of farmers. Collins (2002) explains power is a multidimensional variable and extends a range of activates such as margin-related, product-related or it can be delivery-related activates. However, in this study I explores the power relation in the CF practice of intermediaries with PepsiCo as well with farmers from sowing to post-harvest activities for farmers and becoming intermediary to getting commission.

From the previous section, we understand that PepsiCo introduced CF in the study areas of West Bengal around 2000-02 through the Cooperative Society, known locally as Samabay Samity. The company likely did this to gain the trust of farmers who may have been hesitant to switch to different crops without reliable markets and pricing structures. Therefore, PepsiCo probably aimed to establish credibility for its PepsiCo varieties by introducing them through the established rural institution of Samabay Samity.

It is evident that intermediaries play a key role in the practice of CF, and social relations of production are significantly influenced by caste and class interactions. Since smallholder farmers primarily cultivate under CF for input and fixed price support and deal with corporate firms through intermediaries who are from upper castes. Although the dominance of caste in contemporary India has declined, no doubt it persists more in the rural economy and social life. From the social relations of production discussion, it is evident that caste has a significant influence on the economic outcomes and livelihood opportunities in rural West Bengal. Since small and marginal poor farmers primarily from the socially disadvantaged group in CF cultivate through the upper caste intermediates following the instructions of corporate firms. I explore the power dynamics in the CF farming which is interaction of smallholder, intermediaries and corporate firms represents the different social and capital class. The following section therefore aims to understand the power dynamic among different actors.

Selection of Intermediaries

In recent times, PepsiCo has implemented a more stringent approach to vendor selection, in contrast to its previous lenient stance. There has been a noticeable change in vendors' responses to the company's selection policies. The vendors who joined in the early days (2002-04) said they were cultivating under PepsiCo, taking seeds from the Samabay Samity. They came to the notice of the PepsiCo representatives as performing well. PepsiCo prefers farmers with large landholdings, locally known as progressive farmers, who are involved in farming-related input businesses or work as traditional potatoes and paddy traders. As they were engaged in farming-related business and had a good network with the farming community, PepsiCo offered to join as a commission agent, i.e., vendor.

“We are known as progressive farmers in our area, cultivating high-yield seeds, running our own business, and supplying potatoes to other states. It seems that PepsiCo was looking for farmers like us who could manage farming and persuade others to cultivate new crops. They offered me a position as a commission agent, promising to help me get a loan from the bank and secure income from commission. I accepted, and soon other farmers started obtaining seeds from me to cultivate and benefit from the fixed price,”—Vendor, KII, Joypur block, Bankura district.

“I was a village member, serving as an elected Gram Panchayat member, and I had connections with the cooperative society. Initially, I began cultivating PepsiCo varieties and received payments as per their commitment. This prompted other farmers from my village to start cultivation using seeds from the cooperative society. Later, a PepsiCo representative approached me and offered to join as a commission agent to oversee the entire process for a secure commission,”—Vendor, KII, Kotulpur block, Bankura district.

Some other participants who recently became vendors said they performed better during their sub-vendor's tenure, which helped them get vendors. In comparison, others noted that PepsiCo offers those with minimum education, organisational skills, and capital to invest in the business. Conversely, other recently inducted vendors have claimed to have earned their vendorship through better performance as

sub-vendors. In contrast, some have noted that PepsiCo provides opportunities for those with minimal education, organisational skills, and capital to invest in the business.

“I started as a sub-vendor and supplied potatoes to PepsiCo through my vendor, ensuring timely delivery and proper grading. Once, an agronomist approached me to become a vendor, taking seeds and inputs directly from them and organizing other farmers from my locality,”—
Vendor, KII, Goghat-I block, Hooghly.

PepsiCo engages directly with vendors, who in turn appoint sub-vendors to oversee their farming operations. The company does not intervene in sub-vendor selection, which is left entirely to the vendors' discretion and preference. No specific criteria have been established for sub-vendor selection. However, it has been observed that farmers with existing social ties with the community, due to their occupation as local potato and paddy traders, have an advantage in being selected as sub-vendors. Those were engaged with the farming-related business that leverages connections with other farmers and traders that facilitate becoming sub-vendors. In addition, some sub-vendors have stated that vendors constantly sought to expand their CF business and, therefore, insisted on taking on sub-vendors. Conversely, a few sub-vendors have clarified that they were approached by vendors who are family relatives.

“I started cultivating by obtaining seeds from Babu (vendor). This turned out to be a profitable venture as the vendor offered fixed prices and even provided seeds and a medicine kit on credit. Subsequently, Babu approached me to purchase more seeds and also encouraged me to persuade farmers from my village to cultivate PepsiCo varieties,”— Sub-vendor, KII, Goghat-I block, Hooghly district.

Field observations indicate that becoming an intermediary in the potato CF with PepsiCo was not directly affected by competition for power. However, individual socio-economic and political connections played a role, supporting certain groups in discovering an alternate income source amidst evolving agricultural livelihood opportunities within the rural economy.

Reason to Join PepsiCo as Intermediaries

Motivation can drive people to act, resulting in either hostile or friendly behaviour. In rural areas, CF has become a new method for the dominant class to indirectly control smallholder land, family labour, and production, following the instructions of agribusiness firms. Scholars have claimed CF is an alternative to rural land grabbing and control by corporate agribusiness based on evidence from the Indian states of Punjab and Maharashtra (see Shrimali, 2016; Vicol, 2017). The profit maximisation theory posits that the primary objective of such firms is to optimise their profits (Jafar et al., 2010). Agribusiness firms enter the agricultural sector to capitalise on the opportunity presented by smallholders and secure high-quality raw materials for commodity-based production. Thus, CF has become a new avenue for agribusiness firms and intermediaries to access quality agricultural produce and maximise profits.

Most of vendors said fixed prices in CF are the primary reason that convinced them to cultivate PepsiCo seeds to earn a minimum secure income. When PepsiCo representatives explained the secure commissions they could avail of after a successful supply of produce, they joined as vendors. Vendors enter the business after seeing a steady source of income. Some of them explained that they were in the traditional potato business before joining as vendors. They used to get delayed payments that often forced them into difficulties operating the business smoothly.

PepsiCo, in the beginning, earned the trust of vendors by assisting them to get bank loans and credit input supply, which after a few years, they stopped. Some others explained that they had fertiliser and medicine shops. Hence, they intended to expand the existing business through CF. They already had contact with many farmers, so they anticipated it would aid them in approaching farmers for contract practice. New connections would help them sell more fertiliser and medicine. However, some others specified that they were looking for jobs after completing their studies and found it financially rewarding, so they joined as vendors as they had the capital to invest in the business.

After a few years of performance in CF, vendors began expanding their operations by appointing sub-vendors once they had achieved a stable income from commissions. The vendors choose progressive contract farmers with minimal education and organisational skills to act as sub-vendors. According to

the vendors, sub-vendors do not need to invest capital. They are expected to supervise CF activities and earn additional income from commissions. The sub-vendors have noted that a key reason for joining as a sub-vendor is the guarantee of a secure income from commissions without the need to invest any capital or assume any financial risks.

“I believe PepsiCo is the only company in West Bengal that announces prices prior to sowing. This stable price enables farmers to calculate how much they could earn if they produced minimum without incurring any losses. But we could not do it with traditional varieties, and there is a chance of a lower price if the produce is more in traditional varieties. Fixed price was the primary reason for cultivating, and I later considered earning extra money in addition to my cultivation through commission without any investment, so I joined,”— Sub-vendor, KII, Kotulpur block, Bankura district.

“Before joining PepsiCo, I worked for ITC, where I supplied produce but was frequently paid late. Sometimes, farmers sought me for payment, and there was no secure commission as it depended on the spot market price. So, when I learned about the PepsiCo price and commission, I decided to join,” — Sub-vendor, KII, Kotulpur block, Bankura district.

Vendors are motivated to expand their business and earn commissions, while sub-vendors join for extra income in addition to farming. PepsiCo, through the establishment of fixed prices and secure commissions, successfully engendered trust among intermediaries. In parallel, vendors, utilising credit input support mechanisms, effectively persuaded farmers to engage in CF. CF emerges as a viable alternative livelihood avenue for intermediaries seeking affiliation with PepsiCo.

Legal Backing of the Agreement

A written legal agreement supports the contract mechanism between vendors and PepsiCo. The agronomist and regional officers negotiate the contract with vendors on a written paper, which includes all specifications in English and is stamped with a *judicial stamp paper* (₹100). Vendors retain one copy of the agreement. However, many of them claim they do not understand its specifications fully. The contract agreement of the vendor with PepsiCo is valid for one season. They sign the contract agreement

around October each year, remaining in effect until April of the following year. After one season, PepsiCo has the option to terminate any vendor. They do not enter into long-term contracts with vendors, opting instead to maintain control over their bargaining power and, ultimately, control over farmers' produce by not providing long-term security to vendors. Some vendors reported that during the last season (2020), PepsiCo expelled vendors found to be violating the rules.

“I know some vendors from our Kotulpur block. During the 2019-20 crop season, when the price of potatoes soared in the open market due to COVID-19 (March—April 2020), exceeding the contract price, these vendors did not supply the entire quantity of potatoes to PepsiCo. As a result, PepsiCo found out about this and later terminated their contracts,”— Vendor, KII, Kotulpur block, Bankura district.

“There is no guarantee that we will continue as vendors for long. Our agreements are seasonal and can be terminated if we fail to adhere to the contract terms,”— Vendor, KII, Goghat-I block, Hooghly district.

“I initially sought help from a lawyer to understand the terms and conditions in the agreement. To be honest, all the provisions are in favour of PepsiCo. Since the agreement is the same every year and the provisions remain unchanged, I no longer feel the need to understand them,”— Vendor, KII, Joupur block, Bankura district.

Two vendors from the Bakura district who have engaged in CF with PepsiCo since the beginning (2000-2002) share a few insights into the agreement. There is a ‘farmer part’ of the agreement; this includes the price of seeds and inputs farmers will get and pay. Then there are ‘pesticide details,’ then the ‘environmental part,’ although they could not share it in detail. The agreement also specified how to behave with the PepsiCo employee. The agreement also contains the details of quality parameters and quantity specifications. Additionally, they claimed PepsiCo specifies the minimum quantity against one sack of seeds but does not specify the maximum produce they will procure. They explain why PepsiCo does not specify the maximum amount and how they use this strategy to manipulate the quantity of produce based on the demand for their company.

There is no agreement between sub-vendors and vendors or sub-vendors and PepsiCo. I found only one vendor out of 18 who has been arranging CF for the last three seasons, with only two sub-vendors who made a written agreement with them. The agreement has been written on paper imprinted with ₹10 judicial stamp paper in the local language (i.e., Bengali). The agreement specified that sub-vendors would supply all produce to their vendor and would not be allowed to collect seeds or sell produce to others. Aside from that sub-vendor, we could not find any sub-vendors who had an arrangement with the vendor.

“I do a contract agreement with my two sub-vendors with backing a ₹10 judicial stamp paper.

I do it my own to secure that they will supply potatoes to me from farmers, not elsewhere,”—

Vendor, KII, Kotulpur block, Bankura district.

Input Price and Information Asymmetry

PepsiCo do not provide credit support or inputs on credit to vendors or farmers anymore, but they offer free extension support to farmers. As I pointed out it is the vendor who invest capital to buy inputs, such as specific seeds and medicine kits, and then supplies them to farmers on credit. During the interview, vendors confirmed that PepsiCo set the price of inputs to obtain and sell to farmers. So, we can expect regardless of location, the price for inputs across vendors should be the same. However, the information provided by vendors about the price of seeds varies. Many vendors did not share the procurement price; however, they all shared the selling price.

The procurement price of two seed types (see serial numbers 1 & 2 in **Table 13**) is ₹3200 and ₹3100 per quintal, which they sold to their farmers for ₹3300 per quintal. Again, two other vendors (see serial numbers 10 & 11) purchased seeds for ₹3150 and ₹3100 per quintal and sold them for ₹3300 and ₹3200 per quintal. The observation is that there is a variation in handling charges, which should not occur because PepsiCo also determines the price for farmers after adjusting handling costs. The information shows that vendors took up to ₹100 to ₹200 per quintal for handling charges in some cases, leading some to believe that price asymmetry is due to price control from the vendor side.

Most vendors indicated that they sell the medicine kits at the same price at which they procure them from PepsiCo. However, during the 2021-22 season, due to heavy rains, seeds got damaged after sowing, and the season got delayed. Many vendors did not supply the entire medicine kits (one kit contains nine types of medicines and pesticides), and some vendors said that has caused the price difference across vendors. However, a vendor from Hooghly district disclosed the real story, with the assurance that I would not disclose his identity in my study. The vendor charges a handling fee for the medicine kit, accounting for the price difference observed among vendors.

Table 13 Procurement (PP) and Selling Price (SP) of Inputs by Vendors per quintal

Sl No.	Seeds details with price (2021-22)								Medicine kit			
	Total Seeds (q.)	Seeds ₁		Seeds ₂		Seeds ₃		Seeds ₄		SP*	SP**	
		PP	SP	PP	SP	PP	SP	PP	SP			
1	2600	3200	3300							3800		
2	1200	3100	3300							3856		
3	650		3300							3200		4000
4	1750	3100	3300							4000		
5	565		3300							3200		3800
6	1700	3100	3300			1800	1800	4000				
7	1020	3100	3300			1800	1800	4000				
8	805	3100	3300					3200				
9	600		3300	2950	3100	1800	1800	3300	3800			
10	1000	3150	3300					3220				
11	3000	3100	3200					3050	3150	3200	3300	3800
12	750		3200					3200	4000			
13	930		3300					3150	3115			

Source: Field data 2021-22 * Price for 2021-22 season, ** Price for 2020-21 season. (I interviewed 13 vendors who share information on the procurement price (PP) and selling price (SP) of seeds and medicine kits). Even the same varieties of seeds price vary based on size of seeds, so there is different type of seeds which I mentioned as Seeds₁, Seeds₂, Seeds₃, Seeds₄.

“This season, I procured a medicine kit at ₹3112 for one pack, which I sold at ₹3200. The extra I charged is not for handling, but for our investment,”—Vendor, Goghat-I block, Hooghly district.

I did not find any evidence of price asymmetry at the sub-vendor level. Because sub-vendors do not determine the selling price of the inputs. However, some sub-vendors informed us that they find it difficult to sell medicine kits during good weather conditions when the likelihood of pest attacks is low.

According to vendors, the extra they charge on inputs is for handling costs; others said it is for their investments. Vendors earn commissions on the supply of potatoes to PepsiCo as the return on their investment. These extra charges are not exclusive to farmers and, in most cases, are inconsistent across vendors.

Bargaining Power and Commissions

Contract farmers claim that PepsiCo never listens to them regarding the price of potatoes or inputs. Therefore, I intend to assess the negotiating power of vendors in CF for better potato prices or lower input costs. Since vendors invest capital and play a crucial role in the farming business, I anticipated they must have some bargaining power, at least for their commissions.

“If they do not allow us to bargain for a higher commission, do you think they will allow us to bargain for a better price for farmers?”— Vendor, KII, Joypur block, Bankura district.

“If we ask to increase the commission, they do not listen to us. Do you think if we ask them to increase the contract price, they will listen? When they are willing to increase, they will do it without us needing to ask.” — Vendor, KII, Joypur block, Bankura district.

“There are around 34 vendors in the Bankura district (2021-22 season). PepsiCo calls us every year before the contract season. Where they shared the price with us, which they fixed before the meeting. Accordingly, we inform farmers of the price farmers through sub-vendors or directly as per the association. There is no bargaining power for anyone,” — Vendor, KII, Kotulpur block, Bankura district.

The vendors were striving to reveal that PepsiCo holds the onus of power, leaving them feeling helpless. At the beginning of each season, representatives from PepsiCo conduct a meeting with them to announce the purchasing price for potatoes that the farmers will be paid, along with the costs for essential resources. Vendors have expressed that they sometimes request higher prices for farmers, but PepsiCo does not consider their request. While some vendors have stated that they often request higher commissions, they never ask for an increase in the price of potatoes for farmers. Criticism has been directed at PepsiCo for creating unequal power relations, leading to farmers losing their autonomy and

facing corporate monopolies (Oya, 2012; Singh, 2002; Watts, 1994). This study delves into the vendors' inability to negotiate for better commissions despite their capital investment and significant role in CF. This highlights the powerlessness of farmers in this system despite their production of quality produce for PepsiCo.

All the vendors confirmed they do not get any salary for all the arrangements. They work as commission agents and put their money into the business following a successful potato supply to earn commissions. Most of the vendors who participated in the survey did not share commission details. However, two vendors share the details as follows:

There is a fixed commission of ₹0.54 per kg of produce. If we can supply at least 13 bags of potatoes against one bag of seeds, we will receive an additional ₹0.10 per kg. However, if we provide more than 12-13 bags, we will receive ₹0.15 per kg for chips-grade potatoes. However, if we supply more than that, the commissions do not increase, — Vendors, KIIs (One vendor from Joypur and another from Kotulpur block of Bankura district.

Sub-vendors raised some issues over their participation in pre-sowing meetings with PepsiCo representatives. Nowadays, PepsiCo does not even ask them to join meetings. There is no scope for them to bargain for a better price or negotiate to lower input costs. This farming is a practice where only PepsiCo announces the decision, and farmers or sub-vendors have no right to express their concerns. The leading reason that motivated them to become part of CF practice is earning some commission while farming. Vendors employ them; therefore, sub-vendors are remunerated by them. PepsiCo does not play any role in selecting sub-vendors, so there is no set or uniform commission. I found that commission varies across sub-vendors, where large sub-vendors receive more commissions per sack of supply produce. Sub-vendors reported widely different commissions (see **Table 14**) even though some work under the same vendor. They exposed that the commission depends on the quality of grading they have done. The commissions for sub-vendor primarily depend on the grading quality and their association with the number of farmers. The rate of commission per quintal received higher by such sub-vendors who supplied more quantity of potatoes to their respective vendors. During FGDs under these sub-vendors, farmers raised high rejection and strict grading of produce on quality. This suggests

that the sub-vendors often do strict quality grading to earn more commissions, ultimately costing farmers gain. Since there is no instruction on sub-vendor commissions, it depends on their quality grading, support to vendors by cash, and the volume of produce they supply.

Table 14 Commission Earned by Sub-Vendors (2020-2021 Season)

Sl No.	Total potato supplied (quintal.)	Gross commissions (₹)	Commissions per quintal. (₹)	Sl No.	Produce (quintal)	Gross commissions (₹)	Commissions per Quintal (₹)
1	4700	1,97,400	42	10	600	12,000	20
2	4250	1,27,500	30	11	6159	1,23,800	20.10
3	4000	1,20,000	30	12	1750	52,500	30
4	1750	45,000	25.72	13	1600	22,400	14
5	*	*	*	14	2500	75,000	30
6	2000	64,000	32	15	3750	1,12,500	30
7	790	18,960	24	16	2910	87,000	30
8	2250	67,000	29.78	17	3081	61,620	20
9	4000	1,20,000	30	18	1522	51,748	34

Source: Field data 2021-22 (*The sub-vendor did not share information on commission).

Farming Relations and Constraints

Contract farming has significantly changed traditional agrarian relations, where corporate firms now play an active role in production and decision-making processes. The relationship between vendors and contract farmers is crucial in various areas, such as accessing inputs, payment, and problem-solving. Even if farmers are working through sub-vendors, they can always contact vendors for assistance. PepsiCo occasionally makes random calls to ensure everything runs smoothly. Interestingly, vendors do not have stringent criteria for selecting contract farmers, and anyone can participate, which differs from other studies that report restrictive criteria (Mishra et al., 2018; Narayanan, 2014; Sharma, 2016). Farmers are required to meet specific quality and quantity parameters for their crops, failing which, they risk losing access to inputs from vendors in subsequent years. Some vendors who own fertiliser and pesticide shops reported that farmers sometimes take these inputs on credit for other crops and adjust the balance after the supply of contract crops. Vendors do not share business-related information with farmers, such as the procurement prices of seeds or medicine kits or the selling price of potatoes

with PepsiCo. They only share the prices of inputs and the produce that farmers receive after supply. This suggests a lack of fair information sharing between intermediaries and farmers.

According to sub-vendors, the open market price movement makes obtaining desired potatoes challenging without a compensation mechanism, and farmers become unwilling to supply the entire produce at a lower fixed contract price. Further, at their lower demand, PepsiCo often informed them through vendors to procure less, which led to strict grading to restrict more produce. Contract farmers and sub-vendors are unaware of the agreement details between vendors and PepsiCo. Sub-vendors take responsibility for inspecting the growth of produce as their commissions are associated with the production.

Only one sub-vendor from the Goghat-I block provides fertiliser to farmers on credit, which he adjusts after harvest. Despite farmers often looking for fertiliser and pesticides from them, they could not assist them, except for a few sub-vendors who occasionally arrange fertiliser for farmers from their vendors who own fertiliser and pesticide shops. Thus, input support to farmers, beyond specific seeds and medicine kits, depends entirely on vendors or sub-vendors. If vendors own farming-related businesses, they often help farmers.

Price fluctuations and demand from PepsiCo significantly impact the relationship between vendors and farmers. Farmers become unwilling to supply their entire produce at a lower price when prices increase, making it challenging to obtain the desired potatoes. On the other hand, when PepsiCo's demand is lower, they often instruct vendors to procure less, leading to strict grading to restrict more produce. This can create tension between farmers and intermediaries, as strict grading makes it difficult for farmers to sell their produce. Although vendors have praised PepsiCo for its timely payment, they have also raised concerns about the restriction of produce on quantity, which often forces them to perform strict grading. However, most vendors are hesitant to express dissatisfaction with PepsiCo openly, which can be attributed to the power dynamics between the two parties. Nevertheless, vendors do not hesitate to point fingers at farmers and sub-vendors, even for minor issues.

Farmers may engage in side selling when the open market price of potatoes increases compared with the contract price, which can create further tension between farmers and intermediaries. However, such minor violations can be seen as a form of resistance against the dominant power structure, as Scott (1985) and Hambolch (2021) described. PepsiCo is overly concerned about potato quality; if there are any grading issues, they often return the truck to do grading again; otherwise, they do not cause any problems for vendors. Therefore, they try to perform proper grading, so if some produce gets rejected in the field, it is only lost for farmers. However, if PepsiCo returns a truck, it will hamper its commission and the future of its business.

Intermediaries' Suggestions

I concluded the discussion by soliciting their suggestions and recommendations to enhance CF practices, taking into account the issues farmers face that they could potentially address with the government or PepsiCo. However, the vendors primarily focused on their demands rather than the concerns of the farmers. Their common requests included insurance support for their investment from the government or PepsiCo. They also suggested that PepsiCo should involve them in the agreement-making process or, at the very least, consider their perspectives. Additionally, they emphasised that CF could be extended to other crops such as nuts, sesame, paddy, and vegetables. They proposed that PepsiCo or other companies consider implementing CF for other crops, enabling farmers to cultivate them and secure a stable price.

“Before CF, there was a time when potato prices were down too low and did not cover the labour costs we invested throughout the season. Farmers availed minimum profit out of CF as the price is fixed with average production they can earn minimum profit. I believe CF should also expand to include other crops,”— Vendor, KII, Kotulpur block, Bankura district.

“PepsiCo should let us communicate with each other. At a high price in the open market, some farmers supply less than the intended yield quantity despite taking seeds from me. They sell produce outside CF in the open market as the price is higher. Later they leave and cultivate under other vendors or sub-vendor in such cases. Retrieving the full cost of inputs from those

farmers becomes difficult in such cases. PepsiCo should have stopped allowing farmers to move from one location to another. Meetings between vendors are prohibited; if we have a meeting, we are afraid they will cancel our vendorship. These issues must be addressed, or it will be difficult for vendors to recover from farmers,”— Vendor, KII, Goghat-I block, Hooghly district.

I have summarised the suggestions of sub-vendors to improve the CF and addressed issues in this section. Sub-vendors have put forth several suggestions for the advancement of CF. A sub-vendor from the Kotulpur block of Bankura highlighted certain quality-related details. It was noted that PepsiCo allows only 2 kg of non-grade potatoes, 2 kg of green-coloured potatoes, and 6 kg of oversize potatoes per quintal of produce. Consequently, if feasible, a larger allowance could be granted to benefit the farmers. Additionally, the sub-vendor emphasised that grading labour earns ₹50 for packaging one quintal potatoes (2 sacks). However, they receive only ₹40 per quintal for overseeing the entire season. The sub-vendors believe that they should receive higher compensation from the vendors for their supervisory role. Furthermore, they suggest increasing the price, and vendors should procure the entire crop to encourage greater farmer participation in CF. The sub-vendors propose that more farmers would be inclined to engage in CF if the sponsor commits to purchasing the harvest without rejection, even if a lower price is offered for non-chip-grade produce.

The announcement and agreement should be exclusive to farmers or sub-vendors. If possible, there should be third parties from the government so that they can inspect the progress and other things. Since there is no mechanism for compensation at price fluctuation time for contract crops, that must be included. If that can become part of CF, farmers will not make difficulties at price fluctuation times, and the process will become smoother for them to convince farmers. CF should also cover other crops, such as watermelon, nuts, and sesame, encouraging farmers to do multi-crop farming that benefits them.

3.4 Conclusion

West Bengal offers a unique opportunity to explore the social relations of production in this changing production system that are strongly linked to caste, social ties, land ownership, access to capital, and control over the farming community through established farming-related businesses. **Section 3.2**

presents how CF shapes the interaction between smallholder potato farmers and PepsiCo and finds that farmers are connected with the firm through intermediaries. The principal-agent theory and transaction costs theory explains PepsiCo's strategy of controlling many smallholders and marginal farmers. The company appoints commission agents to invest capital and supervise the process according to their instructions. Although PepsiCo initially started through established institutions to build trust, however, the corporation subsequently transitioned towards engaging intermediaries to exert control over the farming community, devoid of any inherent social connections. This strategic shift aimed to secure a consistent supply of high-quality raw materials for the company. The adoption of this approach enables PepsiCo to effectively offload capital and supervisory risks onto vendors while concurrently transferring production risks onto smallholder farmers. The discernible transformation in the CF model, transitioning from cooperative society involvement to the inclusion of private actors, highlights the corporate strategy's explicit intent to reallocate the burden of risk sharing. This is very much evident that PepsiCo uses the social capital of established rural institutions, i.e., cooperative society, and then they use the social capital and market network of vendors to reach smallholder farmers.

Contract farming expanded class differentiation within the rural economy. This farming brings capital through the upper caste rural elite, capitalist or rich farmers to control the smallholder and marginal potato farmers from socially disadvantaged sections with minimum market (inputs and outputs) support. The rich or capitalist farmer or elite group becomes the key player for agribusiness firms to run their business smoothly through a secure commission, therefore an alternative livelihood opportunity without any bargaining power or business security. Social ties and differences in capital assets once again shape the scale of the business for intermediaries. Vendors in better positions and control over forces of production grow their businesses and accumulate capital by hiring more sub-vendors to connect with many farmers and supply more potatoes, earning a high commission.

Another group of smallholder farmers from the upper caste with minimal organisational skills become sub-vendors to represent vendors on secure commissions in addition to their farming. Small and marginal farmers, primarily from socially marginalized castes, prefer to cultivate under CF. The structure of CF model and social relations suggests how social dominance significantly linked to the

changing production relations. In international literature, we cannot see any discussion on the issue of social relations, but in the Indian context, we cannot ignore social relations.

The final section (3.3) examines the contract with intermediaries and bargaining power. It is evident that despite investing in the business, vendors cannot bargain for better commissions or negotiate inputs and prices. The power hierarchy is established with PepsiCo at the top, followed by vendors and sub-vendors. As a form of agrarian change, CF has emerged as an alternative for intermediaries to gain control over the marginal poor agricultural class in favour of corporate firms. Within the complex web of social relations of production, CF enables capital to operate in the same place in an exploitative manner, where smallholder farmers bear the socioeconomic costs. At the forefront of this new agrarian transition, smallholder farmers have become the routes for channelling their land and labour into the circuits of capital accumulation by agribusiness firms, with the assistance of the intermediary class.

With the rise in demand for high-value food due to factors such as urbanisation, global market integration, and income growth, the decline in the scale of agricultural operations and fragmentation of agricultural land will force socially deprived and marginalised farmers to rely on intermediaries and agribusiness firms for the cultivation of high-value crops in the absence of state support. Despite the dominance of smallholders, unequal distribution and controls on forces of production held by a certain social group within the rural economy influenced the social relations of production. The study shows that despite policy reforms and changes in social order and political participation, the existing dominance of the upper caste within rural West Bengal affects production relations, livelihood opportunities, and power dynamics in CF. This will exacerbate class differentiation, with socially advantaged groups accumulating capital and expanding their control over agriculture and the rural economy. CF will continue to increase rural inequality and lead to the concentration of power in the hands of a few rich or capitalist farmers from upper castes.

Chapter 4. Impact of Contract Farming on Production and Income: Comparison Between Contract and Non-Contract Potato Farming

4.1 Introduction

In the previous chapter, we experienced how small and marginal farmers, belonging to socially deprived castes prefer to cultivate under CF. On the other hand, socially advantaged groups have the privilege of becoming intermediaries and expanding their farming-related businesses and alternative livelihood opportunities. The intensive literature suggests that CF benefits farmers by increasing production, income, and employment opportunities at the farm level. CF provides better returns than NCF due to improved pricing, which can offset any decrease in yield. Therefore, microeconomic studies (as discussed in **Section 1.3.4**) have praised CF for its role in promoting the cultivation of high-value crops. However, comprehensive research on the impact of CF on small-scale and marginal farmers in India is lacking as I have stated in the research gaps section. We have experienced in the previous chapter that small and marginal farmers prefer to do CF, so in this chapter, I examined the impacts of CF on small and marginal farmers by exploring the production and income compared to NCF. Previous studies have praised fixed-price contracts as a "win-win" situation for farmers. This chapter aims to explore the benefits of such fixed-price contracts. This chapter analyses the following research question: *Is contract farming more profitable than non-contract farming?*

In the previous chapter, we noted a slight difference between CF and NCF households in terms of operational landholding, with CF households having relatively smaller landholdings than NCF households. However, more marginalised caste households engage with the CF model than NCF. Therefore, before moving into the details of production and income aspects under CF and NCF, first examine the wealth difference between these two types of households. Access to household assets and amenities is important in determining socioeconomic conditions, living standards, and decision-making processes in farming. Among rural assets, agricultural land stands out as the most crucial resource and form of property in agrarian societies, exerting a significant influence on rural livelihoods (Basu & Chakraborty, 2008; Vu, Rammohan & Goli, 2021; Winters et al., 2009).

In contemporary rural settings, households are engaged in diverse economic activities, with agriculture remaining a primary sector but not the sole source of livelihood. Therefore, along with the ownership of landholding, it is important to examine other resources to assess the wealth and prosperity of farming households. Therefore, this chapter is structured as follows: **Section 4.2**, through descriptive analysis, provides an overview of the wealth distribution among CF and NCF households. Descriptive analysis shows that in most cases at the household level, NCF households are better off, while CF households are relatively poor. **Section 4.3** delves into the distribution of various cultivation, production, and income costs. The results suggest that the average cost of cultivation under CF against NCF is relatively higher. Although there is no significant difference in production between the two types of farming, the average return under NCF is much higher than CF that of the open market due to the higher price. Finally, **Section 4.4** concludes the discussions and analysis presented throughout the chapter, offering insights into the implications of the findings. In conclusion, I argue that a fixed price is not always profitable for farmers, mainly when there is no compensation mechanism. I argue that there should be a compensation mechanism along with the fixed price contract to support small and marginal farmers under CF at an upward price and in production loss situations.

4.2 Wealth Distribution Under Contract and Non-Contract Potato Farming Households

Measuring wealth distribution among farming households in India involves the use of various indicators and methods. I measure the wealth or prosperity of farming households by considering land ownership and size, asset ownership, access to credit and finance, family size and education, basic household infrastructure, and other amenities for two types of farming households.

4.2.1 Distribution of Land Ownership and Size

Table 15 illustrates three types of information on agricultural land (ownership holding, fixed tenant, and operational landholding) by CF and NCF households at the district level and overall. The average agricultural landholding owned by CF households is relatively smaller (1.12 acres) than that owned by NCF households (1.30 acres). In the Hooghly district, the average size of the owned land is also larger for NCF households (1.08 acres) than for CF households (1 acre). However, in the Bankura district, CF

households own a relatively larger size of agricultural land (1.10 acres) than NCF households (0.97 acres).

The information on land under fixed tenants shows that more CF households (53.85%) took agricultural land than NCF households (42.31%). The CF households took, on average, agriculture land of 1.03 acres, marginally higher than NCF of 1.01 acres. The number of households that reported fixed tenant landholding in Hooghly did not vary much for CF (57.14%) and NCF (56%) households. However, a noticeable difference is observed in average fixed tenant landholding for CF (1.02 acres) and NCF (1.43 acres) households. In Bankura, the number of farming households informs land under fixed tenant for contract (51.85%) is much higher than non-contract (32.53%). The average size of landholding for both farming households is significantly different. CF households operate on an average (0.99 acres) smaller size of land than non-contract (1.21 acres) households.

Very few farming households reported not owning any agricultural land and solely relying on fixed tenants. In general, there was no significant difference in land ownership between the two types of households. However, at the district level in Bankura, all NCF households reported owning agricultural land, whereas approximately 97.53 per cent of CF households owned land. In Hooghly district, 100 per cent of contract farmers reported owning agricultural land, compared to 96 per cent of NCF households. NCF households tend to operate with relatively larger landholdings than CF households. On average, NCF households operate 1.70 acres of agricultural land, including owned and fixed tenant land, whereas CF households operate 1.66 acres. These results highlight the disparity in landholding sizes between the two types of farming households. At the district level, the distribution of the two types of farming households in Hooghly is precisely the same. However, in Bankura, operational landholding for CF households is somewhat less (1.69 acres) than for NCF households (1.77 acres).

It has been observed (in **Chapter 3**) that the social relations of production in CF have had a significant impact on the emergence of new actors, particularly for upper caste rural elites. These elites have better access to means of production and better controls in the farming community and, as a result, have become commission agents, finding new livelihood opportunities. The unequal distribution of land

Table 15 Households (in %) with Average Landholding Size (in acre) by Farming Category

Types of landholding	Bankura				Hooghly				Overall			
	CF		NCF		CF		NCF		CF		NCF	
	%	Avg.	%	Avg.	%	Avg.	%	Avg.	%	Avg.	%	Avg.
Fixed tenant	51.85	0.99	32.53	1.21	57.14	1.02	56.00	1.43	53.85	1.03	42.31	1.01
Ownership holding	97.53	1.10	100.00	0.97	100.00	1.00	96.00	1.08	98.46	1.12	98.50	1.30
Operation holding (Avg.)	1.69		1.77		1.60		1.60		1.66		1.70	

Source: Field data (2022)

Table 16 Distribution of Landholdings by Caste and Size (in acre) Under Contract and Non-Contract

District	Contract farming households						Non-contract farming households					
		Fixed tenant		Ownership holding		Operational landholding	Fixed tenant		Ownership holding		Operational holding	
	Category	%	Avg.	%	Avg.	Avg.	%	Avg.	%	Avg.	%	Avg.
Bankura	General	43.64	1.02	100	1.43	1.87	30	1.15	100	1.56		1.9
	OBC	33.33	0.6	100	0.83	1.03	100	0.8	100	1.2		2
	SC	73.91	0.98	91.3	0.7	1.36	37.5	0.67	100	1.02		1.27
Hooghly	General	45.83	0.91	100	1.36	1.78	48.57	0.94	97.14	1.31		1.73
	OBC	57.14	1.03	100	0.8	1.39	71.43	1.2	100	0.64		1.49
	SC	78.57	1.24	100	0.45	1.43	75	1.02	87.5	0.4		1.11
Overall	General	44.3	0.98	100	1.41	1.84	36.84	1.05	98.95	1.47		1.85
	OBC	50	0.94	100	0.81	1.28	75	1.13	100	0.71		1.56
	SC	75.68	1.08	94.59	0.6	1.39	46.88	0.81	96.88	0.88		1.23

Source: Field data (2022)

across castes considerably impacts the economic outcomes of farming households, with socioeconomically deprived groups from OBC and SC having smaller landholdings and thus preferring to cultivate under CF.

Table 16 provides information on the distribution of land ownership by caste at the district level and overall for both CF and NCF households. This indicates that there is a significant difference. General category households under the NCF also own larger land (1.47 acres) than OBC (0.71 acres) and SC (0.88 acres) households. Similarly, General category farming households under the CF own larger land (1.41 acres) than OBC (0.81 acres) and SC (0.60 acres) households which is significantly different (see Table 17). If we compare this information on fixed tenant land across castes under the CF, it is noticeable that a higher percentage of farming households from OBC (50%) and SC (75.68%) cultivate under fixed tenant than the General group (44.3%) to participate in CF to benefit from fixed price contract and inputs markets supports. This trend is also the same for NCF households, where a greater number of socially deprived category households tend to cultivate land on fixed tenants. There is also a difference in the size of operational landholding among households across the caste categories. The households belonging to the General category operate on a larger area of land than the OBC and SC households. This suggests that one section of the household, despite small landholding, prefers to cultivate traditional crops rather than fixed-price CF.

Table 17 t-test for Own Land (Acre) under Contract and Non-Contract Farming by Caste Group

T-test: Two-Sample Assuming Unequal Variances		
	Contract farming	
	General	Others (OBC & SC)
Mean	1.373975904	0.61787234
Variance	0.62978278	0.348560592
Observations	83	47
Hypothesized Mean Difference	0	
df	119	
t Stat	6.172751751	
P(T<=t) one-tail	4.80123E-09	
t Critical one-tail	1.657759285	
P(T<=t) two-tail	9.60246E-09	
t Critical two-tail	1.980099876	

Source: Author own calculation based on filed data 2021-22.

4.2.2 Distribution of Asset Ownership

Farm machinery is an important asset for rural households, particularly farming households, as it enhances production and yield. Despite agricultural distress, farm mechanisation has increased in India (Sarkar, 2020). **Table 18** lists those who own productive farm equipment and their average market value. The farm equipment details include tractors, plough and power tillers, borewells and shallow wells, trolleys, sprayers, and bullock carts. From the study area, only eight NCF households (6.02%) reported owning tractors relative to seven (5.38%) CF households. The average market value of tractors for CF households is relatively better (₹785714) than for NCF households (₹450000). The substantial price difference is due to farm equipment depreciation. This difference in depreciation is higher for CF households than NCF households, in most cases, as they purchased farm machinery earlier. At the district level, the number of tractors for NCF (7.23%) and CF households (7.41 %) is much higher for Bankura district. In Hooghly, only a few CF (2.04%) and NCF households (4%) own tractors. However, the average asset value of tractors for NCF households in Hooghly is relatively high (₹575000) compared to Bankura (₹408333). CF households from Bankura own, on average, higher assets of tractors (₹816667) than Hooghly (₹600000). **Table 18** on tractors shows that fewer CF households own tractors than NCF households, and there is a considerable difference between the two districts. Farming households in Bankura own better assets (tractors) than Hooghly.

The combined data for traditional ploughs and power tillers are shown in the next row (see **Table 18**). Considering this information, NCF households (39.85%) own more ploughers and power tillers than CF households (30.77%). However, CF households (₹32768) generally have higher average market values for these assets than NCF households (₹18270). This is because CF households claimed to own more power tillers, which are relatively expensive, whereas NCF households claimed to own more traditional ploughers, which are cheap. Further, some of the assets reported by the CF households are new, and the market price is higher than that of NCF households. Also, some sub-vendors who participated in this second phase of the household survey hold new and modern equipment, such as power tillers, under CF households, which is another reason why, at an overall level, showing the better market value of assets.

Table 18 Details of Farm Machinery (Market Value in ₹)

Type of HH	District	Tractor			Plougher and power triller			Boreweel/Shallow			Trolley			Sprayer			Bullock cart		
		No of HH	%	Avg market value (₹)	No of HH	%	Avg market value (₹)	No of HH	%	Avg market value (₹)	No of HH	%	Avg market value (₹)	No of HH	%	Avg market value (₹)	No of HH	%	Avg market value (₹)
CF	Bankura	6	7.41	816667	30	37.04	13633	4	4.94	40000	3	3.70	34500	79	97.53	794	22	27.16	3645
	Hooghly	1	2.04	600000	10	20.41	90170	1	2.04	350000	0	0.00	0	49	100.00	991	8	16.33	6875
NCF	Bankura	6	7.23	408333	39	46.99	21082	2	2.41	40000	0	0.00	0	82	98.80	901	29	34.94	3169
	Hooghly	2	4.00	575000	14	28.00	10436	0	0.00	0	0	0.00	0	49	98.00	999	8	16.00	4125
CF	Overall	7	5.38	785714	40	30.77	32768	5	3.85	102000	3	2.31	34500	128	98.46	870	30	23.08	4507
NCF	Overall	8	6.02	450000	53	39.85	18270	2	1.50	55000	0	0.00	0	131	98.50	938	37	27.82	3376

Source: Field data (2022)



The distribution between the two districts shows a considerable difference, where more NCF households have (46.99%) ploughing and power tiller assets in Bankura than in Hooghly (28%). Similarly, on average, the market value is much higher for NCF households from Bankura (₹21082) than those from Hooghly (₹10436). CF households also own more ploughers and power tillers from Bankura (37.04%) than Hooghly (20.41%). Despite a considerable difference in the number of ploughers and power tillers between Bankura and Hooghly, on average, CF households own better asset value (₹90170) in Hooghly than in Bankura (₹13633). This difference is due to the fewer power tillers in Bankura and the more traditional ploughers. I have pointed in the methodology section (see **chapter 2**) that Bankura is socio-economically comparatively disadvantaged than Hooghly district. Further the farming households in Bankura have better number of bullocks and they often follow the traditional ploughing. Whereas, farming households in Hooghly relatively hire tractor and power tiller rather than relying own traditional ploughers.

The major sources of irrigation in this region are borewells and shallow wells, whether owned by the farmer group or cooperative society or mainly run by a private actor. When irrigation is operative by the farmer cooperative society, then the irrigation charge per unit of operational holding is less than private players operating irrigation. The information shows that CF households own more borewells and shallow wells (3.85%) than NCF households (1.50%). Similarly, the market value for borewells and shallow wells shows that CF households have a higher value (₹102000) than NCF households (₹55000). At the district level, no NCF households from Hooghly won borewells or shallow wells. In contrast, two households (2.41%) from Bankura reported having this asset, with an average of ₹ 40,000 asset value. Similarly, more CF households from the Bankura districts (4.94%) own this asset than those from Hooghly (2.04%). The average market value differs significantly between the two districts. In Bankura, the market value is lower (₹40000) than that of Hooghly (₹350000) because all households in Bankura that own borewells or shallow wells are shareowners. The market value is divided among the shareholders. In contrast, the only household in Hooghly that owns borewells or shallow wells has private ownership.

Only three CF households (3.70%) from Bankura, with an average asset value of ₹34500, owned the trolley—no farmers from NCF from Bankura and CF and NCF from Hooghly own trolleys. Sprayer is the most common farm machinery reported in almost all households, irrespective of CF and NCF. Some households own electric sprayers, whereas others have a relatively cheap hand pump sprayer, reflecting the market price difference across districts and farming types.

Farmers use bullock carts to transport inputs and production. NCF households own more bullock carts (27.82%) than CF households (23.08%). Despite the better share by NCF households, CF households own better market value (₹4507) than NCF households (₹3376). This price difference is again due to the difference in the age of bullock carts. Looking at the district level information on bullock carts, it shows that Bankura owns relatively more bullock carts for both types of farming households than Hooghly. For NCF households, Bankura owns the largest share (34.94%) than Hooghly (16%). However, the market value is higher for Hooghly, with an average of ₹4125, then for Bankura, with an average value of ₹3169. Similarly, CF households from the Bankura district own more bullock carts (27.16%), with an average market price of ₹3645. At the same time, CF households from Hooghly own fewer bullock carts (16.33%), with a better market value (₹6875) of the asset.

Observation from Assets Distribution Information

Based on the above discussion, it can be observed that CF households hold a relatively smaller amount of land and have a higher number of them cultivating under fixed tenancy. This trend is also noticeable across caste categories, with OBC and SC households taking on more land under fixed tenancy. There is no significant difference in farming assets between the two types of farming households. However, there are more NCF-owned assets, such as power tillers and ploughers, but the market price is low due to NCF households owning more traditional ploughers than power tillers. Similarly, more NCF households owned borewells and shallow wells, but the average market price is lower compared to CF households, as the latter households have private ownership of these assets, whereas the former households have shared ownership. From this information, I would argue that NCF households, particularly those in the Bankura district, have old and traditional assets. Whereas some CF households have modern farm machinery and are keen to adopt new crops and cultivate under CF. Further, when I

locate the specific household under CF who mostly owned such farming-related machinery, they are actually sub-vendors, and that high price new and modern farming machinery pulls average price better despite relatively poor conditions in other aspects compared to NCF households. For example, a sub-vendor shares when one has modern farm machinery and a better relationship with the farming community and management skills. For example, if a farmer has a shallow well (as that farmer said), many farmers cultivate under the irrigation service, which builds a network as well as trust that helps to become sub-vendors to operate the CF, which again gives some additional income.

4.2.3 Distribution of Access to Credit and Finance

Credit plays a crucial role in agricultural development because it facilitates the adoption of new technologies and higher input use (Satyasai & Tiwari, 2021). Access to credit at reasonable rates is particularly important for poor and smallholder farmers because it enables them to invest in farm equipment and cultivation. **Table 19** provides an overview of households linked to credit facilities and various government schemes. Including information on insurance and other programmes helps determine if farming households take advantage of government initiatives and are aware of financial assistance programmes available to them. Most CF (98.46%) and NCF (98.50%) households reported owning bank accounts. There is a slight variation in banking status at the district level. In the Bankura district, all NCF households (100%) own bank accounts, whereas 98.77 per cent of CF households have bank accounts. In contrast, the situation in Hooghly is different, with a higher percentage of contract households (97.96%) owning bank accounts than non-contract households (96%).

Table 19 Details of Credit Accessibility by Households (%)

Accessibility	Bankura		Hooghly		Overall	
	CF	NCF	CF	NCF	CF	NCF
Owens Bank Account	98.77	100	97.96	96	98.46	98.50
Member of Cooperative Society	82.72	84.34	30.61	28	63.08	63.16
Owens Kishan Credit Card	88.89	85.54	89.8	90	89.23	87.22
Has Fashal Bima Yojana	83.95	90.36	69.34	62	78.46	79.70
Member of Self-help Group	4.94	6.02	2.04	4	3.85	5.26

Source: Field data (2022)

The cooperative society serves as an established institution that offers agricultural credit, inputs, and other forms of support to farmers. The data analysis did not reveal any significant difference between CF (63.08%) and NCF (63.16%) households in terms of membership in the cooperative society. However, notable disparities are observed between the two districts. In the Bankura district, membership in the cooperative society is relatively lower for CF households (82.72%) than for NCF households (84.34%). On the other hand, in Hooghly, although CF households have a relatively higher membership (30.61%) than NCF households (28%), but both are significantly lower than Bankura. Participants from the Hooghly district mentioned that they prefer to open accounts in nearby banks for agricultural loans instead of relying on the cooperative society which is located little away. Further they claimed that accessing credit from banks is much easier and quicker than from a cooperative society.

In regard to cooperative credit supply farmers from both district claimed the credit is often insufficient and they received later than they expect. Further some of the farmers claimed there is a dominance of large farmers those who often connected to the local political parties and have some kind of social dominance within the villages enjoy the low interest cooperative credit rather than the need small and marginal farmers. The above condition notable shared mostly by the farmers from the Bankura district. The dominance of caste and social networks has a role in access to institutional credit in the rural economy which is another reason for farmers as they claimed go for often easy access credit from private lender at higher rate.

The **Kishan Credit Card (KCC)** is a credit facility that provides farmers with funds to purchase agricultural inputs such as fertilisers, pesticides, and other production necessities. The scheme was initially introduced in India in 1998 and was later expanded in 2004 to cover investment credit requirements for farmers engaged in agriculture-allied and non-farm activities. The data presented in **Table 19** shows that CF households have relatively better access to KCCs (89.23%) than NCF households (87.22%). However, slight variations in KCC ownership exist at the district level. In Hooghly, a lower proportion of CF households own KCCs (89.8%) than NCF households (90%).

Conversely, in Bankura, a higher percentage of CF farmers own KCCs (88.89%) than NCF households (85.54%).

Fasal Bima Yojana (FBY) is an institutional support programme that assists farmers by providing financial assistance in the event of crop loss. This support helps stabilise farmers' income to a certain extent and ensures their continued engagement in farming activities. No significant differences were observed between CF (78.46%) and NCF households (79.70%) overall. Variations were evident at the district level. In the Bankura district, a relatively lower proportion of CF households (83.95%) have access to FBY than NCF households (90.36%). Conversely, in Hooghly, access to FBY was noticeably lower overall, with CF households (69.34%) having better access than NCF households (62%). It is worth noting that farmers from both types of farming practices reported instances where they did not receive the allocated funds. In addition, some farmers have claimed that the amount received for crop loss was negligible.

Self-help groups (SHGs) serve as a prominent microfinance source in rural India and are critical in empowering women from economically marginalised backgrounds. These groups assist women in achieving self-sufficiency in employment, income generation, education, and health planning for their families. However, only a small percentage of CF and NCF families are affiliated with SHGs. Non-contract households (5.26%) exhibit higher membership in SHGs than CF households (3.86%). Similarly, at the district level, a lower proportion of CF households are part of SHGs than NCF households.

Amount of Credits for Cultivation (Season 2021-22)

Rural impoverished households often resort to informal channels for credit because accessing formal credit and bank loans is challenging. Formal credit facilities typically require documentation and collateral, which are rarely available to financially vulnerable households. Surprisingly, the study did not identify any farmers among the participants who obtained loans from moneylenders or private individuals for the 2021-22 season. However, they acquired agricultural inputs such as fertilisers, pesticides, medicines, and other farming necessities on credit from local merchants/traders subsequently

selling their produce. They rely on loans from banks, cooperatives, or credit inputs provided by local traders and intermediaries for CF.

Table 20 Amount of Credit for Season 2021-22 (₹)

District	HH type	Per cent of HH obtained loans			Total HH took loans	Average amount per HH		
		Bank	Cooperative Society	SHGs		Bank	Cooperative Society	SHGs
Bankura	CF	17.28	59.26	3.7	80.24	41714	33198	11667
	NCF	10.84	60.24	6.02	77.1	47556	32030	17400
Hooghly	CF	55.1	16.33	2.04	73.47	42111	29875	30000
	NCF	58	12	0	70	54655	22667	0
Overall	CF	31.54	43.08	3.08	77.7	41976	32723	16250
	NCF	28.57	42.1	3.76	74.43	52974	31027	17400

Source: Field data (2022)

Table 20 presents the loans acquired by farmers exclusively for cultivation purposes during the 2021-22 season, highlighting various sources such as banks, cooperative societies, and self-help groups (SHGs). The data indicate that relatively more number of CF households (77.7%) took loans than NCF households (74.43%). Cooperative societies emerged as the primary source of loans for CF (43.08%) and NCF (42.10%) households, surpassing banks and SHGs. Notably, 31.54 per cent of CF households obtained loans from banks, a relatively higher percentage than of NCF households (28.57%).

There is a noticeable disparity at the district level, with a higher proportion of loans being obtained by NCF (58%) and CF (55.1%) households in Hooghly than Bankura. In Bankura, only 17.28 per cent of CF households and 10.84 per cent of NCF households acquired loans from banks. Farmers in Bankura predominantly sought loans from cooperative societies, with CF (59.26%) and NCF (60.24%) households relying on cooperative societies rather than banks. In contrast, farmers in the Hooghly district expressed a preference for nearby banks over cooperative societies due to their distant location. They claimed that banks offered a more streamlined process for obtaining agricultural loans than cooperative societies. Additionally, cooperative societies tend to favour large landholding farmers, making it more challenging for smallholder farmers to secure loans. The number of farming households availing loans from SHGs is significantly lower, with only 3.76 per cent of NCF households and 3.08 per cent of CF households obtaining loans from SHGs.

The average loan amount for both farming households in the 2021-22 crop season is relatively higher when obtained from banks than from cooperative societies. NCF households (₹52974) took higher average loans from banks than CF households (₹41976). At the district level, both farming households in Hooghly obtained higher average loans from banks compared with those in the Bankura district. NCF (₹42111) and CF (₹54655) farming households in Hooghly acquired loans at higher averages than CF (₹41714) and NCF (₹47566) farming households in Bankura district. However, when considering loans from the cooperative society overall, CF households (₹32723) obtained more loans than NCF households (₹31027). At the district level, both CF households (₹33198) and NCF households (₹32030) in Bankura obtained higher loan amounts compared to Hooghly district, where CF households (₹29875) and NCF households (₹22667) had lower loan amounts.

The amount of loans to farming households obtained from SHGs is significantly less than the other two sources. The NCF households (₹17400) took better loans than the CF households (₹16250). At the district level, the CF households of Bankura (₹11667) took less loans than those of Hooghly (₹30000). While NCF households (₹17400) of Bankura took loans, no households of Hooghly availed from SHGs.

Observation from Access to Credit Facilities

Similarly, there is no significant difference in access to credit facilities under CF and NCF households, but there is a noticeable difference when we compare the amount of loans availed by farming households. Households in Bankura for loan rely heavily on cooperative societies, while in Hooghly, both CF and NCF households depend on bank loans. The amount for NCF is relatively higher than for CF in both districts. We cannot categorically say that CF households obtained fewer loans, because they do not require a high amount of loan as they get some credit support from the CF in the form of seeds and pesticides. Some CF households explain that they get less money that relies on the landholding size, while others said that as they get input support from PepsiCo, they do not require much.

4.2.4 Distribution of Family Size and Education

The average family size for both CF and NCF households was less than 4 members, and no significant difference in family size was observed between the two groups (see **Table 21**). Similarly, there is not much variation in family size between the two districts. However, the family size in the Hooghly district is relatively smaller, although the difference is negligible. The average level of education completed by family members of CF and NCF households shows minimal differences. Regarding the average number of years of education completed by family members, NCF households show a relatively higher level (7.36 years) than CF households (7.11 years). Specifically, in the Bankura district, the overall educational status of family members in NCF households is better (8.17 years) than that in CF households (6.99 years). However, in the Hooghly district, the situation is reversed, with family members of CF households having a higher average level of education completed (7.23 years) than those of NCF households (6.55 years). There is no significant difference in the average number of non-earning members for CF and NCF households across districts. However, the average number of non-earners in CF households is higher than that in NCF households.

Table 21 Family Size and Education Details

District	Bankura		Hooghly		Overall	
Details	Contract	Non-contract	Contract	Non-contract	Contract	Non-contract
HH Size (No)	3.95	3.98	3.86	3.76	3.92	3.90
Avg. education (years)	6.99	8.17	7.23	6.55	7.11	7.36
Avg. non-earners (No)	2.56	2.45	2.39	2.82	2.48	2.64

Source: Field data (2022)

4.2.5 Distribution of Infrastructure and Amenities

Table 22 presents an overview of the housing conditions and amenities available to CF and NCF households. The classification of buildings is based on the materials used to construct the walls and roof of the house. Katcha buildings are primarily constructed using mud, wood, straw, and dry leaves. In contrast, pucca buildings are more substantial and permanent, consisting of materials such as wood,

Table 22 Distribution of Infrastructure and Amenities Under Contract and Non-Contract (at Household Level)

Resource details	Details	Bankura		Hooghly		Overall	
		Contract	Non-contract	Contract	Non-contract	Contract	Non-contract
Housing Type	Both type	4.94	8.43	4.08	6	4.62	7.52
	Katcha	29.63	31.33	30.61	28	30	30.08
	Pucca	62.96	57.83	65.31	66	63.85	60.9
	Semi-pucca	2.47	2.41	0	0	1.54	1.5
	No of Room	3.47	3.65	3.16	3.33	3.4	3.54
Storied	One Storied	65.43	65.06	73.47	72	68.46	67.67
	Two Storied	34.57	34.94	26.53	28	31.54	32.33
Bathroom	No	41.98	45.78	42.86	38	42.31	42.86
	Yes	58.02	54.23	57.14	62	57.69	57.14
Electricity	No	1.23	1.2	2.04	0	1.54	0.75
	Yes	98.77	98.8	97.96	100	98.46	99.25
Gas	No	9.89	8.43	22.45	16	14.62	11.28
	Yes	90.12	91.57	77.55	84	85.38	88.72
Source of water	Tubewell	54.32	54.22	48.98	42	52.31	49.62
	Borewell	45.68	45.78	51.02	58	47.69	50.38
TV	No	35.8	34.94	44.88	38	39.23	36.09
	Yes	64.2	65.06	55.1	62	60.77	63.91
Bicycle	No	1.23	2.41	10.2	8	4.62	4.51
	Yes	98.77	97.59	89.8	92	95.38	98.49
Motorcycle	No	54.32	45.78	71.43	65	60.77	52.63
	Yes	45.68	54.22	28.57	36	39.23	47.37
Car	No	98.77	100	100	100	0.77	100
	Yes	1.23	0	0	0	99.23	0
Air-condition	No	98.77	100	100	100	0.77	100
	Yes	1.23	0	0	0	99.23	0
Mobile Phone	No	0	0	0	0	0	0
	Yes	100	100	100	100	100	100
Refrigerator	No	92.59	4.82	100	100	95.38	96.99
	Yes	7.41	95.18	0	0	4.62	3.01

Source: Field data (2022)

bricks, cement, stones, iron rods, and steel. Semi-pucca buildings are a combination of these elements, often incorporating features of both pucca and katcha houses. The study reveals that, in most cases, the walls of the houses are classified as katcha, whereas the roofs are made of tin, concrete, or dry leaves for semi-pucca houses. Both contract and NCF households show a mix of katcha and pucca buildings, indicating a diversity in housing structures within the study population.

A comparison of housing conditions is discussed as follows:

- NCF households indicated a higher proportion (7.52%) of both building types compared with contract households (4.62%). It was observed that a greater percentage of CF households (63.85%) reported having pucca buildings than NCF households (60.90%). In the Bankura district, NCF farmers (8.43%) had a higher representation of both types of buildings than CF households (4.94%). No other significant differences were observed in building conditions at the district level.
- Across districts and farming types, households have an average of fewer than 4 rooms. The average number of rooms for NCF households (3.54) is more than that for CF households (3.4).
- Households with one-storied buildings are more for both types of farming households. However, NCF (32.33%) has a slightly better number of two-storied houses than CF households (31.54%). Between these two districts, the two-storied buildings for Bankura are much better than Hooghly for both the CF and NCF households.
- The presence of bathroom facilities within the premises is crucial for ensuring a healthy and improved standard of living in rural households. Rural households typically rely on ponds, lakes, rivers, canals, or other external water sources for bathing. However, having a bathroom facility within the premises refers to any bathroom facility available, whether it is open or covered. Interestingly, despite more than 60 per cent of households having pucca buildings, the number of bathroom facilities within the premises is significantly lower. Whereas there is no significant difference in the provision of bathroom facilities between CF and NCF households, a noticeable disparity exists at the district level. In Bankura, the bathroom facility for CF households is more (58.02%) than for NCF households (54.23%). In comparison, the bathroom facilities for Hooghly are relatively better for NCF households (62%) than CF households (57.14%).

- The study analyses information on safely managed drinking water services, electricity, and energy access to farming households. This section considers the energy source, including energy for lights, cooking, and drinking water, for CF and NCF households.
- The households are almost electrified across farming types and districts. However, overall, under CF, households are relatively less electrified (98.46%) than NCF (99.25%). Whereas, at the district level, all NCF households (100%) in the Hooghly are electrified. No other significant difference was observed in electricity at the district level.
- Relatively more NCF (88.72%) households reported have access to cooking gas than CF (85.38%) households. This condition also found similarities in the case of Bankura, while in Hooghly, the difference between CF (77.55%) and NCF (84%) was relatively noticeable.
- Tubewells and borewells are the primary sources by which households access drinking water. The local government primarily instils Tubewell, while households sometimes own borewells within their premises. Relatively less number of CF households (47.69%) own borewells than NCF households (50.38%).
- Other essential and luxury amenities include information on television (TV), bicycles, motorcycles, cars, air conditioners (AC), mobile phones and refrigerators. Relatively more number of NCF households (63.91%) reported have TV than CF households (60.77%). This condition is almost similar for Bankura, while for Hooghly, the difference is more between CF (55.1%) and NCF (62%) households.
- Most farming households have a bicycle, whereas the number is better for NCF (98.49%) than for CF (95.38%) farming households. The number of households with bicycles in the Bankura district is higher for CF households (98.77%) than for NCF households (97.59%).
- Similarly, motorbikes have more NCF households (47.37%) than CF households (39.23%). This difference increased at the district level between the two types of households.
- A car is an expensive luxury amenity, and only one family belonging to CF was reported from the Bankura district. Air-conditioner was also reported by only one CF from the Bankura district. All

households from CF and NCF, reported have at least one mobile phone. However, only farmers from Bankur reported having a refrigerator at their house.

Observation from Household Condition

I consider the housing condition as an indicator of the wealth or prosperity of farming households. This comparison reveals that NCF households have better wealth in most indicators than their counterparts. After analysing the wealth of farming households at the district level, it is evident that CF households are relatively poor. Although there is no significant difference in most cases, this discussion offers an overview of the socioeconomic condition of farming households. The relatively poor condition of these households compelled them to cultivate under CF to access inputs and market support. The subsequent section examines the effects of CF on small-scale farmers through a comparative analysis of costs and production.

4.3 Distribution of Costs of Cultivation, Production, and Income

4.3.1 Distribution of Costs and Returns

The first part presents the costs and returns between contract and non-contract potato farming. The second part highlights the regional difference in costs and returns between contracts and non-contracts.

4.3.1.1 Comparison Between Contract and Non-Contract

The expected farm returns in cultivation primarily depend on the costs of cultivation, production, and the market price for the harvest. The costs and returns for contract and non-contract potato farming are calculated at current prices. The total cost (C_2) of potato cultivation for CF is ₹103327 per acre, while it is less for NCF at ₹97711 per acre. There is a considerable difference in costs (A_1) across cost categories (such as labour costs, fertiliser costs, etc.) between CF and NCF. Non-contract farmers have hired more human labour (₹9022 per acre) than contract farmers (₹6546 per acre). Contract farmers spent more on fertiliser (₹20901 per acre) than non-contract farmers (₹17579 per acre).

Table 23 shows a significant difference in rent paid for fixed-tenant land and the imputed value of owned land between CF and NCF. This difference is reflected by the price difference in potatoes that

farmers received in CF and NCF. Because the nature of the rent is crops, although farmers pay in the form of price. Thus the NCF potato price reflects in higher fixed tenant and less for CF. Despite the difference in rent, the cost of B_2 is not much varied between CF (Cost B_2 - ₹88020) and NCF (Cost B_2 - ₹88727) due to potato price. The higher price of NCF potatoes (average price ₹1442 per quintal) compared with CF potatoes (average price ₹1095 per quintal) is reflected in the difference in cost B_2 . The costs of potato cultivation, with a significant contribution from seeds, fertiliser and hired human labour, constitute more than half of the costs (for CF, it was 50.23 %, and for NCF, it was 52.26 %). For contract farmers, out of their total spending (out of cost C_2), they spent 23.66 per cent on seeds, 20.23 per cent on fertiliser and 6.34 per cent on hired human labour. In comparison, NCF farmers spent 25.04 per cent on seeds, 17.99 per cent on fertiliser and 9.23 per cent on hired human labour.

Table 25 presents the per acre returns from potato farming for CF and NCF farmers. The table suggests that without any significant yield differences (average yield per acre for CF is 97.77 quintal per acre and 92.73 quintal per acre for NCF) in the two farming practices, the better price per quintal of potato for NCF (₹1442.84) than CF (₹1095.49) makes a significant difference in farm returns. Contract farmers under PepsiCo have received 31.70 per cent lower prices than NCF farmers.

The average gross income from potatoes per acre is much higher for NCF (₹133865) than for CF (₹107121) farmers. The average gross income difference is about ₹26744 per acre of potato cultivation. Similarly, the farm business income for NCF is also high (₹63071 per acre against ₹33786 in CF). Owned farm business income is also much higher for NCF (₹59468) farmers than for CF farmers (₹31563). The family labour income reported by NCF farmers is higher (₹45138) than that reported by CF farmers (₹19101). Similarly, the tables present higher per acre farm investment income for NCF farmers (₹36155) than for CF farmers (₹3794).

I have done the t-test for cost and production information under CF and NCF to see if there is a significant cost and profit difference or not. The table (see **Table 26**) shows that the P-value less than 0.05 indicates there is a significant cost and profit difference between the two types of farming practices. The total per acre costs under contract farming are significantly higher than those of non-contract farming. Similarly, the profit under CF is significantly lower than NCF.

Table 23 Cost of Cultivation of Potato Under Contract and Non-Contract Farming (in ₹ per acre)

Cost of Production	CF (₹ Per Acre)		NCF (₹ Per Acre)		Overall (₹ Per Acre)	
	Bankura	Hooghly	Bankura	Hooghly	CF	NCF
Value of hired human labour	6467	6676	9120	8859	6546	9022
Value of hired bullock labour	1102	1229	408	1649	1150	874
Value of owned bullock labour	1004	909	1372	532	968	1056
Value of owned machine labour	190	68	250	96	144	192
Hired machine labour charges	4236	3721	4357	3662	4042	4096
Value of seeds	22476	27714	24305	24723	24450	24463
Value of insecticides and pesticides/ medicines	6438	6662	5719	5341	6523	5576
Value of manure (Purchase and house produce)	2441	1193	1933	1335	1971	1708
Value of fertiliser	20526	21520	16650	19122	20901	17579
Irrigation charges	2840	3667	2779	3675	3151	3116
Interest on working capital	1766	2070	1341	2304	1881	1703
Miscellaneous	1556	1696	1449	1342	1608	1409
Cost A1	71042	77125	69683	72640	73335	70794
Cost A2 = Cost A1+Rent paid for leased in land	73053	79697	73074	76596	75558	74398
Cost B1= Cost A1+ interest on value of owned fixed capital assets	71101	77125	69683	72640	73372	70794
Cost B2= Cost B1 + rental value of owned land and rent paid for leased in land	85748	91775	87376	90971	88020	88727
Cost C1=Cost B1+ Imputed value of family labour	87349	90876	78261	82298	88679	79778
Cost C2= Cost B2+ Imputed value of family labour	101996	105526	95953	100630	103327	97711

Source: Field data (2021-22). CF: Contract farming, NCF: Non-contract farming. (Depreciation on implements and farm building not calculated).

Table 24 Cost of Cultivation of Potato Under Contract and Non-Contract Farming (Cost in %)

Cost of Production	CF (Per acre cost in %)		NCF (Per acre cost in %)		Overall (Per acre cost in %)	
	Bankura	Hooghly	Bankura	Hooghly	CF	NCF
Value of hired human labour	6.34	6.33	9.50	8.80	6.34	9.23
Value of hired bullock labour	1.08	1.16	0.43	1.64	1.11	0.89
Value of owned bullock labour	0.98	0.86	1.43	0.53	0.94	1.08
Value of owned machine labour	0.19	0.06	0.26	0.10	0.14	0.20
Hired machine labour charges	4.15	3.53	4.54	3.64	3.91	4.19
Value of seeds	22.04	26.26	25.33	24.57	23.66	25.04
Value of insecticides and pesticides/ medicines	6.31	6.31	5.96	5.31	6.31	5.71
Value of manure (Purchase and house produce)	2.39	1.13	2.01	1.33	1.91	1.75
Value of fertiliser	20.12	20.39	17.35	19.00	20.23	17.99
Irrigation charges	2.78	3.47	2.90	3.65	3.05	3.19
Interest on working capital	1.73	1.96	1.40	2.29	1.82	1.74
Miscellaneous	1.53	1.61	1.51	1.33	1.56	1.44
Cost A1	69.65	73.09	72.62	72.19	70.97	72.45
Rent paid for leased in land	1.97	2.44	3.53	3.93	2.15	3.69
Interest on Assets Loan	0.06	0.00	0.00	0.00	0.04	0.00
Rental Value of Owned Land	12.39	11.44	14.90	14.29	12.03	14.67
Family Labour	15.93	13.03	8.94	9.60	14.81	9.19
Cost C2	100	100	100	100	100	100

Source: Author's calculation based on field data (2021-22)

Table 25 Returns on Potato Under Contract and Non-Contract Farming (in ₹ per acre)

Various measures	Contract farming at the district level		Non-contract farming at the district level		Overall	
	Bankura	Hooghly	Bankura	Hooghly	Contract farming	Non-contract farming
Average area under potato (acres)	0.55	0.53	1.37	0.97	0.54	1.22
Average yield (Q/acre)	94.87	102.56	90.95	95.70	97.77	92.73
Average price (₹/Q)	1086.38	1110.54	1395.03	1522.20	1095.49	1442.84
Gross income from potato (chips+ non-chips grade)	103106	113758	126617	145897	107121	133865
Farm business income (gross income-Cost A1) (₹/acre)	32064	36633	56934	73257	33786	63071
Owned farm business income (gross income-Cost A2) (₹/acre)	30053	34061	53543	69301	31563	59468
Family labour income (gross income-Cost B2) (₹/acre)	17358	21983	39241	54926	19101	45138
Farm investment income (gross income-Cost C2) (₹/acre)	1110	8232	30664	45268	3794	36155

Source: Filed data (2021-22)

Table 26 t-test for Cost of Production and Farm Business Return under Contract and Non-Contract Farming

Farm business profit (Per acre)		
	Contract	Non-Contract
Mean	3794	36154
Variance	638372882.3	1251302524
Observations	130	133
Hypothesized Mean Difference	0	
df	239	
t Stat	-8.551585625	
P(T<=t) one-tail	7.35E-16	
t Critical one-tail	1.651254165	
P(T<=t) two-tail	1.47E-15	
t Critical two-tail	1.969939406	

Source: Author Own Calculation Based on Filed Data (2021-22)

4.3.1.2 Regional Differences in Costs and Returns (District Level)

To determine the regional variation, I compared the costs and returns from potato cultivation under the CF and NCF between the two districts. The total costs (C_2) for CF and NCF, both households in the Hooghly district, are higher than those in the Bankura district (see **Table 23**). The CF households in the Bankura district spent ₹101996 per acre, and in Hooghly, ₹105526 per acre for potato cultivation. Similarly, the NCF potato farming households spent per acre ₹95953 in Bankura and ₹100630, respectively. The regional difference in cultivation costs suggests differences and inequality in input markets. For example, the irrigation charges suggest that households in Bankura spent relatively less by CF (₹2840 per acre) and NCF (₹2779 per acre). In Hooghly, CF (₹3667 per acre) and NCF households (₹3675 per acre) spent relatively more on irrigation per acre. Irrigation systems in Bankura are primarily managed by cooperatives, whereas they were primarily privately owned in Hooghly, which accounts for the difference in irrigation charges.

I highlighted some cost distributions at the district level and found differences between CF and NCF. The value of owned bullock labour in Bankura is comparatively high for NCF (₹1372 per acre) because those households owned bullocks and traditional ploughers at relatively higher rates than others. In the Hooghly district CF (₹1229 per acre) and NCF (₹1649 per acre), households spent more on hired bullock labour as most families do not own it. Farm use of manure in the Bankura district is also higher than that in the Hooghly district, which is allied to their higher numbers of owing bullocks. The value

of seeds in CF, which intermediaries supply to farmers on credit, is supposed to have almost similar costs across districts, but we can see that costs are relatively higher in Hooghly (₹27714 per acre) than in Bankura (₹22476 per acre). There is a difference in the price of seeds based on the size that may make a difference in the total costs. However, we noticed a price asymmetry even for the same category and size of seeds across districts and intermediaries. CF households in Hooghly (₹21520 per acre) and Bankura (₹20526 per acre) spent more on fertiliser. However, although NCF spends less on fertiliser, it is relatively high in Hooghly (₹19122 per acre) than in Bankura (₹16650 per acre).

The major components of total costs (C_2) are seeds, fertiliser, and hired human labour. On average, households from Bankura spent 48.50 per cent of their total costs on seeds, fertiliser and hired human labour in CF, whereas in Hooghly, this was 52.98 per cent for same purpose. For NCF, households from Bankura spent 52.18 per cent of their total costs on these categories, while in the Hooghly district, this was 52.37 per cent. On average, contract farmers from Bankura spent 20.12 per cent of their total spending per acre on fertiliser, 22.04 per cent on seeds, and 6.34 per cent on hired labour. On the other hand, in the Hooghly district, contract farmers spent on average per acre 20.39 per cent of fertiliser, 26.26 per cent on seeds, and 6.33 per cent on hired human labour. Among CF households in both districts, spending on seeds was higher in Hooghly (26.26%) than in Bankura (22.04%). The costs shared under the NCF for Bankura are 17.35 per cent on fertilisers, 25.33 per cent on seeds and 9.50 per cent on hired labour per acre. This distribution for Hooghly district is 19 per cent on fertilisers, 24.57 seeds and 8.80 per cent on hired labour. Overall and at the district level across contract and non-contract potato farming households, they spent almost an average of one-fourth of the total costs (C_2) to procure seeds.

Table 25 presents the difference in the distribution of returns from potatoes at the district level in CF and NCF. The gross per acre income from potatoes in the CF is 10.33 per cent higher for Hooghly (₹113758) than for Bankura (₹103106). Despite total costs (C_2) under CF in the Hooghly district being more than those in Bankura, farmers from the Hooghly district received better gross income per acre. CF gross income in Hooghly is ₹113758 per acre which ₹10652 higher than the gross income of ₹103106 per acre from Bankura. This difference at the district level under the same farm and CF

mechanism occurred because of yield and average price differences. On average, contract farmers from the Hooghly district, which produced 102.56 quintals of potatoes per acre, more than the Bankura district of 94.87 quintals. In addition, they received a better average price per quintal. Contract farmers from Hooghly receive ₹1110.54 per quintal against ₹1086.38 in Bankura. For NCF households, there was not much difference in yield between the two districts. However, farmers from Hooghly (₹1522.20 per quintal) received, on average, better prices than those in Bankura (₹1395.03 per quintal). This suggests that the yield difference in CF makes a difference in per acre gross income for CF and the price difference in NCF impacts on it at the district level.

Similarly, farm business income per acre is higher for Hooghly (₹36633) than for Bankura (₹32064) in CF. This persists in NCF, where farmers, on average per acre, obtained better farm business income in Hooghly (₹73257) than in Bankura (₹56934). Owned farm business income and family labour income also followed similar trends. Farm investment income per acre in CF is higher for Hooghly (₹1110) than for Bankura (₹8232). The harvest has been affected due to rain, and, the considerable price differences make a huge difference between the two districts. Similarly, an income difference is observed at different income levels because of the price difference for NCF households between the two districts. Farm business income per acre is much higher for Hooghly (₹73257) than for Bankura (₹56934), which persists in the case of owned farm businesses and family labour income. Non-contract farmers from Hooghly (₹45268) gained per acre 47.63 per cent more than Bankura (₹30664).

4.4 Conclusion

The first section of this chapter provides a descriptive analysis of the distribution of wealth among CF and NCF households. It delves into the relationship between land tenurial arrangements, caste composition, and the preference for CF among marginalized groups. It highlights that CF households from socially marginalized categories often have relatively small landholdings, cultivate land more under fixed tenants. This indicates that these households may join CF to ensure a minimum income from fixed prices. In contrast, relatively wealthier farming households are willing to take market risks by cultivating traditional potatoes in hopes of earning a better income based on open market spot prices.

The second part of the chapter examines costs and profits under the CF and NCF households. The average potato price (traditional varieties of potatoes) in March and April 2022 was ₹1462 per quintal, according to the APMC information for West Bengal, available on AgMarknet.¹⁶ The average price of potatoes reported by NCF farmers from the study villages who sold between March and April is ₹1442.84 per quintal. The average price reported in the study is not much different from that reported by the government source. The production for both types was affected by winter rain, despite NCF households receiving better returns than CF households due to considerable price differences. On average, contract farmers from both districts received ₹1095.49 per quintal, which is ₹347.35 less per quintal of potato than NCF. Fixed prices and the absence of compensation during upward market price movements caused economic losses to contract farmers.

The absence of proper CF compensation worsens the condition for contract farmers. Fixed prices only provide some price support when the open market price decreases and farmers can produce a minimum quantity. In this case, CF transfers production and price risks to smallholder potato farmers. Proponents of CF argue that fixed prices and secure markets provide farmers with better returns. This study shows that NCF farmers actually obtained much higher farm income (₹36155) per acre than CF farmers (₹3794). Without any significant differences in yield, the higher open market price (₹1442.84) per quintal benefits NCF potato farmers despite production loss, whereas the fixed price in CF (₹1095.49) leads to significantly lower farm returns for CF potato farmers. The section highlights the limitations of fixed price and market support that overly simplified “win-win” narratives for CF. It stresses the need for compensation in fixed-price contracts to ensure viability for farmers in situations of production loss and price increases.

Although it seems that CF is inclusive of small and marginal farmers, enabling cultivation of high value crops, access to input and output markets; the lower return to CF raises a concern. *Why do small and marginal farmers prefer to cultivate under CF arrangements if it is not profitable?* I addressed these concerns in the next chapter and also conclude whether CF is an inclusive alternative or not.

¹⁶ AgMarknet is an official source on price of commodities by Directorate of Marketing and Inspection (DM), Ministry of Agriculture and Farmers Welfare, Government of India. Available here: https://agmarknet.gov.in/PriceTrends/SA_Pri_MonthRep.aspx

Chapter 5 Contract Farming Value Chain and Fairness of Arrangement

5.1. Introduction

The previous two chapters explore the CF model and identify the actors involved. Followed by the distribution of costs and benefits from potato cultivation under CF and NCF households. The findings on social relations of production indicate that smallholders from socially deprived castes cultivate under CF to secure income from the fixed price. In contrast, the upper caste and rural elite groups become intermediaries and find new livelihood opportunities under PepsiCo (**Chapter 3**). Although small and marginal farmers prefer to cultivate under CF to benefit from fixed prices, they actually receive less compared to NCF households. Even though smallholders from socially deprived castes cultivate under PepsiCo to secure income from fixed-price contracts, their profits were largely influenced by the open market price, which benefited NCF (**Chapter 4**). This raises an important question: *Why do smallholders prefer to cultivate under PepsiCo if CF is not profitable?*

We need to explore why small and marginal farmers choose to cultivate under CF, even though fixed-price contracts have not consistently yielded better returns. The previous two chapters show that small and marginal farmers, who often have minimal landholdings and may also fixed tenant land, are cultivating crops for PepsiCo. In this chapter, I will examine the factors that motivate or compel these farmers to enter into contracts instead of risking the uncertainties of open market prices. Therefore, first section of this chapter, examines the research question: *Does contract farming improve the value chain for potato farmers?* This chapter explores the role of CF in integrating small and marginal potato farmers into the modern value chain. It aims to determine if CF assists small and marginal farmers in cultivating high-value crops. Further, in India, CF has been promoted to reduce intermediary involvement and provide direct benefits to farmers, leading to their integration into modern value chains. However, as discussed in the previous chapter (**Chapter 3**), the PepsiCo-led potato CF model in West Bengal functions more as an intermediary than establishing a direct link between farmers and PepsiCo. Therefore, I will explore in detail the role of intermediaries and firm representatives in assisting farmers in accessing the market throughout the season.

As I have pointed before, this study focuses on potatoes as one of the most cultivated, produced, and consumed vegetables in India. Farmers face difficulties related to post-harvest losses and market fluctuations. CF has emerged as an alternative arrangement that connects small and marginal farmers to export markets. This chapter provides a detailed analysis of the value chain of CF. It breaks down the process systematically for better understanding. The first section examines whether CF improves the value chain for potato farmers by exploring how CF and intermediaries help smallholders cultivate high-value crops and market supports. The comparative analysis of the CF value chain suggests that farmers under PepsiCo can avail themselves of some input and extension support.

Several studies have focused on the economics of value chains, as I pointed out in the literature review section. However, less attention has been given to the fairness and transparency of CF arrangements in modern value chains. This chapter aims to comprehensively investigate how CF has supported potato farmers in overcoming the challenges they face while cultivating traditional potatoes. In the context of changing agrarian relations where intermediaries play a crucial role in linking farmers and corporate firms, it is essential to scrutinise the fairness of such contract arrangements. Therefore, the following section measures the fairness in the CF arrangement based on the CCF I have discussed in the literature chapter. Using the indicators of CCF, the following section measures the fairness of CF arrangements and identifies when and how unfairness emerges. Therefore, the second section examines the research question: *Are contracts fair and transparent arrangements?* By measuring the fairness in CF arrangements and based on income outcomes of CF, I conclude whether this farming practice is an alternative inclusive for small and marginal farmers or not. The fairness analysis suggests that although CF value chain improve small farmer access to inputs and extension support there is unfairness in arrangement and lack of transparency in the value chain.

The chapter is organised as follows: **Section 5.2** provides a detailed mapping of the CF value chain and discusses the functions and responsibilities of intermediaries in different stages of the farming process.¹⁷

The following **Section 5.3** discusses the field perspective on the major terms and conditions and contract

¹⁷ I want to highlight that the households selected under NCF did not cultivate any land under CF for the 2021-22 season. However, most CF households that participated in the study cultivated traditional crops along with CF under PepsiCo.

arrangements. In the final **Section 5.4**, I concluded about the nature of contract and fairness in the study village. Following the low returns to CF and the unfair arrangements throughout the season, I conclude that CF is not an inclusive alternative for small and marginal farmers rather it is an *adversely inclusive* farming practice.

5.2 Contract Farming Value Chain

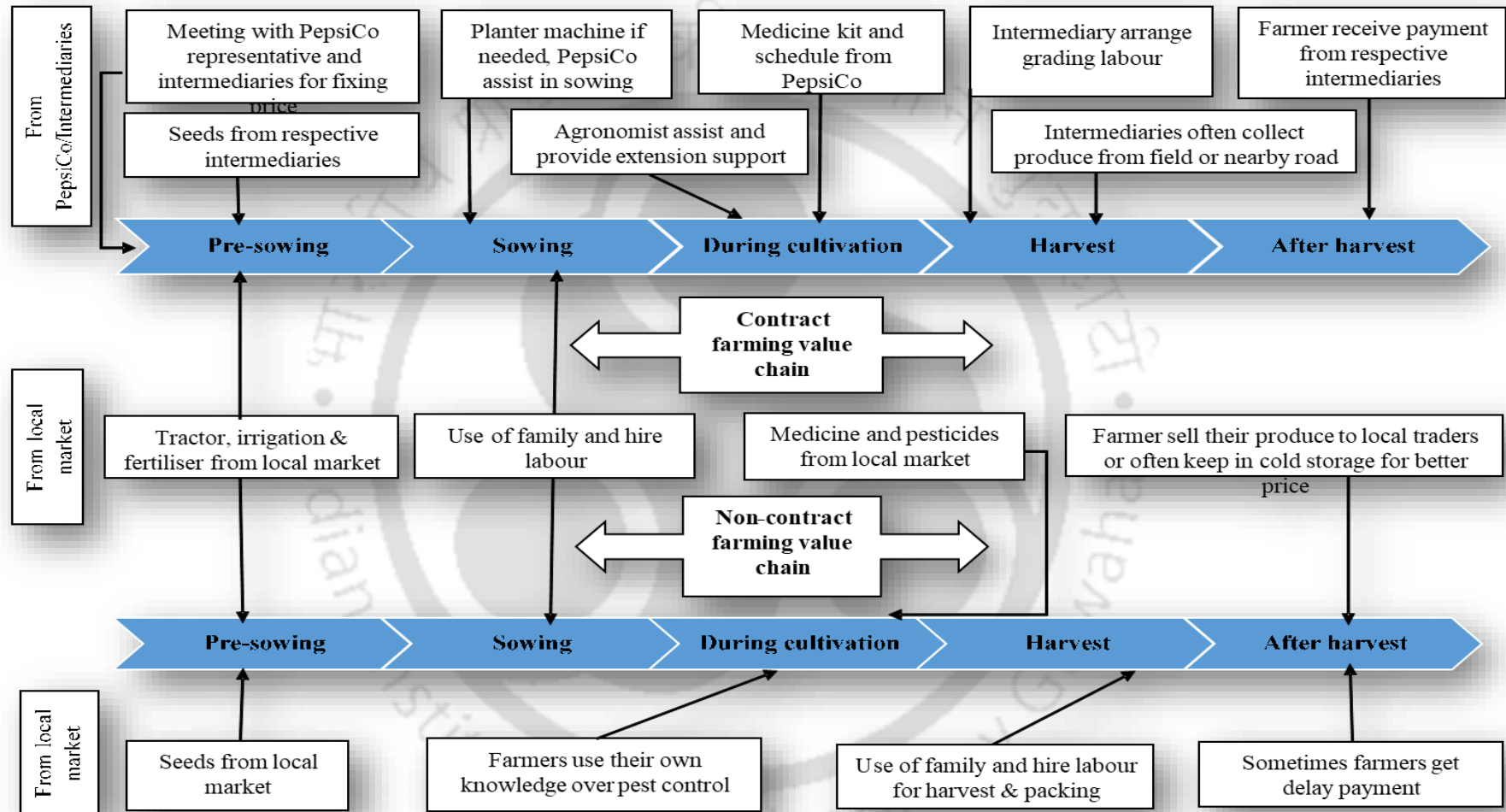
First, I constructed a value chain map (see **Figure 14**) that delineates the flow of activities and interaction among the actors involved in various stages in CF and NCF. The purpose is to examine how CF in each stage of farming helps which can alleviate constraints typically faced by traditional potato farmers throughout the production process, inputs and commodity exchange.

5.2.1 Pre-sowing Stage

At the start of each season, between August and September, PepsiCo representatives hold a pre-sowing meeting in each village, which farmers attend via sub-vendors and vendors. The purpose of this meeting is to announce the prices of seeds and potatoes that farmers will receive after the supply harvest. Farmers willing to cultivate at the declared prices can confirm their seed requirements with their respective vendors or sub-vendors at the meeting or later but must do so in advance. Despite some farmers expressing dissatisfaction with the non-participatory pricing system, CF provides minimum output market support with the fixed price mechanism, as potato prices are highly volatile in India. This is one of the reasons why small and marginal potato farmers cultivate under PepsiCo. CF has been praised for fixed-price support and advocated for high-value crops. However, they ignore the limitation of fixed price at open market price movement.

It has been found that contract farmers benefit from fixed input prices because the price of seeds is announced before sowing and is fixed, thereby ensuring input price stability for some reason. In contrast, farmers in NCF, such as those who cultivate traditional potato varieties, face not only output market price uncertainty but also significant price uncertainty in the input markets. Uncertainty in input markets can lead to higher production costs, resulting in lower profits for farmers.

Figure 14 Mapping the Structure of the Contract Farming Value Chain



Source: Field data 2021-22

Table 27 Seeds Price for the Contract and Non-Contract Farming (₹ per quintal)

Type	Average	Mode	SD	MAX	MIN	Q ¹	Q ³	IQR
Contract	3245.60	3300	101	3600	3000	3200	3300	100
Non-contract	5058.60	4800	1219.40	8400	1600	4400	5600	1200

Source: Field data (2021-22), Max-Maximum, Min- Minimum, Q- Quartile, IQR- interquartile range.

Table 27 presents CF and NCF seed price calculations to measure input price volatility during the 2021-22 season. The average cost of seeds for CF was found to be ₹3245.60, which was considerably less than the ₹5058.60 per quintal—paid by non-contract farmers. The standard deviation value for non-contract farmers was higher, indicating greater price variation. The high standard deviation value for traditional varieties indicated that farmers paid, on average, ₹1219.40 per quintal, more or less than the average price, which was exceptionally high. Whereas in the case of CF, farmers paid only ₹101 per quintal of seed, more than the average price due to the size of the seeds as the small size price is little more.

In the 2021-22 season, non-contract farmers reported that heavy rain damaged their seeds, resulting in a supply shortage and increased demand. This subsequently drove up seed prices in the open market. As a result, these farmers were compelled to pay higher seed prices due to scarcity. Additionally, contract farmers with PepsiCo claimed that the company could not promptly supply them with replacement seeds following seed damage, leading them to revert to traditional potato cultivation. Although contract farmers received replacement seeds later than expected and faced a supply-demand imbalance, they were not subjected to additional fees. This indicates that CF mitigates input price volatility for smallholder farmers by providing input support and price stability to some extent for seeds, contrasting with the significant price fluctuations encountered by non-contract farmers in the open market. Consequently, CF effectively curbs input market price instability, offering fixed seed prices to smallholder farmers, thereby reducing overall seed-related input costs.

5.2.2 Sowing Stage

Farmers with prior experience working with PepsiCo require no aid in apical cutting or seed sowing. However, PepsiCo assists new farmers by determining the appropriate distance between seeds and rows

during sowing. The farmers interviewed in the study villages reported that they have been cultivating crops for an extended period and no longer require assistance with sowing. On the other hand, PepsiCo facilitates potato planter machines for farmers who require them. The planter can sow seeds and distribute fertiliser simultaneously, reducing labour costs associated with fertiliser distribution. However, since most contract farmers are small and marginal, they rarely request to provide a planter machine and prefer family labour to sow seeds.

PepsiCo does not provide fertiliser to farmers, resulting in input cost uncertainties for farmers during the peak of the season. Contract and non-contract farmers reported procuring fertiliser at a significantly higher price during the 2021-22 season, surpassing the maximum retail price (MRP). They expressed disappointment that the government never intervened to control fertiliser price hikes and manipulation. The CF value chain provides partial input support to farmers. However, it does not cover fertiliser expenses, significantly contributing to total input costs.

“Providing complete support, including seeds, medicine, and fertilisers, on credit to farmers may not effectively motivate them to care for their crops properly. This is because the farmers may not feel responsible for the success of their produce since they have not invested any of their resources. Instead, if we provide partial support to farmers and require them to invest some of their own resources, thus making them more accountable for the success of their farming activities and the quality of their supplies,”— Vendor, KII, Kotulpur block, Bankura district.

The assessment of the vendor's explanation regarding fertiliser supply seems sarcastic, insinuating that farmers who invest their labour, land, and supplementary resources, such as irrigation, would not sufficiently care for their own crop cultivation. While most of the other vendors explain they invest in the farming business and take the risks of capital, if they provide fertiliser, it will require more capital for them and risks. So, they cannot afford to provide fertiliser to farmers on credit.

5.2.3 During the Cultivation

Often, the contracting company actively promotes the adoption of novel chemical fertilisers, extension support services, and new agricultural technologies, effectively transforming farmers into both producers and consumers in the agricultural process (Shrimali, 2021). However, it is imperative to note that the contracting company mandates the procurement of specific fertilisers, extension support services, and technology, thus perpetuating a corporate monopoly within the framework of CF. The study found that after the sowing stage, contract farmers receive comprehensive medicine kits comprising nine distinct types of pesticides and medicines alongside schedule sheets, which they are obligated to apply on time according to specified instructions (see **Figure 15**). Vendors assert that the provision and utilisation of these medicines and pesticides boost resistance against pests and safeguard potato plants against unforeseen pest infestations. Furthermore, the punctual delivery of medicine kits facilitates contract farmers in their timely application, protecting plants from pest-related threats. In contrast, conventional cultivation practices involve farmers applying pesticides solely in response to identified pest attacks, which often incurs a delay, resulting in compromised crop growth and reduced yields. Additionally, traditional farmers must arrange the necessary funds to procure pesticides, prolonging the response time and exacerbating damage to plant growth and potential production losses.

Figure 15 Medicine Kits and Schedule to Apply Pesticides



Source: Field survey 2021-22 NB: The schedule specifies the use of pesticides and timing in the local

During the field survey, a sub-vendor who is also engaged in potato cultivation under CF presented an illustration (see **Figure 16**) of his field and compared it with an adjacent field belonging to a non-contract farmer who had planted traditional potatoes. The sub-vendor explained the growth patterns of both fields, highlighting the relatively successful growth of contract plants in the left-hand side field in contrast to the poor growth of non-contract plants in the right-hand side field, despite having been planted around the same time. The sub-vendor attributed this discrepancy in growth to the timely and effective use of medicine kits, coupled with the support and guidance provided by agronomists, which enables contract farmers to better plant growth and cultivate their crops.

The sub-vendor contended that since the two fields were located nearby and sown almost simultaneously, the weather effect should be similar to the plant growth. However, due to the use of timely pesticides and cultivation under the guidance of experts, contract plants grew better than non-contract plants. Non-contract farmers often wait to apply specific pesticides until after they notice a pest attack and must manage their funds to purchase the medicine. This delay often hinders growth and production. Conversely, contract farmers receive medicine kits in advance and use them regularly, resulting in a noticeable difference in plant growth and production. In addition, PepsiCo's extension service providers frequently visit the farms to monitor plant growth and offer advice on addressing issues.

Figure 16 Growth of Plants Under Contract and Non-Contract Farming



Source: Field survey 2020-21. NB. 1. Field under contract 2. Field under non-contract

Despite the potential advantages associated with medicine kits, many contract farmers have expressed discontent regarding the mandatory nature of their purchase. These farmers argue that PepsiCo requires them to procure the complete medicine kits, even when weather conditions do not necessitate the use of all included components. Consequently, this obligatory purchase of the entire kit incurs additional costs for the farmers. Such a situation raises concerns about the limitations imposed on farmers' autonomy and control within the CF context, echoing previous scholars' contentions (Watts, 1992; Clapp, 1994; Singh, 2002). However, the provision of medicine kits on credit is beneficial for economically disadvantaged farmers participating in CF. In contrast, traditional farmers typically bear the total cost of inputs from their financial resources during cultivation. Additionally, sub-vendors and agronomists frequently visit the fields of contract farmers to monitor plant growth and provide assistance in addressing any arising issues.

5.2.4 Harvest Stage

Contract farmers typically harvest their produce between the end of February and March. After the harvest, farmers collect all their produce in one corner of the field for grading. The vendor then arranges for grading labour, which sub-vendors assist in grading and packing. Contract farmers reported that vendors control their production based on quality and may reject produce during grading if they require less, as they do manual grading (see **Figure 17**). In the right side figure, we can see that potatoes outside the sack are rejected, which is not the case in traditional cultivation as no such grading is required. Moreover, we found there is information asymmetry in the supply of produce. Farmers usually transport their produce to a nearby road at their own expense. At the same time, in some instances, vendors or sub-vendors collect it from the field. Those sub-vendors who collect produce from the field stated that PepsiCo had instructed them to collect from the field, which is the same for all vendors and sub-vendors. This suggests that some sub-vendors and vendors transfer the labour costs to farmers for profit.

Smallholder farmers often face challenges in transporting small amounts of produce to markets far away, which results in higher transport costs in traditional cultivation. In contrast, CF helps farmers save on transportation costs and time finding remunerative markets. Specifically, buyers visit the

farmers' fields in CF to purchase the produce, linking farmers directly to the market. In traditional farming, farmers must transport their harvests to markets or cold storage facilities to sell them at a higher price. This is often a challenge for smallholder and poor farmers, who must sell their produce soon after harvest to cover the input and other costs incurred during cultivation. Concurrently, it also constrains the opportunity for farmers to explore improved pricing options, as traditional farmers can store potatoes for future sales at potentially more favourable rates. In contrast, contract farmers are obligated to sell their produce immediately after harvest at pre-determined prices.

Figure 17 Manual Grading of Contract Potato



Source: Field survey 2020-21. NB: Potatoes outside the sacks are rejected produce.

5.2.5 After Harvest

Contract farmers have expressed appreciation towards PepsiCo for ensuring timely payment following the successful supply of their produce. This starkly contrasts the open market with local traders, where farmers often face difficulties receiving payment after supplying their produce, which can take a long time. There have been incidents of traders cheating farmers after the delivery of potatoes to local markets. Under CF, the sub-vendor keeps track of the produce and input costs and then adjusts and pays farmers the difference on time. Intermediaries have mentioned that they have known their farmers long and live in the same village, which has built social capital and developed trust in CF. This system of payment and trust has resulted in contract farmers receiving their payments on time and without any issues, which has benefited smallholder and poor farmers.

5.2.6 Viability of Vendor Investment in Contract Farming Business

Since the vendor invests massive capital in the CF business and supplies inputs to farmers on credit, in this section I intend to see their viability in this farming business. This section examines vendor investment's viability in the CF business. Since potato farming (season 2021-22) has been affected due to winter rain, farmers reported less production and economic loss (as discussed in **Chapter 4**).

Table 28 Expected Average Invest and Return Under Each Vendor

Description	Details
Total vendors participated	13
Total sub-vendors participated	18
Total sub-vendors under 13 vendors	60
Average number of sub-vendors under each vendor	4.62
Total contract farmers under 18 sub-vendors	1165
Average number of contract farmers under each sub-vendor	64.72
Average number of contract farmers under each vendor	299
Average area (Acre) cultivated under contract farming	0.54
Expected average area (Acre) cultivated under each vendor	161.46
Expected average seeds supplied by each vendor (₹)	3629459.34
Expected average medicine kits supplied by each vendor (₹)	969082.92
Expected average commission paid to sub-vendors by each vendor (₹)	423256.09
Average credit is taken by vendors (₹)	1625000
Expected interest on capital (₹)	65000
Expected total investment by a vendor in contract farming business (₹)	5086798.35
Expected average total investment by a vendor on one contract farmer (₹)	17012.70
Average production supplied by per vendor	15257.97
Average price of contract potato (per/q)	1106
Average gross return per vendor (₹)	16875314.8
Average difference between gross invest and gross return under a vendor (₹)	11788516.5
Average difference between gross invest and gross return per farmer (₹)	39426.48

Source: Authors' own calculation based on field data (2022)

Table 28 presents the expenses and investments made by a vendor in CF, along with the corresponding returns derived from potato production. As illustrated in the table, the study involved the participation of 13 vendors and 18 sub-vendors. However, during the 2021-22 season, these vendors collectively employed 60 sub-vendors. Additionally, within the subset of the 18 sub-vendors considered in this study, there were a total of 1,165 contract farmers. Consequently, the average number of sub-vendors per vendor is calculated to be 4.62, resulting in a total of 299 contract farmers. Each farmer operated an average land size of 0.54 acres, leading to an average total cultivated land of approximately 161.46 acres under each vendor.

To determine the investment in seeds per vendor, the average seed costs per acre (₹22479) for vendors were multiplied by the total cultivated land (161.46 acres) under each vendor, resulting in a total investment value of ₹3,629,459.34. Similarly, the average cost of pesticides and medicines per acre (₹6002), as reported by the farmers, was multiplied by the average area cultivated under each vendor to obtain the total investment in pesticides and medicine kits, amounting to ₹969,082.92. Sub-vendors reported an average commission of ₹27.74 per quintal of potatoes. Consequently, the average total investment made by a vendor on sub-vendor commission is calculated to be ₹423,256.09.

Using an annual interest rate of 4 per cent (As reported by vendors), the total interest paid by a vendor on an average capital of ₹65,000 was computed. As a result, the average investment made by a vendor in the CF business, encompassing the investment in seeds, medicine kits, and commissions, is determined to be ₹5,086,798.35, equivalent to an average of ₹17,012.70 per contract farmer. Considering the average price of potatoes, ₹1,106 per quintal received by farmers from PepsiCo, the total return per vendor is estimated to be ₹16,875,314.80. Finally, the difference between the total investment made by a vendor and the total return is calculated to be ₹11,788,516.50, which amounts to ₹39,426.48 per farmer. Based on these calculations, it can be concluded that, on average, a vendor invests ₹17,012.70 per farmer. In return, the farmer supplies potatoes with an average value of ₹39,426.48, even during a production loss season. This information suggests that although the production was affected due to winter rains, vendors who make a massive capital investment securely

return their investments. This indicates that CF is a secure venture for vendors even in a production loss situation.

5.2.7 Observation from Value Chain

The primary research question for this chapter is to examine that despite the lower return under CF (2021-22 season), why do small and marginal farmers cultivate under CF where they need to maintain the quality parameters? The previous discussion clearly demonstrated that farmers benefit from the input and extension support provided by PepsiCo and intermediaries. The comparative analysis of the potato value chain under CF and NCF reveals that CF has effectively addressed two primary challenges commonly faced by smallholders: credit constraints (inputs, i.e., seeds, pesticides and extension services) and information limitations (minimum price assurance and market). CF provides crucial inputs such as seeds, medicine kits, and extension support to farmers, thereby alleviating the burden of investment from their own resources. In contrast, non-contract farmers are solely responsible for bearing all associated costs. Furthermore, CF offers farmers the advantage of fixed price (which is pre-determined prices before sowing) for their produce before the sowing period, enabling them to make informed decisions regarding allocating acreage for their crops. This pre-agreed pricing mechanism shields them from the price volatility risks prevalent in the open market, a predicament traditional farmers face. Consequently, CF partially mitigates the challenges related to inputs and credit faced by smallholder potato farmers, while the provision of free extension services further supports farmers in optimising their crop cultivation processes.

Before discussing fairness, it is important to understand the complexities of CF. On one hand, many small and marginal farmers choose to work with PepsiCo have improved to access certain support. However, production and value chain analyses reveal that these farmers often face lower returns and unequal power dynamics, leaving them without a voice throughout the growing season. So, in the proceeding discussion, I bring some information to establish the link between different variables that affect farmers' decision to go for a contract or take the open market risk. Earlier I have pointed that socially marginalized caste (OBC & SC) primarily prefer to cultivate under contract those who having

limited landholding. The T-test of own land indicates that there is a significant difference between CF and NCF households in terms of own land where households belong to OBC and SC as I have categorized as others in the table (see Table 17) have significantly small landholding than even farmers who are from general groups do CF. The extreme poverty of socially marginalized farming households with limited landholding or do not hold any landholding (depend on fixed rent farming) farming for them is main source of income and they are so closed to the margins, they cannot afford to lose. An adverse swing in the spot market prices could literally make worst for them and their family members. so, farmers from the socially marginalized caste with limited landholding they cultivate under CF to avoid the open market risks and loss. However, we have experienced even the fixed although return more than cost of production but lower returns compared to NCF. Farther although farmers have some benefit from the inputs and extension support they receive from intermediaries and PepsiCo throughout the cultivation but there are many issues they have raised.

From an environmental sustainability perspective, PepsiCo's CF model does not demonstrate significant efforts to promote environmental conservation, at least for potato cultivation. On the contrary, the costs of fertilisers and pesticides are considerably higher under CF, as discussed in the previous chapter (**Chapter 4**). This higher cost implies a greater reliance on chemical elements, raising concerns about environmental pollution and ecological balance. The contracting firms tend to shift to other regions and new growers, exhausting the natural potential of the local resources or when productivity declines due to some other reason (Torres, 1997). Despite these environmental concerns, CF does offer certain economic advantages. For instance, the provision of planter machines during the sowing process reduces labour costs for CF, making it financially viable compared to traditional farming practices. However, this economic sustainability comes at the expense of environmental well-being, highlighting the need for a comprehensive evaluation of the long-term implications of such practices on both the economy and the environment.

5.3 Fairness and Transparency in Contract Arrangements

This section sheds light on the unfair incidents that farmers face while interacting with intermediaries and PepsiCo. In most cases, farmers are not even aware of such unfair practices, while in some cases, even if they are aware, they feel powerless to raise their voices against these unethical acts from intermediaries or PepsiCo.

5.3.1 No Entry Restriction for Smallholder Potato Farmers

Previous studies claimed that firms often favour farmers who have or can access resources such as large landholdings (e.g., Mishra et al., 2018) and better wealth status with agriculture machinery and finance (e.g., Narayanan, 2014; Swain, 2012; Sharma, 2016). Although states advocated for CF to secure agricultural support from corporations, the contracting companies frequently exhibit a preference for engaging with larger and more affluent farmers. This inclination is driven by a desire to diminish reliance on access to inputs and other forms of support. The present study found that the average land ownership of contract farmers from both districts was 1.12 acres (owned land only), and land allocated for potatoes (2021-22 season) was only 0.54 acres. In comparison, non-contract potato farmers owned an average land of 1.3 acres and allocated 1.22 acres for potatoes, which is relatively higher than contract farmers. Contract farmers have confirmed that PepsiCo or the intermediaries do not specify the required wealth status or landholding size to enter the contract. Farmers with any amount of landholding can cultivate under CF if they meet quality and other parameters. The claims of restrictions for small and resource-poor farmers in CF, in the case of PepsiCo potato cultivation, at least in our study villages, do not stand. This also suggests that smallholders rely more on CF to access the market for high-value crops.

"We just need to inform the vendor and sub-vendor about the seed requirements during the pre-sowing meeting. There are no restrictions on the amount of land we can cultivate, and we can take one sack of seeds,"—Contract farmer, FGD, Goghat-I block, Hooghly district.

"Vendors and sub-vendors want more farmers to cultivate PepsiCo seeds under them so that they can supply more produce and eventually more commission out of it. Anyone with any amount of land can participate,"—Contract farmer, FGD, Kotulpur block, Bankura district.

5.3.2 Absence of Written Agreement and Specifications: Contract Relies on Social Trust

In developing countries, particularly India, CF is typically an oral agreement (e.g., Mishra et al., 2018; Narayanan, 2014; Singh, 2002; Swain, 2012; Sharma, 2016). Farmers revealed no written or legal agreement with intermediaries or PepsiCo in our study villages as well. Intermediaries portrayed the oral arrangements as social trusts. Such farming has built social capital among farming communities and established supply chain links. Contract farming is legal in most states of India following the Model Agricultural Produce Marketing Committee (APMC) Act, 2003 (Singh, 2022). Similarly, contract farming is a legal practice in West Bengal too. Moreover, there is a legal and written agreement under PepsiCo with vendors in the study villages. Although PepsiCo makes a written and legal contract agreement with intermediaries (vendors), there is no legal or written agreement with farmers.

"We have known the vendor for a long time. He is from our village and is a well-known person in the locality. He has been running fertiliser and pesticide shops for a long time. Before joining contract farming, we used to buy fertiliser and pesticides from him. This has built trust in him and made us believe that he will procure the potatoes after the harvest. Therefore, we do not ask him for any formal agreement"—Contract farmer, FGD, Goghat-I block, Hooghly district.

"We are commission agents, and we hold the certificate of vendors (agent) from PepsiCo. PepsiCo does a written and legal contract with us, which is seasonal, that they renew next year. But we do not go for any written agreement with farmers because we are from the same village, have known each other for a long time, and build social trust"—Vendor, KII, Joypur block, Bankura district.

The absence of contract provisions and specifications favours the intermediaries and PepsiCo to sustain control over the produce. Although social trust is the mainstay of CF practice, farmers claim several

constraints due to an absence of written or legal agreements. The criteria considered in measuring fairness, i.e., adherence to a legal framework, clear documentation, and readability, are not applicable in this case and indicate failure to meet the fairness criteria.

5.3.3 Input Price Asymmetry

Based on farmers' affiliation with intermediaries, they receive inputs such as seeds and medicine kits from vendors or sub-vendors on credit. There are two types of seeds in use, as mentioned before – FC3 and ATL (Atlantic); size determines the price. Farmers informed that those varieties of seeds are suitable for processing chips, so PepsiCo supplies them. Farmers explained that the price of larger-size seeds is relatively less because they require more in quantity than small and medium-sized seeds to sow for the same area. The vendors invest their capital to provide farmers with inputs on credit. Some farmers reported having to pay between ₹200-400 and ₹400-500 per quintal of seeds, while others did not pay in advance. According to the farmers' information, the seeds' prices were ₹1800, 3100, 3200, and 3300 per quintal for large, medium, semi-medium, and small sizes, respectively.

PepsiCo fixes the price of seeds for farmers after adjusting for handling costs. However, farmers have reported additional handling costs in the study area. Vendor charge ₹100 to 200 per quintal. There is price differentiation as well. Farmers under the same firm have paid different prices for the same quality inputs. We also observed considerable inconsistencies in farmers' responses to the prices of medicine kits (one medicine kit contains nine pesticides and medicines). The price for each medicine kit is supposed to be the same across villages and farmers, but it has been observed that price variations of ₹3200 to ₹4000 per kit. The price differentiation across farmers fails to meet the distributive fairness criteria.

"The extra charge of ₹100-200 per quintal is for handling the seeds as PepsiCo does not supply them to farmers. I arranged to supply seeds to farmers by taking them from PepsiCo,"—
Vendor, KII, Kotulpur block, Bankura district.

"PepsiCo supplies seeds to my place at their expense, and farmers collect it from my place. I do not charge the extra amount for handling. I took extra amount because we invest capital to purchase it,"—Vendor, KII, Goghat-I block, Hooghly district.

5.3.4 Push Selling of Inputs

Contract farming makes the farmers both producers and consumers. It promotes other input companies such as fertiliser, modern technology, and extension services providers. Farmers are compelled to procure specific inputs mandated by contracting companies (Shrimali, 2021). Farmers have raised concerns regarding the mandatory procurement of medicine kits. Contract farmers explained that they must obtain medicine kits if they obtain seeds from intermediaries, even if they do not want to purchase the medicines.

"You have to buy all types of pesticides and medicines even if you do not want to apply all of these. If there is good weather, we do not need to apply all types of pesticides, but you must buy all the nine types of medicines and pesticides when you are cultivating PepsiCo seeds,"—Contract farmer, FGD, Kotulpur block, Bankura district.

Farmers claim that some medicines in the kits are not necessary to apply if there is *pleasant weather in a season*,¹⁸ but they must obtain all nine types regardless. Farmers are unhappy with the push selling of medicine kits. In other cases, farmers claimed that they frequently received large-size seeds that covered less field than small-size seeds could have. This forced them to buy more seeds, resulting in higher production costs. Contract farmers claimed vendors never listen to their concerns about the size of seeds or medicine kits. While farmers appreciate input support on credit, the imposed selling of inputs is a severe concern that increases input costs. Farmers also claimed that they could not use leftover pesticides or medicines from the previous season since procuring them with seeds is mandatory for the following season. Some farmers also claimed that there might be some understanding over the commission from specific pesticide companies, which could be the reason for the mandatory

¹⁸According to contract farmers, a reduction in occurrences of overcast conditions, precipitation, or infestations by insects, conditions they deem favourable, necessitates a diminished reliance on pesticides or medicinal interventions.

procurement of medicine kits for farmers. This suggests procedural fairness is violated as farmers' voices are not considered in the contract process.

"Maybe vendors get some commissions from those specific pesticides and medicines companies; otherwise, why do they make it mandatory to procure entire kits?"—Contract farmer, FGD, Goghat-I block, Hooghly district.

However, intermediaries have provided some explanations against the mandatory procurement of inputs as follows:

"We do not know when pests will attack, so it is better to apply the pesticides and medicines timely. We provide them with a schedule so they can follow it and apply on time. We provide those pesticides on credit so they can use them on time to protect plants from pest attacks,"—Vendor, KII, Kotulpur block, Bankura district.

"We invest a huge amount of capital. If we do not make it mandatory to use those pesticides and medicines, farmers will not procure them to save money. And sudden pest attacks may cause huge produce loss and ultimately a loss for us,"—Vendor, KII, Kotulpur block, Bankura district.

"Crop diseases are unpredictable, and one does not know when they strike; therefore, farmers must use those medicines in time to make pest-resistant preparations"—Intermediary, KII, Goghat-I block, Hooghly district.

5.3.5 Free Extension Support

PepsiCo appoints agronomists who are responsible for providing extension services to contract farmers. PepsiCo or intermediaries does not charge for extension services. Agronomists often visit the field to observe growth and make suggestions to farmers if they found any issues. Farmers are pleased with the kind of extension support and advice they receive from PepsiCo. Agronomists have shared their contact numbers with farmers, and they advised farmers to contact them for any issues.

“Earlier, we used to grow ATL variety that required less UREA, but now we grow FC3, which requires more UREA. During the pre-sowing meeting, the agronomist shared the information with us,”— Sub-vendor, KII, Goghat-I block, Hooghly district.

Farmers inform that intermediaries and agronomists visit them frequently, even when there are no issues. This happens when there is a chance of less production of contract varieties or a chance of a high price for the traditional variety. Sub-vendors said they try to maintain goodwill with farmers as their commission is associated with the number of farmers who cultivate contract crops that is to be supplied to PepsiCo. Smallholders in the cultivation of high-value crops are often susceptible to various risks, and extension support significantly reduces their information gaps.

"We can directly call the agronomist for any help regarding plant growth or any other issues. They also often come to the field and check the growth,"—Contract farmer, FGD, Goghat-I block, Hooghly district.

"You know, when there is a high chance of a price hike in the open market for traditional varieties, sub-vendors and agronomists visit us more frequently to ensure that we are not engaging in side selling,"—Contract farmer, FGD, Kotulpur block, Bankura district.

5.3.6 Farmers are Restricted in Farming Decisions

Contract farming is a form of unequal power relation where farmers lose their autonomy and power to corporate firms (Clapp, 1994; Singh, 2002; Watts, 1994; Zhang, 2012). While the contract protects the interest of sponsor firms at all costs, farmers' interests and risks are not considered. PepsiCo supplies specific seeds to maintain the quality of its raw materials. Therefore, farmers do not have any option to choose other varieties. Farmers cannot even choose the size of the seeds. The purchase of medicine kits is also non-negotiable. After harvest, grading labour hired by the respective vendors manually sorts the produce, rejecting it at their discretion. Unfortunately, farmers have no say in these rejections, leaving them on an unequal playing field where powerful intermediaries and firms violate their right to choose

inputs or oversee grading. In this CF business, farmers are limited to deciding only how much land they want to cultivate or whether to stay away from CF altogether.

"This year, you will see they will not reject much potatoes because there will be less produce as the plants are damaged due to rains after sowing,"—Contract farmer, FGD, Goghat-I block, Hooghly district.

"They will take away soils too (other farmers during the FGD were chuckling) this year because there will be less produce as the plants get damaged after sowing due to heavy rain. Later, when PepsiCo resupplied new seeds by that time, many farmers had sown the traditional varieties. When there is less production and a chance for a high price in the open market, they became less restrictive,"—Contract farmer, FGD, Kotulpur block, Bankura district.

"If you cultivate PepsiCo seeds, you have to maintain and listen to them all the time. When to use which pesticides and when to supply produce, you cannot go with your way. It is better to cultivate my own land in my own way; there is no need to steamroll someone's will,"—Non-Contract farmer, Household Survey, Kotulpur block, Bankura district.

This suggests that vendors and PepsiCo control the decision-making power, leaving farmers with no freedom or authority to make their own choices. Farmers' decisions in the process outcomes thus stand violated.

5.3.7 Fixed Price Offer Farmers Minimum Income Security

The proponents of CF advocated for fixed price and output market support to overcome market failures as a 'win-win' situation for farmers. They however neglected the farmer's bargaining position in contract arrangement and decisions (Birthal et al., 2005; Chakraborty, 2009; Pandit et al., 2009; Sharma, 2016). However, the price and pricing system is debatable in CF, particularly in developing countries like India, where it operates without any written or legal agreement or framework. In the case of PepsiCo potato CF, farmers praised the fixed price, which assured them a secure minimum price for their harvest. PepsiCo offers a predetermined price to their contracted farmers, which is communicated to them at a

pre-sowing meeting in the presence of a PepsiCo representative. Farmers have confirmed that regardless of whether the open market price of traditional potatoes falls during any season, receive fixed price.

"Despite good production, there is no guarantee that you will get back the production costs. Because often, the price in the open market goes too down. So we do contract farming because before sowing you can expect that if you are able to produce the minimum quantity you will get back something over production costs,"—Contract farmer, FGD, Goghat-I block, Hooghly district.

"Along with input support, we also get the fixed price support in contract farming. But in non-contract you not only bear the input costs on your own but also take the price risks which may fall down to very low," —Contract farmer, FGD, Kotulpur block, Bankura district.

Contract farmers from the study villages reported they prefer to cultivate CF as they have a lower risk of income loss, except in the event of crop damage caused by heavy rain or disease. This is due to the fixed contract price offered by the firm, which ensures that even if they produce a minimum amount of potatoes, they will still earn more than their production costs. However, for traditional potatoes outside the contract, there is no such fixed price, and market risks are high, often leading to farmers not recovering their production costs. While the fixed price support is primarily appreciated, farmers have also expressed concerns about its limitations. Price risks also exist in the traditional potato market. However, there is always the possibility of earning exceptionally well if the open market price increases in a given season, which is not the case in CF. This suggests that despite price support, CF does not share the price and market risks. Rather, it imposes production risks on farmers.

"See, if you do contract farming, you cannot dream of building a new house; at best, you can dream of getting new clothes. But if you do traditional potatoes, yes, there are price risks, but you can earn tremendous. Also, you can keep the produce in cold storage for a better price, which is not the case with contract farming,"—Non-contract farmer, Household Survey, Kotulpur Block, Bankura.

5.3.8 No Specific Compensation at Market Fluctuation

According to contract farmers, they do not receive any compensation when the open-market potato price moves upwards. Instead, they are forced to supply the entire produce. In addition to bearing production risks, they also face risks (such as loss of expected gains) associated with price fluctuations. There are instances when, after the harvest, the open market price may be higher than the contract price. However, contract farmers are bound to sell their produce at a fixed price. Despite the higher price of traditional potatoes (e.g., Jyoty, Pokhraj, K22, and Chandramukhi) in the open market, farmers supply at a fixed price to honour their agreement. One may wonder how intermediaries implement the contract mechanism in the event of price fluctuations, as farmers may choose to sell their produce outside the agreed-upon market price. The contract mechanism, which secures the supply of produce by farmers in times of price fluctuations, depends on farmers' reliance on intermediaries and their social ties.

Farmers have reported that if they do not supply at the agreed-upon price, they will not be allowed to participate in the following year's CF. Due to the absence of compensation from PepsiCo, many farmers choose to cultivate traditional varieties alongside CF to balance out their crops income. While CF offers fixed price support, farmers face a lack of compensation for price fluctuations and are therefore incentivised to grow traditional varieties as well. By appointing the intermediaries, PepsiCo not only transferred the capital risks to intermediaries and production risks to farmers but also used farmers' social costs to supply the quality raw material for their plant. Intermediaries claim farmers engage in side selling of products when there are price rises, which is unfair as they provide input support on credit and fixed prices. However, I would not say side selling is unfair since farmers may do side selling as a 'minor' contract violation, as described by Baily and Scott (1987) as "weapons of the weak", also supported by Hambloch (2021).

5.3.9 Farmers Without Any Bargaining Power Rely on the Offer Price

PepsiCo never allows farmers to determine prices for contract produce or inputs, not even taking their consent over price satisfaction. There is no transparency in the pricing process, as intermediaries announce the price sometimes in the presence of PepsiCo representatives. Before that, they decide the

price without consulting with intermediaries and communicate it to farmers before sowing. It is entirely up to the farmers to decide whether they want to cultivate at the announced price. During FGDs, farmers expressed that they have been receiving the same price (₹900-970 per quintal) for the last two to three seasons, but production costs are increasing daily. If we compare this CF price with the spot market price we can see a surge in spot market price for potatoes and volatility as well. The price of traditional Jyoti potatoes for 2019, 2020, 2021, and 2022 available at the AgMarknet website indicate that it was Rs. 860, 1640, 1040 and 1750 per quintal (reported on 30th April of each year).

"They decide the price before and announce it during the pre-sowing meeting. Whoever is willing to cultivate at the announced price may confirm the required seeds to respective vendors or sub-vendors. There is no scope for us to ask for a better price,"—Contract farmer, FGD, Goghat-I block, Hooghly district.

"Vendor shares the price we will receive after the supply of potatoes; who knows what price actually they get from PepsiCo. They never share any such details with us,"—Contract farmer, FGD, Kotulpur block, Bankura district.

Additionally, they claimed that the price of inputs, such as medicine kits, has increased from ₹3800 to ₹4000. However, the potato price they received remains unchanged. Farmers also stated that they were unaware of the price vendors receive on their produce and if they charged any extra despite receiving a commission on their investment. They said vendors only share the price farmers receive, not the price PepsiCo provides them. Similarly, they never share the actual price of inputs paid to PepsiCo. The farmers' claim suggests that they are unaware of the agreement details and the actual price that intermediaries receive. Farmer expectations of better prices and compensations are not being met. Moreover, CF oral provisions are not transparent to farmers, and they fail to meet the fairness criteria.

5.3.10 Information Asymmetry Over Incentives

PepsiCo acknowledges the CF for the premium quality of potatoes by providing adequate incentives. However, farmers who deserve the incentive are unaware of the facts. A farmer during the FGD from

the Bankura district claimed their respective sub-vendor and vendor received an incentive for the best quality of potatoes, which depends on the solidity and grading. With the high solidity, the vendor and sub-vendor receive adequate incentives. Farmers who deserve the fruits of arduous work do not receive anything. Initially, the respective sub-vendor denied the fact; however, later, he accepted that they received an incentive from PepsiCo. The intermediaries explained that they collect produce from many small farmers to fill a truck, making it difficult to determine which farmer produced the best quality potatoes. Due to a lack of information and interaction, farmers are left in the dark and cannot claim what they rightfully deserve. This suggests there is no fair information shared with farmers in CF.

5.3.11 Inconsistent Quality Specification

The oral contract and absence of a written agreement with farmers enable intermediaries and PepsiCo to control quality specifications. Farmers have reported that vendors inform them they will procure the *chips-grade potatoes*.¹⁹ The criteria for chips-grade potatoes are unchangeable, so intermediaries are not required to inform farmers every season. Regardless of farmer location and association, the quality specifications should not vary until they are engaged with PepsiCo. However, farmers reported inconsistencies in quality across study villages, particularly about the size of chips-grade potatoes. This highlights the inconsistent quality specification and controls exercised by intermediaries during the grading of potatoes.

Several previous studies conducted in other states, including West Bengal, have also highlighted PepsiCo's restriction of produce over quality parameters (e.g., Behera & Kodirekkala, 2022; Kaur, 2014; Pandit et al., 2015; Ray et al., 2021; Singh, 2000; Singh, 2002). This study found that intermediaries allow slightly smaller size potatoes in a few villages, where it has been carried out for a few years (see **Table 29**). This is an unfair strategy of intermediaries to encourage farmers to cultivate under contract with fewer rejection restrictions. While CF has been carried out for a few years, in such villages, they are restricted as per their convenience. This exploitative approach frequently leads to financial losses

¹⁹ Potatoes that meet the criteria of 40-80 mm size, without crack, and without any green colour are the best quality for chips, known as chips-grade potatoes.

for farmers. The rejected produce cannot be sold in the open market, and those processing varieties are not suitable for consumption as vegetables. So, farmers are forced to use them as cattle feed. In traditional farming, there are no such rejections, and farmers can sell whole produce without any grading.

Table 29 Size of Potatoes PepsiCo Procure

Village	1	2	3	4	5	6	7	8	9	10	11	12
Size (mm)	40-80	>35	40-80	>35	40-80	35-80	40-80	40-80	40-80	>40	40-80	40-80

Source: Field data (2021-22)

"After putting in so much effort, you will produce potatoes, and they will come and reject at the field and take away only good quality potatoes. It's better to do your own and sell the entire produce at your choice without any rejections,"—Non-contract farmer, Household Survey, Joypur block, Bankura district.

5.3.12 Restriction of Produce Over Quality Parameters

It is fair for farmers to expect PepsiCo to procure the entire potatoes until they meet the quality criteria fixed by them. Farmers said that despite their specified quality criteria, sometimes they do not procure entire chips-grade produce. The vendors are responsible for arranging the grading labour. The manual grading often rejects more produce as per vendors' comfort, which farmers have no voice to say. PepsiCo, in less demand, asks the vendor to procure less, which forces them to uplift the quality parameter to reject produce in the field. Sometimes, they reject a potato if it even has a point-sized green colour.

"At open market price upstairs, they become less restrictive on quality for smoothly run the business and secure desired supply. However, if the situation is vice-versa, and there is less demand, they become more stringent on quality parameters. If there is a huge production in a season, they restrict more because grading is done manually. Moreover, when they do grade,

we just stand quite near the field, and they do not listen to us on rejections,” —Contract farmer, FGD, Kotulpur block, Bankura district.

"Rejection is one of the main reasons why many farmers do not cultivate under contract farming,"—Non-contract farmer, Household Survey, Goghat-I block, Hooghly district.

Intermediaries explained that PepsiCo never allows any non-chip-grade potatoes. PepsiCo is stringent on quality parameters, so it forces vendors to do strict grading to avoid returns of supplied potatoes. Vendors explained that when there are upward price situations in the open market, they must do fewer restrictions; otherwise, they would face difficulties in collecting desired potatoes from farmers. In such cases, they sell the non-chips-grade potatoes to other traders while mixing them with traditional potatoes. Farmers said that when the open market price is high, they can sell the rejected potatoes while mixing them with traditional potatoes and earn better than the contract. They argue vendors should procure the rejected potatoes when the open market price is less and more rejections. Vendors only allow non-chips grade at a price upstairs to sell outside PepsiCo for their profits, not to help farmers.

5.3.13 Inconsistent Quantity Specification

The procurement of potatoes from farmers is often rely on the quantity of seeds they sown taking from PepsiCo. However, farmers reported they often restrict the desire quantity of produce against supply seeds. Sometimes, they restrict procurement without prior information. PepsiCo occasionally restricts the quantity and procures only 6-6.5 quintals of potatoes against one quintal of supplied seeds. At better demand, PepsiCo allows up to 6.5-7.5 quintals, while in some cases, they procure a maximum of 10 quintals, not more than that. Farmers said that against one quintal of seeds if there is a good season, they produce even more than 10 quintals of potatoes. PepsiCo does not procure the entire produce despite meeting quality specifications. Farmers informed that, on average, 10-12.5 quintals of potatoes got rejected per acre based on quality. Moreover, they often restrict quantity, which further makes it difficult for them. Some vendors said few farmers keep the rejected produce to use for seeds in the following season, and this makes more produce than the seeds they obtain from them. We did not consider farmer performance unfair since they must store seeds for the future from their historical

precedent. This suggests that there is precise control over the quantity of produce, which varies over PepsiCo demand and open market price. In a few cases, farmers are left worse off when intermediaries reject more produce, and the open market price is also lower than the contract price. Due to this rejection, many farmers prefer not to cultivate under contract.

"Sometimes they even reject a potato with point size green colour. This usually happens when there is very good production in a year—or less demand from PepsiCo,"—Contract farmer, FGD, Joypur block, Bankura district.

5.3.14 Inconsistent Delivery of Produce

The delivery of produce must be consistent across all villages since they are engaged under the same firm. However, according to farmers, they usually bear the costs of delivering their produce to the nearby road, which can cost between ₹40-60 per quintal. In other cases, vendors sometimes collect the produce directly from the field if it is accessible by road or if a truck can enter the field. However, when the field is not reachable by truck, farmers must deliver their produce to a specific location or a nearby road at their own expense. The intermediaries who collect directly from the field explain that PepsiCo pays them to do so, and therefore, it would be unfair for them not to collect from the field. They explain that some greedy intermediaries transfer the delivery costs to farmers to profit more. Some farmers argue that if they cannot collect produce from fields due to inaccessibility, they should be reimbursed for their labour costs, but they are not. Additionally, farmers must supply their produce to specific locations based on their associated sub-vendors or vendors, even if their field is close to a road. It has been observed that inconsistent delivery practices with intermediaries often transfer the delivery cost to farmers.

"We are instructed to collect the produce from the field. I do it always, and maybe some vendors ask farmers to transport it to the road to gain more profit,"—Vendor, KII, Joypur block, Bankura district.

"They never collect it from the field. We always supply it to the nearby road of filed. The cost we only bear they never give extra for labour costs,"—Contract farmer, FGD, Goghat-I block, Hooghly district.

5.3.15 Secure Payment After Successful Supply of Produce

Farmers enjoy the flexibility of choosing their preferred payment method, whether it be in cash or through a bank account. However, there has been inconsistency in for time it takes for farmers to receive their payment. Farmers have reported receiving payment at varying times, even if they are under the same sub-vendors or vendors. Despite this, no payment issues have been reported thus far, and farmers praised the secure and timely payment of their produce following successful delivery. Farmers explain that sometimes they face issues receiving payment while they sell potatoes to local traders, but in CF, they never face such issues.

"It sometimes takes 15-20 days to get payment, but we never face any problems,"—Contract farmer, FGD, Kotulpur block, Bankura district.

"Actually, we get payment once the produce reaches PepsiCo and the quality inspection is done. But since we deal with many farmers, sometimes it takes a little time of 10-12 days to transfer to farmers, but you will not find a single farmer who can claim of not getting payment,"—Intermediary, KII, Joypur block, Bankura district.

5.3.16 No Force Majeure or Other Support to Farmers

Force majeure events, such as floods, droughts, severe weather, earthquakes, epidemic disease outbreaks, insect pests, and other unforeseeable external events, are beyond the control of anyone. Contract farmers do not receive any support from the firm or intermediaries; they do not bear production risks under any circumstances. There is no insurance from PepsiCo for contract crops. Further, there is no specific resolution to settle issues or disagreements between any parties. A few vendors reported PepsiCo could terminate them at any time based on violation of business rules, and it happened recently when they blacklisted farmers for not supplying potatoes at price movement situation. It is important to

note that CF does not affect sharecropping or ownership rights. There is also no dedicated agency or board or any third party in this CF arrangement to settle issues. It is entirely PepsiCo who take the decision in this practice.

5.3.17 Observation of Fairness

PepsiCo holds power in contract arrangements in terms of price and quality, while intermediaries follow their instructions, leading to unfairness. In some instances, intermediaries exert control over farmers regarding price, inputs, quality, and rejections, creating unequal outcomes among farmers despite their engagement with the same firm. Since farmers operate under the same firm, they should expect equal pricing, quality, quantity specifications, and other opportunities. However, the considerable inconsistency indicates that these expectations are not being met.

The absence of legal or written arrangements and the specification of contract provisions makes it easy for intermediaries and PepsiCo to control farmers. Legal or written would not be a solution to this issue since farmers' position in making the terms and conditions of arrangements would be limited in front of giant firms and intermediaries. Therefore, making documentation is not a solution without improvement of farmers' participation position in the decision or fixing the terms and conditions. To make CF more transparent, one solution is to use detailed documentation and specifications in the contracts. Moreover, to address the unequal power dynamics, we would suggest that promoting group contracts or Farmer Producer Organisations (FPOs) could help strengthen the negotiating position of smallholders. As the study found, there is no scope for farmers to discuss contract arrangements, terms, and conditions, such as fixing prices or clauses relating to quality or quantity. This farming transfers the production risks and controls the input price, quality, and quantity of produce, making it more unfair to farmers. There is no possibility for open dialogue, and farmers have reported that if any farmers fail to provide potatoes after harvest, the vendor does not allow them to participate next year. However, input support on credit, fixed prices for secure minimum income, free extension services, and secure payment are some of the positive aspects of this practice that farmers praise.

Due to the lack of communication and information, farmers are often unaware of how intermediaries, particularly vendors, exploit them unfairly. The indicators identified to measure fairness in this practice are largely unfulfilled. Following the CCF indicators, it shows how the seemingly small acts of intermediaries, such as transferring delivery costs to farmers and controlling quality parameters, may lead to differentiation across farmers. Small and marginal farmers in the cultivation of high-value crops depend on private actors and agribusiness firms to access farm support, enabling powerful and private actors to exploit them. In the absence of public support to farmers, the fixed price, extension support, and inputs on credit attract farmers to cultivate under CF. However, unfairness in this practice has emerged, raising concerns about its sustainability, particularly in India, where the government is eager to promote CF by legalising policies without adequately understanding the CF issues at the ground level.

5.4 Conclusion

From the viability measures, it is understood that the CF value chain secures vendors' investment despite production loss. The production and income discussion in the previous chapter highlights the limitation of fixed prices at production loss and open market price movement situations. It found that a fixed-price contract is not viable for small and marginal farmers as they face farm business loss when we compared to NCF. Moreover, this chapter indicates that although the CF value chain provides small and marginal farmers partial input support, it fails to share production risks and price volatility. However, from the viability analysis, it is understood that although farmers face economic loss at price movement and production loss situations, vendor investment is secure as they availed more than invest even at production loss. The production loss condition may affect their commission as it depends on the quantity of produce they supply.

The benefits derived from CF predominantly favour PepsiCo, facilitating the acquisition of high-quality raw materials and enabling intermediaries to earn commissions on their invested capital. However, the limited access to means of production and input markets for socially disadvantaged castes and smallholder farmers forced to rely on CF seems an alternative way for corporate firms and

intermediaries to accumulate capital without transferring land ownership. This unequal distribution of benefits raises concerns about social equity and economic fairness within the agricultural sector.

Social inclusion is a process in which individuals or groups take part in society through markets (e.g., labour or credit), services (access to health, education), and spaces (e.g., political, physical). Exclusion occurs when people are prevented from taking part. However, individuals and groups may have to participate in markets, services, and spaces under unfavourable terms and conditions, termed "adverse inclusion."²⁰ Literature shows varied implications of "adverse inclusion" or "adverse incorporation" concept in studies on poverty, labour arrangement, value chain so on (see Hickey & du Toit, 2013; Mosse, 2007; McCarthy, 2010; Phillips, 2013; Prakash, 2015). This "enables more advantaged groups to extract disproportionate value from the work or resources of another, less-advantaged group" (Heeks, 2022, p, 689).

Critique of CF raised concerns about small farmer exclusion from contract participation, and this is supported by some of the studies that find agribusiness firms in India are often biased towards resource-rich farmers or wealthy farmers who have better operational landholding, access to credit or farm machinery (Mishra et al., 2018; Narayanan, 2014; Swain, 2012; Sharma, 2016). Farmers with large landholding sizes are more likely to CF (Behera, 2019; Singh, 2002; Kumar, 2006). The extensive literature on CF depicts it as an inclusive opportunity for small farmers to access the market, credit, inputs, and other forms of support. Based on this study, I argue that CF is an *adversely inclusive* rather than an inclusive alternative with respect to small and marginal farmers being forced to cultivate under agribusiness in unfavourable terms and face exploitation. The lower farm returns and unfair arrangements in CF reveal that with a shrinking state role in agriculture and rural livelihood, small and marginal are forced to cultivate under CF. However, CF practice for small and marginal farmers is adversely inclusive, where the terms and conditions are unfavourable and exploitative.

²⁰ World Bank Blogs (2013) see more here: <https://blogs.worldbank.org/en/voices/4-things-you-thought-you-knew-about-social-inclusion> (accessed on 16:07:2024).

The prospect of genuine benefits remains elusive for the socially deprived caste and smallholder farmers engaged in CF due to the prevailing imbalances. Achieving equitable outcomes necessitates the implementation of fair mechanisation and a more balanced risk-sharing framework within the CF value chain. This task proves scary, especially for individual small and marginal farmers, given the asymmetrical partnerships with large corporations and intermediaries. The existing unequal power dynamics within CF value chains underline the urgency of establishing a regulatory mechanism. Without such oversight, individual farmers may find it challenging to advocate for their interests in the face of corporations and intermediaries who wield substantial control over the production process.

Although scholars adopting a more critical and political economy perspective have expressed concerns regarding the unequal power relations and the vulnerability of farmers in negotiations with large corporations, there exists a notable gap in both theoretical explanations and empirical evidence about fairness and transparency, particularly within the context of India. I developed the novel CCF to comprehensively understand the fairness in contract arrangements. This chapter has devised indicators that future studies can employ to assess the fairness in CF value chains. While acknowledging the inherent challenge of encapsulating all occurrences within a single framework, these indicators offer a valuable tool and perspective for examining fairness, shedding light on novel aspects of dominance, i.e., push selling of inputs.

PepsiCo transfers the production risks and intermediaries' controls on input price, selling, quality and quantity of produce, making this more unfair to farmers. There is no scope for open dialogue. Farmers said if any farmers do not provide potatoes after the harvest, the vendor does not allow them next year. However, it is rare for farmers to dishonour the agreement. The indicators are developed to measure the fairness of contract practice, and it was found that none of them are followed in the PepsiCo CF practice (see **Table 30**). This section examines all the indicators to substantiate the claim that none of them are fulfilled in PepsiCo-led CF arrangements.

Table 30 Indicators and Fairness Claims

Theories	Dimensions	Indicators	Result
Fairness theory	1. Distributive fairness	1. Distribution of fair outcomes	Violated
	2. Procedural fairness	2. Participation and negotiation	Violated
	3. Interpersonal fairness	3. Transparency	Violated
	4. Informational fairness	4. Accuracy in information, communication and accommodation	Violated
Network analysis and exchange theory	5. Network structure, power and dependency	5. Power and positions in the network	Violated
		6. Dependency and claims of unfairness	Violated
	6. Dependency and claims of unfairness	7. Bargaining power and exchange opportunities	Violated
		8. Structure and claims for unfairness	Violated
	7. Fairness and expectations	9. Expectation and violation of expectation	Violated
	8. Reference points and expectations		Violated
		10. Consistent behaviour based on historical precedent	Violated
Guiding principles of responsible contract farming operations by FAO	9. Responsible contract farming	11. Common Purpose	Violated
		12. Adherence to a Legal Framework	Violated
		13. Clear Documentation	Violated
		14. Readability of Contracts	Violated
		15. Due Attention and Review	Violated
		16. Disclosure	Violated
		17. Transparency in Price Determination	Violated
		18. Transparency and Fairness in Clauses Relating to Quality	Violated
		19. Transparency and Fairness in Clauses Related to Input Supply and Use	Violated
		20. Fairness in Risk Sharing- Force Majeure and Contractual Flexibility	Violated
		21. Prevention of Unfair Practices in Buyer-farmer Relations	Violated
		22. Honoring Contractual Terms	Violated
		23. Open Dialogue	Violated
		24. Clear Mechanism to Settle Disputes	Violated

Source: Author's own compilation.

The analysis is as follows: (1) *Fair distribution of outcomes*: Despite farmers supplying produce of similar quality, disparities in pricing are evident, as farmers report receiving different prices for their produce. Additionally, discrepancies in input costs have been observed, further undermining equity. (2) *Farmer participation and bargaining power*: Farmers do not participate in price-setting processes and lack bargaining power to secure better prices or compensation. Price determination is exclusively controlled by PepsiCo and communicated through intermediaries. (3 & 4) *Transparency in contracts*

and practices: Oral contracts lack transparency, and intermediaries often fail to disclose the actual cost of inputs, leading to price variations reported by farmers across villages. Although PepsiCo claims to incentivize high-quality potato production, farmers frequently do not receive these incentives and remain unaware of their existence. (5, 6 & 7) *Power imbalance and dependency:* The contract farming model places farmers in a structurally unequal position. Power is concentrated with PepsiCo and intermediaries, who control both production and price arrangements. Small and marginal farmers are entirely dependent on these entities for input and price support, leaving them with no bargaining power.

(8 & 9) *Inconsistent pricing and unmet expectations:* Farmers cultivating under the same firm expect similar prices for their produce. However, they report receiving different prices and are often unaware of these discrepancies. Furthermore, while meeting the quality standards set by PepsiCo should ensure the procurement of their entire produce, quality restrictions often result in unprocured potatoes, violating farmers' expectations. (10) *Side-selling allegations:* Intermediaries claim that farmers sometimes engage in side-selling during favorable open market conditions. However, if PepsiCo is not obligated to purchase the entire produce and can reject potatoes under various pretexts, accusations of side-selling against farmers lack validity. Contractual provisions should be reciprocal.

Indicators 11–16, based on FAO recommendations, primarily address written contracts and detailed provisions. Since no written contracts exist between farmers and PepsiCo, these indicators do not apply in this context. Indicators 17–19 focus on transparency in pricing, quality standards, and input costs. Farmers report frequent violations of these principles by both PepsiCo and intermediaries. (20) *Risk-sharing:* PepsiCo does not share production or price risks. Farmers are forced to sell at lower prices, even when open market prices are higher, as observed during the 2021–22 season. Additionally, PepsiCo provides no compensation under such conditions. (21) *Prevention of unfair practices:* There is no mechanism to prevent unfair practices. Instead, PepsiCo and intermediaries impose various forms of control over production and pricing. (22 & 23) *Commitment to promises:* Both PepsiCo and intermediaries fail to honor oral agreements. Furthermore, intermediaries are not permitted to negotiate their commissions, further highlighting the power imbalance in the contract model. (24) *Dispute*

resolution: There is no dedicated agency for dispute resolution. As previously noted, PepsiCo retains sole decision-making authority in these arrangements.

Although some of the indicators I developed align with those in existing frameworks, I have deliberately retained the original concepts to comprehensively capture fairness in contract farming arrangements. This analysis underscores the systemic shortcomings in PepsiCo's potato contract farming model, particularly the absence of written contracts, lack of transparency, unequal power dynamics, and disregard for farmers' rights and expectations.

However, outside the indicators, farmers have been praised for *credit input*, *extension* and *timely payment* from PepsiCo and intermediaries. This concludes that the contract arrangement with farmers in PepsiCo's intermediary model of West Bengal seems unfair over many terms and conditions. However, poor and marginal farmers from socially deprived castes cultivate some portion of their land under contract crops to secure minimum income from the fixed price and avail input support from PepsiCo and intermediaries. The historical deprivation of socially deprived castes has significantly hindered their access to essential resources and restricted their control over the means of production. Without adequate state support, these marginalised communities are forced to cultivate under CF arrangements to secure access to credit, inputs, and markets. However, in this new arrangement, PepsiCo assumes no responsibility for the risks associated with inputs or production; instead, they solely bear the price risks by offering fixed prices pre-determined before the sowing period. The sustainability of this CF is contingent upon the absence of adequate support from the state for smallholders, as well as the availability of competitive prices in the market. Once the state plays the role of providing farm support and market, smallholders may shift to NCF.

Based on the chapter, it is evident that issues such as input, incentives, prices, and lack of compensation are a result of the absence of written or legal contract mechanisms and policy regulations. Without a written contract or clear specifications, it is easy for intermediaries and PepsiCo to exploit the oral contract. Additionally, there is no compensation mechanism for price fluctuations, which could be addressed through state intervention. Therefore, the next chapter focuses on critically examining CF policies and debates in India, with a specific emphasis on these aspects.

Part 3

Chapter 6. Contract Farming Policy in India: A Comprehensive Analysis of the Legal Framework

6.1 Introduction

Chapter 3 examined the CF model and the social relations of production. It showed a transition from a cooperative-oriented approach to a model led by private actors, with intermediaries emerging as pivotal figures in CF practice. The social relations of production indicate that the social distribution of wealth, and social ties, favour the upper caste rural elite to become corporate agents in the changing production process. **Chapter 4** shows that CF is not more profitable than NCF, as farmers in the former case received less returns. **Chapter 5** shows that CF minimises the constraints of inputs and extension, and market support for smallholders that they face, while cultivating traditional crops outside contract arrangements. I have further analysed that the contract arrangements are unfair and lack transparency. Notably, price asymmetry, information asymmetry, and constraints on quality and quantity parameters. It is thus clear that the absence of a legal framework, and specification of contract provisions, allows intermediaries and PepsiCo, to control farmer production according to their own interests. Furthermore, some issues that farmers face in CF are due to the absence of policy support. For example, the absence of compensation on account of production loss and upward price fluctuation caused economic losses for contract farmers. In contrast, despite production losses, NCF farmers received better returns from the higher price of the open market. The West Bengal case study thus highlights the need to understand the legal framework of CF in India and in West Bengal, to protect smallholders from corporate and intermediary exploitation.

In this chapter, I undertake a critical examination of CF policy, to comprehend the legal framework governing its implementation within the agricultural landscape of India, specifically in the context of West Bengal. I scrutinise the policies and legislative Acts on CF, and evaluate their shortcomings, vis-à-vis the interests of smallholders. As previously mentioned, agriculture in India falls within the

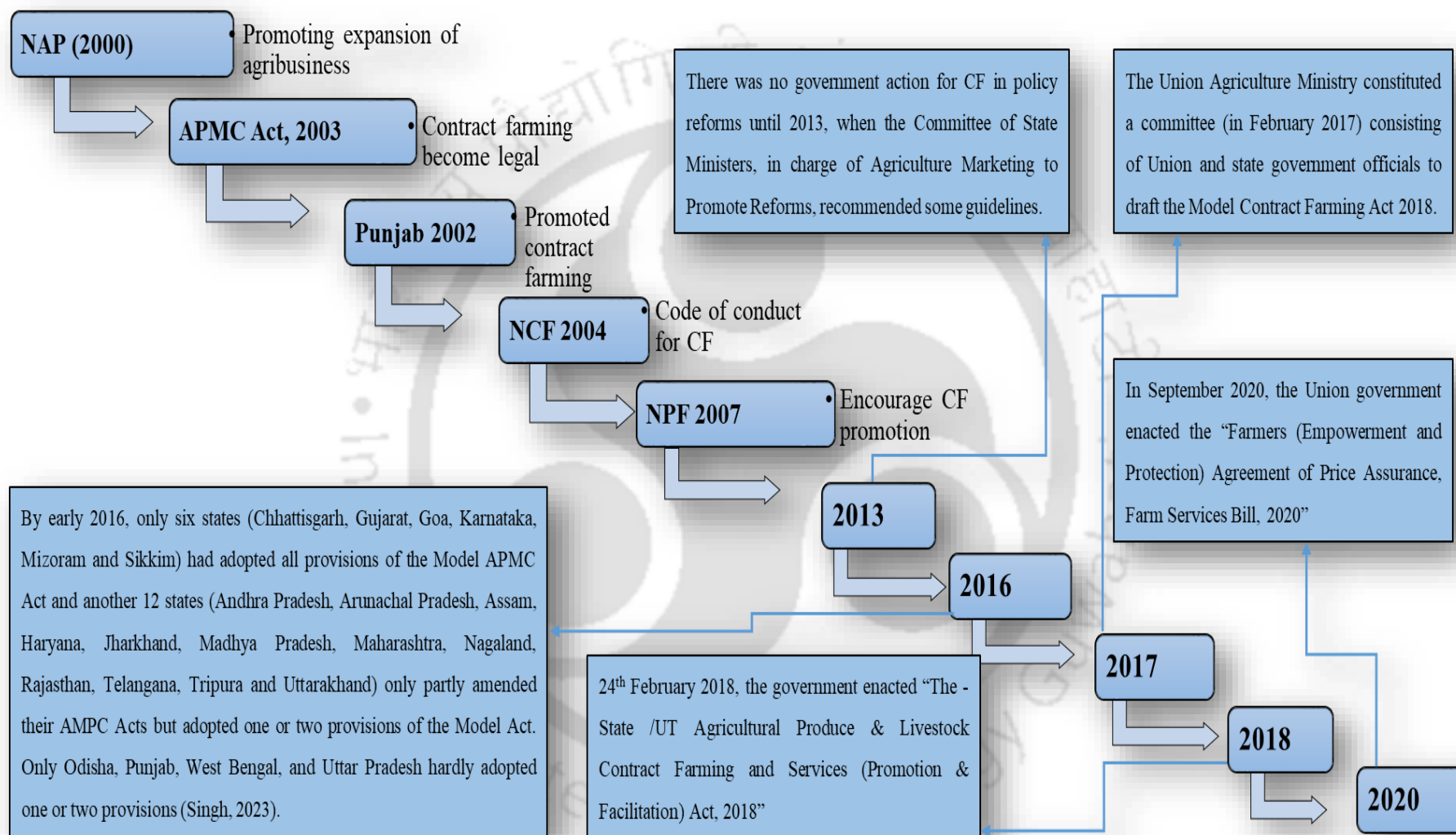
purview of state dominion, and individual states have established their regulatory frameworks. Nonetheless, the Union government assumes a pivotal role in promulgating constitutional amendments, mandating compliances by the states. This chapter discusses CF policies at the national level while also examining any existing state-level policies applicable to West Bengal.

Section 6.2 provides a historical contextualisation of the implementation of CF policy both at the national level in India and within states. **Section 6.3** delineates the key provisions of the *Model Agriculture Produce and Livestock Contract Farming and Services (Promotion & Facilitation) Act, 2018*, which is known as the *Model Contract Farming Act of 2018*, emphasising its shortcomings. **Section 6.4** examines the *Farmers (Empowerment and Facilitation) Agreement on Price Assurance and Farm Services Act, 2020*, which is commonly known as the *Union Contract Farming Act, 2020* (subsequently repealed in November 2021). **Section 6.5** highlights the challenges associated with CF practices, and identifies policy gaps, observed in the context of potato cultivation in West Bengal under PepsiCo. In the final section (**6.6**), I have concluded the CF policy debates and issues with the framework.

6.2 Contract Farming Policy Progress in India

Policies surrounding CF have a long and contentious history in India. The initiation of the APMC Acts in India occurred in the 1960s and early 1970s, with the primary objective of safeguarding farmers against the practices of private traders and commission agents. These legislative measures delineated the regulations governing the sales, purchases, and facilitation of transactions. They included specific provisions outlining the permissible charges applicable to both sellers and buyers, along with stipulations regarding payment procedures (Singh, 2023). Following the recent Union Contract Farming Act 2020, considerable criticism has been directed towards the government, alleging that the Act was hastily passed without adequate discussion among various stakeholders. Nevertheless, such initiatives are not unprecedented; both the Union and some state governments have persistently wanted to advocate and institutionalise CF throughout national and state policy reforms across different phases (see **Figure 18**).

Figure 18 Major Policy Progress Surrounding Contract Farming in India



Source: Author(s) own compilation based on literature review.

In the aftermath of economic reforms, there has been a shift in focus from production-centric to market-oriented agricultural policies. The government has implemented several initiatives, such as the National Agriculture Policy (NAP, 2000), aimed at enhancing rural infrastructure, fostering value addition, and promoting the expansion of agribusiness. These policies are intended to generate employment opportunities in rural areas. To encourage private sector involvement and attract agricultural investment, Indian states have embraced policies that encourage corporate entities to operate within the agricultural sector (Ray et al., 2021; Shrimali, 2016; Vicol, 2019). This promotion of CF, it is claimed, was a deliberate strategy to facilitate substantial capitalisation within the agricultural sector (Chand, 2012; GoI, 2002; Ramakumar, 2022; Vicol, 2018).

Singh (2023), in his recent book, “Regulating Agricultural Markets in India: A Smallholder Perspective”, comprehensively highlights market reforms and CF Acts and their shortcomings. He highlighted some of the global CF practices and regulations, where CF and direct purchase have become prominent. Speaking especially of CF regulation, France had the Code Rural, which makes a written CF agreement, which entails that it should contain certain provisions to ensure that the farmers are aware of the risks and requirements of the agreement. The Agrarian Code of Panama also has a provision for CF that bars abusive clauses and mandates certain minimum aspects in a contract agreement.

Similarly, Spain has a 2000 law that defines principles of contractual relations and even provides samples of contracts to be agreed upon between parties that the Ministry approves. It has specifications of the price to be paid, conditions of payment, and the time and place of delivery, as well as dispute resolution methods, and it provides for a monitoring committee that plays a role in approving the contract agreements. Thailand and Vietnam provide coverage of force majeure, compensatory damages, registration of agreements, and a dispute resolution mechanism. In poultry farming, Georgia in the US has poultry grower protection provisions during the contract negotiation phase. They have a three-day window to review the contract before signing it and three more days after signing to reconsider and cancel it. Similarly, in the case of the dairy industry, Kenya has a Dairy Industry Act (1976) that gives

the Minister of Agriculture the power to set prices and make the Dairy Oversight Board a party to the contract.

Considering the unequal power relation among the actors in CF practice, global experiences indicate that this farming is regulated by rules and regulations to protect the interests of farmers as they are vulnerable in the practice. In India, the agricultural market, regulated by the APMC Act, faced the dominant and monopolistic nature of traders and commission agents, which often restricted the entry of new traders and hampered agricultural product trading (Singh, 2017). Buyers, including agribusiness firms, traders, and others, sought legal support for direct procurement from farmers (Narayanan, 2011).

CF has become legal in many states as per the APMC Act, 2003 of the Ministry of Agricultural and Farmer Welfare (MoAFW), India (Singh, 2022). The Union government introduced a separate chapter to provide regulations for and promote CF. This enabled private firms and buyers to bypass the *mandi*²¹ and procure agricultural products directly from producers (Singh, 2012). Some states, such as Punjab, launched the CF programme in 2002, to diversify cropping from mono-crop paddy and wheat to other high-value and less water-intensive crops (Singh, 2005). Despite CF practices gaining ground in some states over different commodities, several states have yet to adopt the policy.

Later, the National Commission on Farmers (NCF, 2004), led by the chairman, late Prof. M.S. Swaminathan, recommended a code of conduct for this practice. The National Policy for Farmers 2007 (NPF, 2007) encouraged CF promotion. The NPF 2007 stated, “Symbiotic contracts which confer benefits to both producers and purchasers would be encouraged for ensuring assured and remunerative marketing opportunities to the farmers.”²² There was no government action for CF in policy reforms until 2013, when the Committee of State Ministers, in charge of Agriculture Marketing to Promote

²¹ The state regulated market committee in India is known as Agricultural Produce Market Committee (APMC). It has Yards/Mandis in the market area that regulates the notified agricultural produce and livestock.

²² Promotion of Public-Private Partnerships (PPP), promotion of Contract farming and appropriate codes of conduct, encouraging different Commodity Boards to promote intercropping with plantation crops, forming Medicinal Plant Growers' Association, community based herbal gardens and enterprises and Herbal Biovalleys on the model of the Silicon Valley may be nurtured for providing the infrastructure needed for the conservation and sustainable use of medicinal plants”. Available: <https://agricoop.gov.in/sites/default/files/NCF%20Report-01.pdf>

Reforms, recommended some guidelines.²³ This suggestion involved creating a district-level entity for registering CF agreements and, exempting them from market fees. It recommended avoiding involving the APMC in registering and resolving CF disputes. Instead, states should promote the establishment of groups or organisations among smallholder farmers to promote CF.

By early 2016, only six states (Chhattisgarh, Gujarat, Goa, Karnataka, Mizoram and Sikkim) had adopted all provisions of the Model APMC Act and another 12 states (Andhra Pradesh, Arunachal Pradesh, Assam, Haryana, Jharkhand, Madhya Pradesh, Maharashtra, Nagaland, Rajasthan, Telangana, Tripura and Uttarakhand) only partly amended their AMPC Acts, but adopted one or two provisions of the Model Act. Only, Odisha, Punjab, West Bengal, and Uttar Pradesh hardly had adopted one or two provisions (Singh, 2023). Although corporate firms were allowed to contract, there was no responsible authority to examine farmers' issues or protect against exploitation in the field. Punjab was the only state that framed a separate Act on CF instead of providing for it under the amended APMC Act, which most states did, but Punjab never operationalised it (Singh, 2022).

The Union Agriculture Ministry constituted a committee (in February 2017) consisting of Union and state government officials to draft the Model Contract Farming Act 2018. The Model Act Committee extensively consulted with many stakeholders. As claimed, they reviewed global best practices and conducted field visits to draft the act to provide guidelines for integrating farmers with agro-industries. The purpose was to ensure better price returns, reduce post-harvest losses, and create job opportunities in rural areas. Finally, on 23rd December 2017, the committee drafted the *Model Act, the State/UT Agriculture Produce and Livestock Contract Farming (Promotion & Facilitation) Act, 2018*, as a promotional and facilitative Model Contract Farming Act (Chand, 2020; GoI, 2018a). The preliminary draft was circulated among all states and UTs, requesting comments and views on the provisions within 15 days.

²³ See the guidelines and details by the Committee of State Minister, In-charge of Agriculture to promote reforms, here: <https://dmi.gov.in/Documents/stminpreform.pdf>

After two rounds of revision of the draft based on comments and criticism received from many stakeholders, on 24th February 2018, the government enacted *The -State /UT Agricultural Produce & Livestock Contract Farming and Services (Promotion & Facilitation) Act, 2018* (GoI, 2018b). By 1st October 2019, Tamil Nadu was the first and only state to implement the act. However, after the political change in the state, on 28th August 2021, the newly formed government repealed the CF Act (GoTN, 2021). Similarly, the state government of Punjab repealed the Punjab Contract Farming Act, 2013, on 29th December 2021.²⁴

When states did not come on board to reform their APMC acts—despite repeated pleas and persuasions by successive governments at the Centre—for 18 long years, the only option left with the Union government was either to ignore its responsibility to secure the future of Indian agriculture and farmers, or use the constitutional route for Pan-India implementation of agricultural policy and market reforms (Chand, 2020, p,7).

Finally, in September 2020, the Union government enacted the *Farmers (Empowerment and Protection) Agreement of Price Assurance, Farm Services Bill, 2020*, along with two other agriculture-related bills, known as *Farm Laws 2020*. As agriculture is a state subject in India, the Union government made those bills Acts of Parliament, with the assent of the President of India so that states/UTs were compelled to implement them. However, in December 2021, the government stepped down and repealed all three farm laws. Many stakeholders have criticised it as it failed to prioritise farmers' interests over an enabling business environment for corporate firms. Some have discussed the possible solutions it could have provided if implemented but have received much criticism over loopholes (Barik, 2021; Nair et al., 2022; Swain, 2020; Singh, 2022). Further, when the farmer protest was going against those farm laws until the Union government repealed all three Acts, states ruled by the opposition parties, such as in Punjab, Chhattisgarh, Rajasthan, Kerala and Delhi, passed the resolution and was in progress in their state assembly to bypass these farm laws.²⁵ Therefore, the policies and Acts surrounding CF remain a

²⁴ Punjab Contract Farming Bill, See the details here:

<https://punjabassembly.nic.in/images/docs/Bill%20no%2036%20pla%202021%20nov%2010th.PDF.pdf>

²⁵ News reported in *Indian Today*, on 22nd December 2022, available here: <https://www.indiatoday.in/india/story/farmers-protest-states-that-have-bypassed-farm-laws-1753995-2020-12-28>

contentious topic of policy debate and political interest in India. Nevertheless, there is no legal framework or central agency to regulate it (Nair et al., 2022).

Many scholars have expressed concerns about farmers' protests over farm bills. While most of these studies have discussed the background of the farmer protest, caste and class relations, the political history of farmer protests, and the spread of the protests from Punjab to other parts of the country, less attention has been given to explaining the potential benefits of these acts or pointing out the loopholes in their design. (e.g., Baviskar & Levien, 2021; Behl, 2022; Jodhka et al., 2021; Kumar, 2021; Roy, 2022; Sankar, 2020; Sethi, 2021; Suthar & Kumar, 2022). As mentioned earlier, some others have conducted a critical review of those Acts (e.g., Barik, 2021; Chatterjee, 2021; Nair et al., 2022; Swain, 2020; Saha et al., 2021; Singh, 2022; Shakeel et al., 2023).

Contract farming is becoming more common in various states of India. However, there are no legal policies in place to protect farmers from potential exploitation by corporations, which is a major concern for smallholders looking to benefit from such arrangements. With the growing trend towards high-value crops in India, and the decreasing role of the state in agriculture, smallholders may be left with no choice but to participate in CF to receive support from corporate firms. It is therefore important to discuss recent Acts or bills related to CF to identify safeguards for farmers and any loopholes that may exist. In the following discussion, I will focus on a critical analysis of a recently repealed CF Act or Bill and provide suggestions for future policy design and debate based on evidence from the present study.

6.3 Model Contract Farming Act, 2018: Legalizing Contract Farming

In February 2018, the Union government came up with *The State/UT Agricultural Produce & Livestock Contract Farming and Services (Promotion & Facilitation) Act, 2018* (henceforth Model Contract Farming and Services Act, 2018). So far, CF was practised under the APMC Act, 2003, where it faced a conflict of interest between APMCs that were responsible for promoting CF, whereas themselves being market players, as well as a lack of positive facilitation in both promoting and protecting farmers' interests. Therefore, the Union government drafted the Act and sought to keep it outside the ambit of

the respective APMC Act of the states. It was expected to help buyers save over 5-10 per cent of their transaction costs, because the produce will not go through the APMC.

The Model Act in its *Statement of Objectives and Reasons* section, mentions the following:

Contract farming, which in essence is a pre-production season agreement between farmers (either individually or collectively) and sponsor(s), transfers the risk of post-harvest market unpredictability from the former to the latter.

This statement highlights the advantages of a 'fixed price contract,' a mechanism that affords farmers market security. However, it neglects to acknowledge the limitations inherent in this arrangement when confronted with an increase in open market prices. Chapter 4 of this thesis details a noteworthy disparity in returns between contract farmers and their non-contract counterparts, with the former experiencing considerably lower returns. Contract farmers experienced economic loss at the time of production loss and an upwardly fluctuating open market price situation. So, CF indeed transfers the risks of production and price volatility to smallholder farmers. Further, the Act has also mentioned that:

While market risk cover constitutes the fulcrum of contract farming, it also enjoys the latitude of greater partnership between the two parties.

A partnership is something where every stakeholder has an equal voice over negotiation or agreement. However, in the fairness section (**Chapter 5**), it has been observed that farmers' voices are neglected over contract terms and conditions, pricing, and rejection. Many studies have found that contracting companies limited farmers' voice over price and other contract terms and conditions (e.g., Kaur et al., 2022; Mitra & Rao, 2021; Narayanan, 2014; Roy et al., 2021; Singh, 2002, 2003, 2012; Shrimali, 2016; Vicol, 2015, 2017, 2019). I argue that CF has never been in partnership with farmers as this consists of unequal power, where smallholders are powerless to raise issues against corporations. CF is a hierarchical farming practice where the corporation controls farmers' land, family labour and production, either through intermediaries, or directly to meet the quality of raw materials for their enterprise. Reviewing some recent studies (e.g., Durga & Pitchai, 2023; Lalitha et al., 2022; Mourya & Mehta, 2021; Nikam et al., 2019; Vijayakumar, 2021), I argue that cooperative societies or farmer

producer organisations (FPOs) are more farmer-friendly partnerships where farmers collectively can make decisions.

In several case studies/literature, success stories have been documented demonstrating the benefits realised by the farmer-members from the FPOs in the form of reduced input cost and market linkage as aggregation allows better bargaining power for the FPOs. Advisory services and value addition services offered by the FPOs have also benefitted the farmers in timely decision making. However, there exists many challenges for the long-term growth and viability of FPOs or when the scale of operation increases (Kumar et al., 2022, p.i).

According to the legislation, the CF sponsor must register and provide written documentation of the agreement outlining the terms and conditions of the contract. This is a positive development, as it can protect farmers from any potential manipulation regarding the quality and quantity of their produce, as supported by the present research findings.

The document states that the board has the power to determine how crops are classified, which may take into account factors such as price variability. If crop prices do not match the designated categories, the parties can negotiate and agree on a price. This can help farmers avail better prices at the time of price increases. The present study suggests that farmers have limited bargaining power to secure favourable prices or reduce input costs. The sponsor has the right to set and announce prices before the planting season, giving them a significant advantage in the negotiation process. Therefore, if the board can negotiate mutually for a price, that may help farmers.

In support of agriculture and rearing of livestock, farmers may receive support from sowing to post-harvest and may receive inputs and extension services, wherein the Contract Farming Facilitation Group (CFFG)²⁶ belonging to the contracting parties may help in the selection of inputs, feeds, and good agricultural practices. This could assist smallholder and poor farmers who lack access to input market support due to their financial constraints. However, there is no mention of whether farmers would have

²⁶ The Model Contract Farming Act 2018 (p, 25) proposed the CFFG for promoting contract farming and services at village /panchayat level to take quick and need based decision relating to production and post-production activities of contracted agricultural produce, livestock and/or its product.

the freedom to choose their inputs. The West Bengal case study shows that farmers are required to compulsorily purchase specific inputs. Furthermore, I have highlighted the argument made by Shrimali (2021) that CF makes farmers both producers and consumers. It promotes other input companies such as fertiliser, new technology, extension services providers, and farmers who are compelled to procure specific inputs mandated by contracting companies.

The minimum period of the Agreement shall be for one production cycle of contracted produce and further continuance subject to renewal thereafter, as mutually decided by the Producer and Sponsor.

It should be noted that farmers have the option to leave the contract whenever they want. However, during the fieldwork conducted in the present study, farmers shared that they rely on intermediaries to access credit for inputs required for crops under contract, as well as other crops throughout the years. This reliance on intermediaries and the social ties developed with them would oblige farmers to continue with the contract to avail themselves of consistent input support. Moreover, due to the influence of intermediaries on smallholder farmers, it may not be as easy to leave the contract as experienced in this study.

The specification about the *sale-purchase of produce* asserts that the sponsor is obligated to procure the entire predetermined quantity of produce from the farmers, a commendable stance. Nevertheless, the findings of the present study reveal that PepsiCo frequently directs intermediaries to curtail the quantity of produce, even when the crops meet the stipulated quality criteria. Farmers encounter this as a challenge, particularly when the prevailing open market price is low and the restriction on contract produce is substantial.

Additionally, the provision states that the sponsor is committed to purchasing the remaining produce below the specified quality at a mutually agreeable lower rate. While this may prove advantageous for farmers, who stand to earn from rejected or substandard produce, the delegation of pricing determination to the two parties raises concerns. As observed in my investigation, farmers often lack

negotiating power to determine prices. It would have been more beneficial if the provision offered guidelines for price calculation or rate determination for lower-quality produce.

Given the increasing frequency of natural calamities and the impact of climate change in recent times, the proactive measure of incorporating insurance support and integrating insurance schemes for contracted produce is highly recommended. Singh (2023) highlights the necessity of the insurance provision within the Act, emphasising its potential to mitigate production risks and uncertainties, particularly in the cultivation of high-value crops, which are inherently more susceptible to various risks. The sentiments echoed by contract farmers during my fieldwork further highlight their desire, for reinstating insurance as a supportive measure, akin to past practices. The provision of dispute settlement authority and the mechanism are also a welcome stand. Since my study also observes contract farmers cannot raise any issues against the controls from PepsiCo or intermediaries, a neutral third-party or a dispute settlement authority may strengthen the smallholder power to safeguard themselves from corporate controls.

6.4 Union Contract Farming Act, 2020

It has been over a year since the three farm acts were introduced as ordinances in June 2020 and later enacted as laws in September 2020. These laws created controversy and led to prolonged farmer protests, but they were eventually repealed in November 2020. This section focuses on the repealed Union Contract Farming Act of 2020. The aim of this is to identify the major issues with the Act and explain its positive aspects for smallholder farmers. By critically analysing the Act, this section highlights the potential benefits that farmers could have received if the legislation had been implemented, based on empirical evidence gathered through field experiences.

Similar to the Model Contract Farming Act 2018, the reason behind a separate act for CF that the government cited, is the conflict of interest of traders and commission agents, as they opposed the Act because their commission and business were adversely affected. After all, the contracted produce does not have to come to the APMC mandi or does not have to pass through mandi commission agents. Therefore, Union Contract Farming is designed to bypass the mandi system. Narayanan (2020),

therefore, mentioned this Act as a *mandi bypass Act* (also cited in Singh, 2022). Therefore, in this section, I critically study the Union Contract Farming Act 2020, following the issues observed from the present study and issues raised by others.

The Act has a *farming agreement* that must specify the terms and conditions of contract production, including time of supply, quality, grade, standards, price and other matters. This also includes the terms related to the supply of farm services. The specifications of contract terms and conditions in the agreement with farmers, can protect the farmers from manipulation and control, whether from sponsor companies or intermediaries. As it is evident from the present study that farmers often face the issue of rejecting produce based on quality parameters. Moreover, I have observed the issues of input price controls from intermediaries, which are even unknown to farmers due to the absence of the contract agreement. Singh (2022) argues that the use of the term “farming agreement” is unusual as it is being confused with other agreements, such as sharecropping or leasing agreements in the agrarian economy.

The act indicates that *the quality, grade and standards for pesticide residue, food safety standards, good farming practices and labour and social development standards may also be adopted in the farming agreement*, which sounds good. However, this can lead to forceful procurement of inputs and pesticides for farmers, as it has been observed that contract farmers are compelled to procure the inputs, even if it is not necessary for the specific seasons. It should be mentioned that the freedom shall be given to farmers to choose the inputs and farm services from the sponsor companies. Although it mentioned the time of supply, it did not clarify the location of the supply and quantity specification. In the present study, in most cases, farmers are forced to transport the produce from their field to a nearby road on their own expense, whereas in some other cases, the intermediaries collect the produce. Further, there is less demand for produce from PepsiCo, so they produce less than the expected produce. Therefore, the mention of supply location and specification of quantity could have protected the smallholder from the intermediaries and corporate firms.

The pricing specification mentions a guaranteed price to be paid for the produce, which may be determined and mentioned in the contract agreement. However, in the case of price variation, a guaranteed price and an additional amount over and above the guaranteed price may be given to farmers.

This is a welcome stance because the prices of high-value crops in an open market fluctuate significantly. Often, contract farmers face economic loss due to the fixed price, highlighted in the costs and production section (**Chapter 4**). The premium or bonus to ensure the best value for the farmer may provide protection; however, the calculation of such a bonus or premium price has not been detailed. There is no mention of the percentage of bonus over the contract price, which makes it confusing, as it will entirely depend on sponsors and their willingness to support farmers. Further, Singh (2022), argues that linking the bonus or premium price with the APMC mandi price or electronic market price is against the approach of CF. This would undermine the rationale for introducing a separate Act. Starting by asserting that the APMCs failed to secure better prices, but then reverting to the same mandi, not only questions the real intent of the Act but also highlights its flaws.

Regarding the sale or purchase of produce, particularly for seed production, the sponsor makes payment of at least two-thirds of the agreed amount at the time of delivery and the remaining amount after certification; however, they must make the payment on or before 30 days of delivery. This is very illogical since the acceptance of the seed depends on quality verification. How can the sponsor make the payment before the inspection of the quality of the entire produce? This shows that there was a lack of understanding of the actual problems faced by farmers on the ground while creating the Act. However, making payments on time is a good indicator for farmers. Further, linking the farming agreement with insurance is a good part of the Act, as the high-value crops are more prone to risks.

The mention of *other parties to the farming agreement* is also a good specification of the Act. Due to the scale of production being too small, contracting companies, mostly in India, do control the practice through intermediaries, and many studies highlight that other parties are also involved; however, their roles in most cases are unknown. Similarly, from this study, we have observed that intermediaries are the key players in potato CF under PepsiCo. Unfair practices by intermediaries have been reported, so explicitly outlining the role of intermediaries in the contract could protect the smallholders from unnecessary control. Furthermore, during my fieldwork, the intermediaries mentioned that even they are not in a position to negotiate for their commission from PepsiCo, despite their invested capital. Thus, intermediaries' shoulder capital and supervision risks in the CF. PepsiCo has a seasonal

agreement with them, and they are afraid of losing it, as PepsiCo has terminated agreements with intermediaries after just one season. Therefore, I believe that having a contract agreement with third parties may help control their unfair practices and provide some sustainability to the partnership. Although this may be questionable, the agreement has already specified that the seasonal crops are limited to one season.

The phrase *Alteration or termination of farming agreement* may seem flexible for both parties involved, but it raises concerns about the control exerted by the more dominant party in the contract. We have observed that even though PepsiCo has made oral commitments, they still have control over the post-production quantity. Farmers, especially those who lack power when dealing with large corporations, may find it challenging to negotiate regarding altering or terminating the contract. Furthermore, the conditions or reasons for altering the contract have not been mentioned. In such cases, powerful corporations will use this strategy to their advantage. It appears that the Act was designed to benefit corporates rather than farmers, as it does not consider the unorganised farmers who may suffer due to the alterations.

A conciliation board for dispute settlement consisting of representatives of parties can provide a fair mechanism to settle disputes. Sometimes contracting firms blacklist farmers who fail to meet the production criteria or to supply produce as per the contract specifications, which is unfair. In such cases, a dispute settlement board can support farmers from the firms.

There have been reports of a recent incident in Gujarat, where PepsiCo sued at least nine farmers for growing a potato variety used in their Lay's chips, asking them to pay ₹1.05 crore each as damages for allegedly infringing its rights. The news was widely reported by electronic media (e.g., The Hindu, 2019a; The Hindu, 2019b; Indian Today, 2019; Times of India, 2019).

After protests from farmers and many farmers' unions, PepsiCo agreed to settle out of court. Eventually, the government of India revoked the variety under the *Protection of Plant Varieties and Farmers Right* authority. Therefore, the *Conciliation Board for Dispute Settlement* is a welcome step to protect farmers from corporate firms and their exploitative acts. There is currently no dedicated agency in India to

oversee and facilitate the operation of CF. (Nair et al., 2022) argue that establishing such an agency could be beneficial for reducing uncertainty and ensuring better contract compliance and communication between parties involved in the CF. Further, under the section *Miscellaneous*, the Act has mentioned giving power to the state government to make rules. This might help to reduce regional issues, as the state can play a role in making provisions for issues at the regional level.

6.5 Policy Gaps in Contract Farming Practice and Future Debates

In West Bengal, the state government has not yet amended the APMC Act to legalise CF practices. Despite this, CF has been expanding in the state without any legal framework or policy regulations and has been in practice for a long time (Behera et al., 2018; Paul et al., 2019). Once states allow corporations to conduct CF, they cannot just leave smallholder farmers with firms and intermediaries. Therefore, I have highlighted issues reported by farmers and intermediaries during my fieldwork. Future policies must consider protecting farmers from corporate and intermediary exploitation. As it is already in practice, proper provisions and regulations should be in place to ensure benefits to farmers.

6.5.1 Documentation and Specifications of the Contract Provisions

The present study shows that CF operates within a power hierarchy, where small and marginal farmers from socially deprived castes prefer to cultivate for a fixed price, and receive credit inputs from intermediaries and PepsiCo. The shrinking role of the state in agrarian and rural livelihood opportunities enables firms to expand their control over land, labour and production by providing minimal support in the cultivation of high-value crops. The absence of any documentation of such oral contract arrangements makes it possible for the intermediary and PepsiCo not to keep the oral promise after production. As I mentioned earlier, documentation may not help farmers enhance their bargaining power; however, this may help them take legal action against violations. Moreover, farmers often do not know the actual price of inputs and potatoes or about incentives. There was widespread information asymmetry across villages, even across farmers within the villages, because of the absence of a written contract or specification of contract provisions.

Legal documentation with legal backing (for example, ₹10 *Judicial Stamp Paper*) of a contract copy may not cost much for PepsiCo, but it can protect small farmers from the types of controls and manipulation they face unknowingly from the intermediaries. PepsiCo provides a schedule of pesticide use to farmers, which helps them to use specific pesticides as per instructions. This simple specification of contract provisions may help farmers. This will undoubtedly depend on the willingness of the state and PepsiCo. This is not an unrealistic idea, we have seen written and formal contract practices in states such as Karnataka, and Maharashtra (Prasad et al., 2012; Tripathi et al., 2018). I recommend that while there may not be a legal policy in place to promote contract farming, it is important to take responsibility for preventing exploitation by firms and intermediaries. This safeguards the interests of small and marginal farmers.

At the beginning of contract farming during 2002-04 if I can recall correctly, we used to do a contract (legal backing with ₹10 Judicial Stamp Paper) with farmers. Later, after a few years, the Left party became powerless and was on the way to losing the state. By that time, we had stopped making written agreements with farmers, — Vendor, KII, Joypur block, Bankura district.

The vendor I spoke with has been in the business for a long time. He joined CF as a farmer between 2000 and 2002 and then became a vendor. He explained that there could be two reasons why the agreement with the farmers stopped. First, when farmers continue to cultivate for a few years, it builds trust with their respective vendors or sub-vendors. Second, the political party that was in power used to support farmers' groups, possibly due to PepsiCo and intermediaries arranging agreements. However, this support stopped when the party lost its political roots in rural Bengal. I could not explore the political aspect in more detail within the framework of my problem statement. Nevertheless, it is undeniable that the Left organisation has always raised farmers' concerns in the state and across the country, even in recent times, farmer movements and farmer protests (for example, see Baviskar & Levien, 2021; Jodhka, 2021; Roy, 2022). Therefore, my point is that the state and political organisations that are in power can help farmers.

6.5.2 Promotion of Group Contracts/Linking Farmers Through Cooperative Societies to Enhance Bargaining

The social dominance of the rural elite and upper caste makes it feasible to find alternative sources of livelihood opportunities in the CF business. Their social standards in the rural society and the reliance on socially deprived caste in access to the limited source of input and output markets forced them to rely on the CF. Furthermore, the small and marginal farmers could not negotiate with large corporations for better prices of produce or lower input costs. Therefore, it is not possible for farmers to individually negotiate with the dominant groups. Group contracts can be a possible solution to strengthen small and marginal farmers' bargaining power. In developing countries, cooperative and other agricultural producer organisations and marketing cooperatives can reduce the transaction costs for firms in linking smallholders (Kirsten & Sartorius, 2002). In Latin America, cooperatives, such as marketing cooperatives reduce transaction costs for firms and negotiate equitable contracts for smallholders (Key & Runsten, 1999). Some scholars have also pointed out that smallholders in Thailand, which is a pioneer in CF, participate through group contracts that enable them to enhance their access to markets and capability through collective actions (Bunyasiri et al., 2021; Limnirankul, 2007; Ornberg, 2003). Singh (2005b) highlights that the Seventh Plan of the Thai government emphasises group contracting over individual farmer contracts.

The group contract has also been in practice in India under different firms (Gulati et al., 2008; Trebbin & Hassler, 2012). The operational efficiency of small farmers can be enhanced through group contracts (Singh, 2018). Singh also argues that group contracts should be included in the legislation or encouraged through policy initiatives like the Thai government facilitates through credit and extension (Singh, 2021). Cooperatives can also play a crucial role in supporting small and marginal farmers. We have seen numerous success stories of cooperative systems that provide benefits to farmers. For instance, Amul is one of the most successful cooperatives in the Indian dairy industry.

Transparency, trust, and technology were the three pillars of the dairy co-operatives in India. The co-operatives were structured on democratic principles; farmers had their rightful share in the value created and consumers received value for money in terms of safe pasteurised milk.

The co-operatives also played an instrumental role in rendering the dairy value chain inclusive by linking the smallest milk farmer to the market. Milk farmers in cooperatives receive (75–80) per cent of the consumer price, which is the highest among other high value chains (Gulati et al., 2022, p,14-15).

Even the recently repealed Union Contract Farming Act 2020 has a provision to link smallholder farmers through FPOs. The government has promoted FPOs with policy support (Singh, 2021). Therefore, these can be a possible solution to enhance smallholder bargaining power to some extent. In the present study, it has been observed that although PepsiCo initially engaged with cooperative societies to earn trust, they later shifted to private actors to run the business smoothly and transfer capital, supervision, and production risks. Therefore, I argue that contract participation through cooperative societies can be an alternative to collective bargaining for better prices and protect farmers from corporate exploitation.

6.5.3 The State Should Play a Role in Regulating the Contract Not Facilitate Firms

When private actors are involved in CF, opportunistic behaviour may occur. In such cases, state intervention can help prevent it (Watanabe & Zylbersztajn, 2014). The now repealed Union Contract Farming Act 2020 was criticised for promoting and facilitating CF without adequate regulating mechanisms (Singh, 2021).

Several studies highlight the importance of the state's role in making CF more efficient and transparent for smallholder farmers and socially weaker sections who interact with private agents and agribusiness firms. As pointed out by Watanabe and Zylbersztajn (2014), CF in Brazil operates without a specific legal framework; hence, the state can play a crucial role in creating rules that promote transparency and ensure safety for the socially weaker section of farmers. In Thailand, the government supports CF and farmer participation through credit and extension initiatives, as cited by Singh (2021). In Zimbabwe, CF is primarily driven by domestic and international firms that focus on export commodities such as cotton, tobacco, and other horticulture. The state-led CF, through a novel policy initiative, promoted the cultivation of maize to serve the domestic market. This enables much-needed input supply and ready

markets for smallholder farmers and promotes the cultivation of traditional maize crops (Mazwi et al., 2019).

A recent study compared the impact of state-led and private-led conservation farming in Zimbabwe. The study found that state-led conservation farming led to increased maize cultivation among medium-scale farmers, whereas private-led conservation farming resulted in a boom in tobacco production amongst smallholders (Shonhe & Scoones, 2022). However, the state-led CF in Indian Punjab could not provide significant benefits to the farmers (Singh, 2005; Kumar, 2007). However, rather than the promotion of active state participation in the CF, I would argue that the state should regulate it and provide guidelines for transparent practices.

In the present study, I observed many instances of unfair acts either from the intermediaries or from PepsiCo. Some of the unfair practices include restricting production quantity during low demand periods despite meeting quality criteria set by the buyer, imposing the sale of inputs (such as pesticide kits), transferring transport costs to farmers, and denying farmers a say in input prices or compensation in response to market price fluctuations. Individual smallholder farmers from socially deprived castes cannot raise their voice against powerful intermediaries or PepsiCo. Further, farmers seek inputs such as fertiliser and credit support, which only the state can play a role in providing through cooperative societies and linking contract crops under insurance.

Fixed price has a limitation that I have highlighted in this study, in which contract farmers received less return than non-contract farmers despite making extra effort to maintain quality specifications. This happened due to the production losses due to winter rain and the higher price of traditional potatoes. Since natural calamities are going to be frequent in years to come, contract farmers also reported that once in 3 to 4 years' duration, they face economic loss, and a proper compensation mechanism should be there to protect smallholders. This could be only possible by the government taking initiatives in policy. Furthermore, during manual grading, intermediaries often reject more produce following the instructions of PepsiCo. Local institutions such as cooperatives, FPOs, or farmer groups can be trained by the state extension support department or block or district-level agriculture extension service providers to be aware of such unfairness and report such unfair acts.

6.5.4 Inputs and Pricing Mechanisms

Smallholders prefer to cultivate under CF to access inputs, extension, and fixed price support against market failure. The price is decided by the contracting firm and announced before the sowing in which farmers have no voice to get a better price or in the case of inputs to bargain for the low price. Farmers during the fieldwork claimed they were receiving almost the same price for the last two seasons (2021-22), whereas the price of inputs has surged. Since fertiliser contributes a considerable share in input during the high of cultivation, farmers often purchase over the MRP as there is a lack of state control on local traders. The state can provide necessary fertiliser through cooperative societies to farmers to prevent exploitation by local traders. Moreover, the capital risk is borne by the intermediaries, PepsiCo has not shared the input risks. The firms can provide fertiliser to farmers as per their needs, and later, after the supply of produce, adjust for the costs. The imposed selling of inputs has caused unrest among many farmers, as I have observed during my fieldwork. The state can intervene against such mandatory selling of inputs and, instead should provide the inputs that farmers need more.

It is important to have fixed prices in place to ensure that farmers receive a minimum return on their produce. However, in situations where open market prices are higher, compensation mechanisms should be put in place to ensure the sustainability of the contract farming system. It is important for firms, such as PepsiCo, to address issues such as the fact that incentives provided by the company often go to intermediaries rather than the farmers who have put in the hard work to produce the crops. By addressing these issues, firms can better benefit contract farmers. Although it has been argued that fixed prices provide market stability for higher-value crops that face more price volatility in the open market, the present study highlights the limitations of fixed-price contracts. Therefore, price risk share mechanisms through compensation and incentives are needed to benefit farmers.

6.5.5 Social and Environmental Issues Must Be Considered

One of the most important outcomes of this study is the examination of the social relations of production in CF. In the context of India, particularly in West Bengal, which is known as a state dominated by small-scale farmers, social relations of production have significantly influenced the structure of the

model and power dynamics in CF. The unequal distribution of means of production, access to credit, control over the farming community through farming-related business, and social networking have significant impacts in favour of intermediaries and the scale of business and livelihood opportunities for the rural elite and upper castes. However, small-scale farmers from socially deprived castes have limited access to such sources and are forced to cultivate under CF. In the long run, CF, in this way, will create more unequal resource grabbing by those intermediaries through capital accumulation, which may lead to power control in the rural economy. Thus, future policy focus must consider the social differentiation cause and consequence of CF.

Although the present study did not delve into the environmental aspects in detail, it did reveal that fertiliser use under CF is relatively higher than that under NCF. Farmers engaged in CF do not appear to employ any environmentally sustainable practice. Moreover, CF promotes the use of higher quantities of fertilisers to achieve better production. Such a practice could eventually lead to the degradation of soil productivity and environmental sustainability. Therefore, it is important to promote environmental sustainability by using environmentally friendly bio-fertilisers and reducing the use of chemicals and pesticides.

6.6 Conclusion

The primary aim of this study was to scrutinise the CF practice model to delineate the key actors and comprehend the terms and conditions inherent in such arrangements. The investigation extended to an examination of the CF value chain to determine its efficacy in establishing a linkage between smallholder farmers and the market while concurrently addressing the challenges faced by these farmers. Subsequently, an analysis was conducted to evaluate the distribution of CF profits from the perspective of smallholders, drawing comparisons with NCF arrangements. Analysis of contract arrangements reveals that intermediaries and PepsiCo unfairly regulate farmers' land, labour, and production in the production process in various ways. Upon scrutinising these facets, certain issues, such as absence of policy and lack of state intervention, were identified within the CF practice, as revealed in the introductory section of this chapter. It became evident that the absence of a legal

framework or explicit specifications within the contractual arrangements contributed significantly to these challenges, thereby understanding the linkage to policy implications. Consequently, this chapter is oriented towards a critical examination of the prevailing policies associated with CF in India, with specific reference to the state of West Bengal.

The state should support smallholders in agriculture by providing resources, infrastructure, and policies that protect their interests. Unfortunately, the state's control over agriculture is declining, and corporations are being encouraged to invest in this sector. However, regulations must be in place to prevent the exploitation of smallholders and socially deprived communities by these corporations. In this chapter, I argue that we cannot allow corporations to make their own rules and control vulnerable farmers. Instead, guidelines must be established to ensure that the interests of the farming community are protected. The first two sections critically review the Model and Union Contract Farming Act. I have identified the limitations and possible advantages.

In the final section, the discussion presents some important facts based on evidence from the potato farming case in West Bengal. These facts should be considered when designing the framework for future policies. Small farmers are being exploited every year by intermediaries and corporates in the CF system. The state cannot ignore this issue and must take the necessary steps to regulate corporates. From the field evidence, I argue that future policy debates should focus on addressing the legal gaps, social relations, power dynamics, and other important issues considering the regional context and diversity.

Chapter 7. Summary and Conclusion

This thesis examines three critical dimensions of contract farming (CF) arrangements and their implications for small farmers. First, it investigates the CF model, identifying the key actors involved and analyzing how social relations of production influence the positionality of farmers within these arrangements. Second, it assesses the impacts of CF on small farmers, highlighting how fixed pricing mechanisms in upward price scenarios fail to deliver equitable returns to contract farmers. Third, and most significantly, it develops a theoretical framework to evaluate the fairness embedded within CF arrangements, providing a novel lens for assessing equity and power dynamics in such systems. The concluding chapter of the thesis presents a summary of the major findings and explains their contribution to existing knowledge. **Section 7.1** provides a summary of the thesis in the same order as the previous chapters. **Section 7.2** concludes with the major findings. **Section 7.3** highlights the significant contributions of the study to theories and future policy debates. **Section 7.4** discusses the limitations of the study and scope of future research.

7.1 Summary Discussion

Chapter 3 examines the CF model and identifies the actors. In this chapter, I address the first research objective: *What potato contract farming model is followed in West Bengal under PepsiCo?* This research objective explores the CF model in practice in the smallholder-dominant state of West Bengal under the leading agribusiness firm PepsiCo. The research question aimed to understand the structure and function of the CF model. This chapter explains how PepsiCo initially introduced the new crops (processing variety potato, e.g., ATL, FC₃) through the help of state-led institutions such as cooperative societies to build trust among farmers over the new crops and market. Later, they shifted to private actors, namely vendors, to control the CF practice among many smallholders.

From the political economy lens, I attempt to understand the interaction among international capital (i.e. PepsiCo), domestic or rural capital (i.e. intermediary) and smallholders. I particularly asked the question of who those vendors are, how they become part of CF, and how the different actors in the

new farming practice interact with others. The model explains an unequal power relation where the smallholder bears the socioeconomic costs and is controlled by the socially dominant group following instructions of international capital, PepsiCo.

The transformation of the CF model explains the corporate strategy of controlling smallholders to extract quality raw materials for its enterprise through intermediaries who have control over the farming community. The emergence of private actors explains that the social relations of production have significantly influenced the structure of the model and business scale for vendors. The unequal distribution of forces of production and control over the farming community favours the upper caste rural elite in promoting their economic and social interests. The socially deprived castes are forced to cultivate under CF to gain minimal livelihood from fixed price and inputs supports.

The following chapter (**Chapter 4**) examines the costs of cultivation and farm returns under contract and non-contract potato farming for the season 2021-22. In this chapter, I explore the third research objective: *To examine the economics of contract versus non-contract potato farming*. I challenge and provide context for the often-praised idea of *win-win* situations proposed by CF proponents. Therefore, I ask the following research question: *Is contract farming more profitable than non-contract farming?* This aims to contextualise the smallholder setting, considering their dominance in the share of the farming community and examining the limitations of fixed-price contracts.

The first part of the chapter provides descriptive statistics on the wealth details of contract and non-contract households. The comparison shows that relatively small and marginal farmers, more from socially deprived castes, often take land under fixed tenancy to cultivate contract potatoes. Meanwhile, relatively better-off farmers within the small and marginal farmer category, who have relatively better socio-economic status, prefer to cultivate traditional varieties outside CF. The final part of the chapter compares the costs and different types of farm returns for the potato season 2021-22. The findings show that contract farmers faced economic loss as they received comparatively less return than non-contract farmers. This is due to the fixed-price contract, which forced contract farmers to sell produce at a predetermined price, whereas non-contract farmers gained higher returns from the open market price.

Chapter 5 explores the CF value chain and the role of intermediaries in the farming process. Therefore, this chapter explores research objective two: *To examine the contract farming value chain and the role of intermediaries*. This chapter examines the smallholder position in the modern value chain. The first part of this chapter examines the structure of the CF value chain and the role of intermediaries in input and output markets. These findings suggest that CF has improved smallholder access to certain inputs on credit from vendors and extension services from PepsiCo. The CF value chain provides input support and information to smallholder potato farmers.

The final part of the chapter develops a conceptual framework based on theoretical concepts and FAO guidelines to make CF a fair practice. The indicators identified in the conceptual framework provide a theoretical lens to explain the oral contract arrangements. This shows the unequal power dynamics in the CF value chain, where farmers face many unfair acts from intermediaries and PepsiCo. The restrictions on procurement of produce, despite meeting quality parameters, and other unfair acts in the contract arrangements primarily emerged from PepsiCo because of changes in demand for raw materials. However, some incidents of unfair acts, such as price asymmetry, are due to intermediaries. This chapter suggests that CF is not a fair or transparent arrangement under PepsiCo.

Chapter 6 critically reviews the CF policy recently enacted by the Union government and state governments. In this chapter, I explore the final objective: *To examine the legal framework of contract farming in India and West Bengal*. Two research questions have been examined in this chapter: explore the legal framework of CF in India and West Bengal and finally highlight the future policy debates. This chapter contextualised recent farmer protests and legal backing into this study. Following the field experience, it critically argues that the future policy debates surrounding CF must be considered. Through a critical examination of the CF policy framework in India and West Bengal, this study argues that CF is in practice without any legal backing.

From the field evidence, this chapter suggests that due to the absence of legal backing and contract specification, CF enables the firm and intermediaries to exert control over smallholder land, labour and production. Some of the unfair acts from PepsiCo and intermediaries have emerged due to the absence of contract specifications, and farmers faced economic loss due to the absence of the compensation

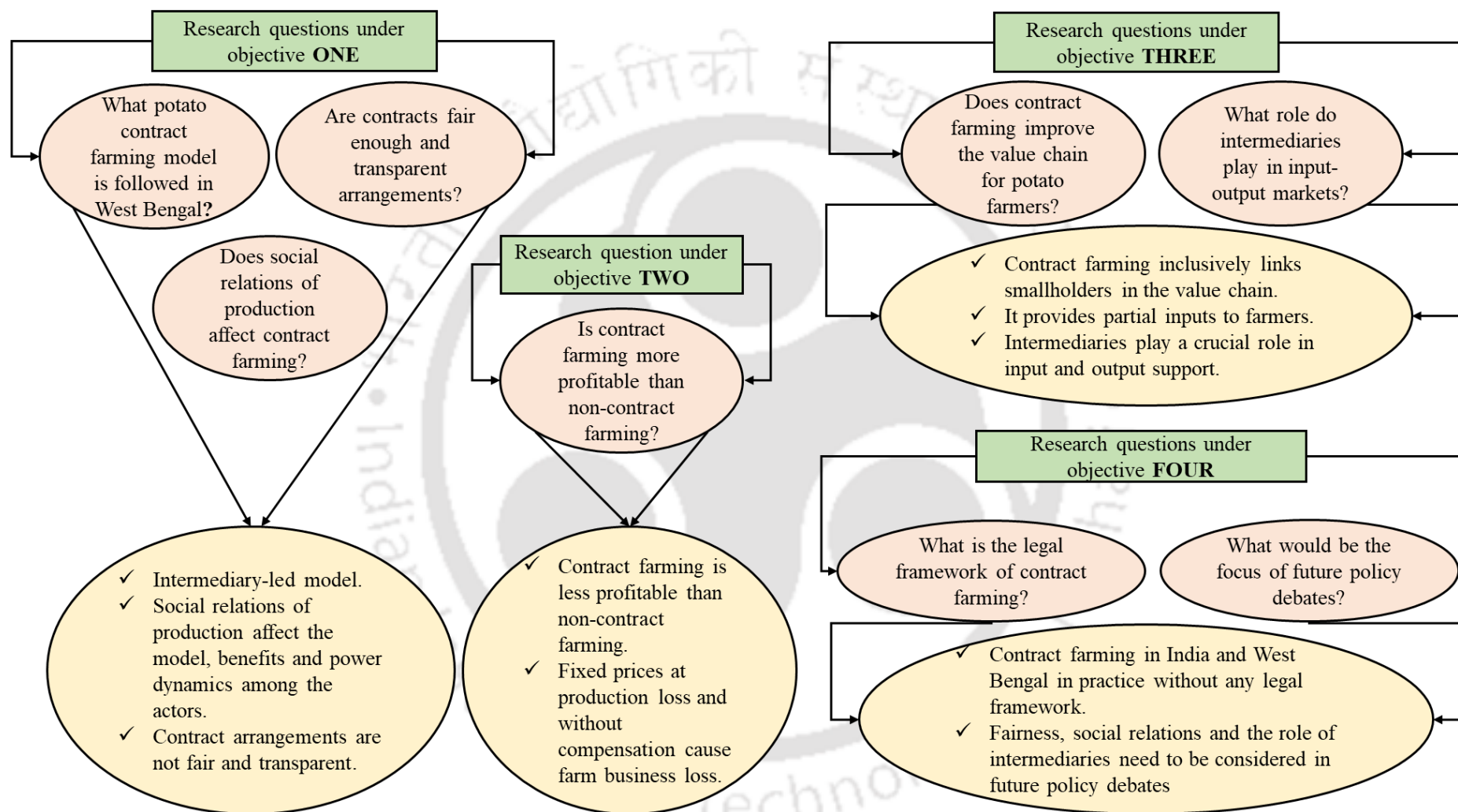
mechanism, which could only be provided to farmers through the policy mechanisms. Finally, based on field evidence, I argue that future policy should focus on the regional context to protect smallholder farmers from the dominance of corporate firms and intermediaries. Policies should not blindly endorse the activities of these entities or simply create an easy business environment for corporate firms, without take into account ground realities and complexities of the Indian agrarian economy.

7.2 Conclusion

In this section, I attempt to establish the link between the research questions and the major findings of the study to finally conclude the thesis (see **Figure 19**). The first analysis chapter that presents the CF model explains that PepsiCo shifted to an intermediary-led model to formalise the oral contract and access quality raw materials on time for their company. For PepsiCo, maintaining the quality and timely supply of potatoes to meet market demand for their output is essential. Without control over the farming community, it would not have been possible for PepsiCo to reach many smallholder potato farmers and control the quality of produce. They initially received state support to introduce CF among the farming community; later, they hired commission agents to transfer the capital and supervision risks to private players. On the other hand, PepsiCo shifted production risks to smallholders with the help of intermediaries. CF has emerged as an alternative, in an adversely inclusive way, to supply timely quality raw materials for PepsiCo by providing market support to smallholder potato farmers.

The historical deprivation of socially deprived castes of access to means of production, credit, and other input and output markets forced them to rely on CF to secure a minimum income from fixed prices. The social dominance of the upper caste on means of production, access to credit, and control over the farming community enabled them to accumulate capital through CF and gain control over the rural economy. In the long run, CF in the present form, will continue to expand rural inequality and concentrate power in the hands of certain upper caste rural elites. This chapter concludes that within the complex web of social relations of production, CF enables international and domestic capital or rural capita to operate in an exploitative manner, where smallholder farmers bear the socioeconomic costs.

Figure 19 Links Between the Research Questions and Outcomes of the Study



Source: Author's own compilation.

At the forefront of this new agrarian transition, smallholder farmers have become the routes for channelling their land and labour into the circuits of capital accumulation by agribusiness firms, with the assistance of the intermediary class.

The second analysis chapter compares the wealth and farm returns under CF and NCF potato households. The first part of the descriptive analysis on the wealth and assets of farming households shows that NCF households typically possess more relative wealth and assets than CF households. Moreover, the study shows that the caste composition of households has a positive association with CF, indicating that marginalised groups prefer it. CF households tend to operate on a relatively small scale, have better land under fixed tenancy, and take out more loans on average. This suggests that relatively poor households from marginalised groups join CF to secure a minimum income from fixed prices. In contrast, farming households with substantial wealth, take market risks and grow traditional potato varieties to earn a better income, relying on the spot price.

However, the farm returns contradict this argument as CF faced economic loss and had relatively less income. The open market's higher price becomes a boon for smallholder non-contract potato farmers, whereas contract farmers face economic loss. Despite production loss, the open market price for NCF has benefited farmers, whereas the fixed price limited the benefits. This chapter concludes that fixed prices can provide market support to farmers during market failure; however, they have limitations to upward price fluctuations. Thus fixed price is not a viable option for contract farmers in all situations. I argue that CF cannot share the production and price risks; moreover, it transfers the production risk to smallholders. This section emphasises the drawbacks of relying solely on a fixed price and market support approach for CF. Such oversimplified approaches often present a *win-win* scenario that does not consider the limitations of the system. To ensure the sustainability of farmers during production losses and open market price increases, compensation should be provided in fixed-price contracts.

As argued in the previous two chapters, socially deprived castes prefer to cultivate under CF to benefit from a secure market and fixed prices. However, the second analysis chapter shows that CF failed to yield higher returns than NCF. Therefore, based on analysis in the third chapter, I conclude that if farm returns are lower, *why do smallholder and socially deprived castes cultivate under CF?* Following the

major findings of analysis in chapter five, I would say that CF has linked small and marginal potato farmers to markets, to access certain inputs on credit and free extension services. This enables small and marginal farmers to cultivate specific higher-value crops which use as industrial raw materials. CF has provided a secure source of income for intermediaries, even though farmers faced economic losses. The use of CF has been largely beneficial to PepsiCo, as it allows them to acquire high-quality raw materials, and for intermediaries to earn commissions, on their invested capital. However, socially disadvantaged castes and smallholder farmers, who are forced to rely on CF due to limited access to means of production and input markets face unequal distribution of benefits.

This system leads to corporate firms and intermediaries accumulating capital without transferring land ownership, raising concerns about social equity and economic fairness within the agricultural sector. The unfair arrangements raise concerns about achieving equitable outcomes, necessitating the implementation of fair mechanisation and a more balanced risk-sharing framework within the CF value chain. This would be very challenging for the smallholder socially deprived caste, especially for individual small and marginal farmers, given the asymmetrical partnerships with large corporations and intermediaries. This chapter concludes that although the CF has partly provided input support to smallholder potato farmers, it could not provide fair arrangements to farmers.

Under CF policy chapter, I critically review the Acts and argue that policy attention should be on protecting the interests of smallholders and farming communities rather than facilitating the business environment for corporations. The chapter concludes that regional priorities must be considered in future policy debates to make CF genuinely beneficial to farmers. This chapter also argues that when there are states that allow corporations into the agriculture sector, we cannot simply allow them to run the business as per their comforts and exploit the farming and weaker sections of society. Therefore, certain rules and regulations should be implemented to protect the interests of the farming community from corporate and intermediary exploitation. This chapter argues that policy frameworks should consider regional differences instead of centralised policies, aiming to facilitate private sector participation rather than merely regulating them.

7.3 Contribution of the Thesis

In this section, I have highlighted the theoretical contributions and policy implications of my thesis.

7.3.1 Theoretical Contribution of this Thesis

The theoretical contributions of my thesis consist of two parts. First, the findings of this thesis contribute to the theory of CF by contextualising the social relations of production in the process of model formation and the emergence of private actors. This thesis explores how the existing social discrimination and dominance persist in access to means of production, credit, input and output markets, and control of the farming community, which have significantly influenced CF. It has introduced a new form of agrarian relations, in which the upper caste rural elite become commission agents, and find alternative livelihood opportunities that help to expand the business scale in the rural economy and control the farmers' land, labour, and production following the instructions of the corporate firm. CF has strengthened the upper caste rural elite by diversifying their sources of income from farming to farming-related business, which enables them to maintain social dominance over farming communities, largely composed of socially deprived and poorer sections.

Previous studies in India have mainly focussed on microeconomic aspects, such as income, production, and employment opportunities at the farm level compared with NCF. However, these studies are less critical and often descriptive. As I have mentioned before, only a few scholars have critically examined CF. Such as, Vicol (2017), based on evidence on potato CF under PepsiCo from Maharashtra, argues that rather than being an inclusive alternative to land grabbing, this farming practice represents another form of capital control over land in rural India with important implications for agrarian livelihoods. Another study by Shrimali (2016), based on field evidence from Indian Punjab, argues that CF is a way of capital accumulation that can indeed occur without dispossession. CF, as the structure of multiple classes that possess centralisation of capital and are interlinked with agrarian and industrial capitals, are intertwined. My thesis extends this by arguing that CF is an *adversely inclusive* alternative form of rural land grabbing to power grabbing in which the social relations of production significantly influence the agrarian structure, livelihood opportunities, and power dynamics. In this way, the regional context and

social aspects must be considered to understand the complexity of CF and agrarian rural livelihood change in India.

The second theoretical contribution of my thesis is that it provides a conceptual framework to measure power dynamics, fairness of arrangements, and transparency in the context of CF. Previous studies have shown concerns about unequal power dynamics, corporate control over production and labour arrangements, and other aspects of CF. However, there is a lack of methodology for conceptualising the fairness and transparency of oral contract arrangements. This thesis not only explains the CF model and its transformation from the political economy lens but also develops a CCF to measure unfairness. The idea behind developing a CCF was to capture the complex phenomena of CF as much as possible. The conceptual framework and indicators can be used in other studies to measure and define the unfairness of CF practices.

7.3.2 Implications for the Policy

This thesis has several policy implications that future policy debates and policymakers can consider to benefit and protect smallholders from corporate exploitation. I have mentioned in the introduction chapter of the thesis the scene of the thesis that problematizes the recent farmer protests in India and the repealed Union Contract Farming Act 2020. I have discussed the policy and acts surrounding the CF in India in a separate chapter, this section specifies some of the major facts that future policy focus must consider.

The recent government encouragement and policy initiative surrounding the CF argue that this will link the small and marginal farmers to the market, and reduce the intermediaries to provide direct benefits to farmers. The CF value chain analysis of my thesis suggests that it has significantly contributed to linking small and marginal farmers with the input and output markets. However, it has expanded the dominance and control to a few hands of the upper caste and rural elite, namely vendors, commission agents, and intermediaries. Therefore, I argue that in states like West Bengal, where smallholders are dominant in the number, agribusiness firms will prefer to conduct CF only through the intermediaries to reduce transaction costs, transfer capital and supervision risks and access quality raw materials on

time. The policy design must consider the regional context, such as the scale of farming, and must encourage farmer-friendly models, such as cooperative society models or group contracts.

The unequal distribution of wealth and historical deprivation of socially deprived castes in access to means of production and other input and output markets forced smallholders and socially deprived castes to rely on private actors and firms to cultivate high-value crops and access global markets. Therefore, the social relations of production in such a context will emerge as a key factor in the formation of the CF model and new class emergence, which further expands the concentration of wealth and power control to the hands of the rural elite and upper castes. To strengthen the bargaining power and reduce the rural inequality of socially deprived castes, the social relations of production factors should be considered in the future policy framework.

The CF proponent groups and government often argue and highlight the positive side of the fixed price contracts against market failure. Particularly in the cultivation of high-value crops whose prices are more volatile and less controlled by the government over the market. Whereas it is more organised and the government plays more role (such as minimum price support) in the case of cereal crops and dairy productions. Thus, considering the growing incidents of natural calamities, fixed prices cannot provide better returns to farmers in terms of production loss and price upwards situations. Therefore, a proper compensation mechanism should be implemented to secure income and benefit small farmers in production loss.

Previous studies mention the participation of intermediaries in CF; however, their identity, role, and power relations were not discussed. This thesis explores how intermediaries in CF play a significant role by taking capital risks and supervising the value chain throughout the production process. However, they face uncertainty and are powerless in front of dominant industrial capital. Hence, the state should play a regulatory role in this regard rather than playing a facilitative role through policy.

The value chain analysis and fairness part of the thesis suggests that information asymmetry and lack of transparency emerge due to the absence of legal backing and specifications of contract provisions. I

have highlighted the situation in which the intermediaries and PepsiCo exercise unfair practices. These facts must be considered to make the contract fair and transparent.

7.4 Limitations and Scope of the Future Study

This thesis provides knowledge about the case study of potato CF from Bankura and Hooghly districts, West Bengal, India. Another case study may have produced different results. However, by applying the mixed-method research approach discussed in the methodology section, this thesis provides in-depth insights into CF and agrarian relations among smallholders, intermediaries, and agribusiness firms, along with empirical quantitative information on production and returns. I contextualised CF within current debates on power relations, corporations, and farmers' positions, indicating that social relations of production play an important role in forming agrarian class and power dynamics. The distribution of profits and opportunities through CF has largely been associated with the social dominance of the rural economy. Furthermore, the limitations of fixed prices and the uncertainty of benefits under contracts contradict the idea of so-called 'win-win' narratives by proponents and dominant research in the countryside.

The thesis could not provide detailed information of the benefits or profits gained by vendors and sub-vendors. Although I have examined the viability of the CF business for vendors, it indicates a secure source of income even under production loss conditions. In addition, while I found that the use of chemical fertilisers is prevalent, this thesis could not explore environmental sustainability in depth. Also, although we found that all vendors listed in the contract agreements are male, it could not explore how the title on contract ownership affects gender. These are certain limitations that I believe should be addressed in future research. Furthermore, future studies could focus on examining changes in the livelihoods of CF actors, as this study suggests that intermediaries are primarily able to find alternative livelihood opportunities, whereas smallholders from socially deprived castes find a minimum source of income. Future studies in this area can focus on interlocking of factor markets and how they reinforce power dynamics and social relations of production, in particular reference to the cultivator groups.

Bibliography

- Acharya, P. (1993). Panchayats and Left Politics in West Bengal. *Economic and Political Weekly*, 1080–1082.
- Ahluwalia, M. S. (1996). New economic policy and agriculture: some reflections. *Indian Journal of Agricultural Economics*, 51(3), 412–426.
- Arora, V. P. S. (2013). Agricultural policies in India: retrospect and prospect. *Agricultural Economics Research Review*, 26(2), 135–157.
- Arumugam, N., Fatimah, M. A., Chiew, E. F. C., & Zainalabidin, M. (2010). Supply chain analysis of fresh fruits and vegetables (FFV): Prospects of contract farming. *Agricultural Economics*, 56(9), 435–442. <https://doi.org/10.17221/30/2009-agricecon>
- Bailey, F. G., & Scott, J. C. (1987). Weapons of the weak: Everyday forms of peasant resistance. *Pacific Affairs*, 60(2), 365. <https://doi.org/10.2307/2758183>
- Bakshi, A. (2008). Social inequality in land ownership in India: A study with particular reference to West Bengal. *Social Scientist*, 95–116.
- Bardhan, P., & Mookherjee, D. (2010). Determinants of redistributive politics: An empirical analysis of land reforms in West Bengal, India. *American Economic Review*, 100(4), 1572–1600. <https://doi.org/10.1257/aer.100.4.1572>
- Barik, P., & Bedamatta, R. (2024). Crop diversification in India (1990–2016): Implications for the Eastern and Northeastern states. *Asia-Pacific Journal of Rural Development*. <https://doi.org/10.1177/10185291241286949>
- Barik, P. (2021). A Critical Analysis of India's Contract Farming Act 2020. *Agricultural Economics Research Review*, 34, 165–174.
- Basu, P., & Chakraborty, J. (2008). Land, labor, and rural development: Analyzing participation in India's village dairy cooperatives. *The Professional Geographer: The Journal of the Association of American Geographers*, 60(3), 299–313. <https://doi.org/10.1080/00330120801985729>
- Basu, P., & Scholten, B. A. (2012). Technological and social dimensions of the Green Revolution: connecting pasts and futures. *International Journal of Agricultural Sustainability*, 10(2), 109–116. <https://doi.org/10.1080/14735903.2012.674674>
- Baviskar, A., & Levien, M. (2021). Farmers' protests in India: introduction to the JPS Forum. *The Journal of Peasant Studies*, 48(7), 1341–1355. <https://doi.org/10.1080/03066150.2021.1998002>
- Beetz, J., & Schwab, V. (2018). Conditions and relations of (re)production in Marxism and Discourse Studies. *Critical Discourse Studies*, 15(4), 338–350. <https://doi.org/10.1080/17405904.2018.1456946>
- Begum, I. A., Alam, M. J., Rahman, S., & Van Huylenbroeck, G. (2013). An assessment of the contract farming system in improving market access for smallholder poultry farmers in Bangladesh. In *Contract farming for inclusive market access* (pp. 39–56). FAO.

- Behera, D. K., & Swain, B. B. (2021). Coperative-Led Contract Farming On Farm Productivity In India. *Appl. Econom. Int. Dev*, 21, 49–58.
- Behera, H. C., Kodirekkala, K. R., & Sinha, A. A. (2022). Small and marginal farmers’ participation in potato contract farming in West Bengal, India. *Journal of Asian and African Studies*, 57(3), 604–624. <https://doi.org/10.1177/00219096211025074>
- Behl, N. (2022). India’s farmers’ protest: an inclusive vision of Indian democracy. *American Political Science Review*, 116(3), 1141–1146.
- Bellemare, M. F., & Bloem, J. R. (2018). Does contract farming improve welfare? A review. *World Development*, 112, 259–271. <https://doi.org/10.1016/j.worlddev.2018.08.018>
- Bellemare, M. F., Lee, Y. N., & Novak, L. (2021). Contract farming as partial insurance. *World Development*, 140(105274), 105274. <https://doi.org/10.1016/j.worlddev.2020.105274>
- Bhanot, D., Kathuria, V., & Das, D. (2021). Can institutional innovations in agri-marketing channels alleviate distress selling? Evidence from India. *World Development*, 137(105202), 105202. <https://doi.org/10.1016/j.worlddev.2020.105202>
- Birthal, P. S., & Joshi, P. K. (2009). Efficiency and equity in contract farming: Evidence from a case study of dairying in India. *Quarterly Journal of International Agriculture*, 48(4).
- Birthal, P. S., Joshi, P. K., & Gulati, A. (2005). Vertical coordination in high-value commodities. In *International Food Policy Research Institute (IFPRI)*.
- Birthal, Pratap S., Joshi, P. K., Negi, D. S., & Agarwal, S. (2014). Changing sources of growth in Indian agriculture: Implications for regional priorities for accelerating agricultural growth. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.2405698>
- Bijman, J. (n.d.). *Contract farming in developing countries: an overview*. Wur.Nl. Retrieved August 2, 2024, from <https://library.wur.nl/WebQuery/wurpubs/fulltext/1763>
- Blois, K. (2002). Business to business exchanges: A rich descriptive apparatus derived from Macneil’s and Menger’s analyses. *The Journal of Management Studies*, 39(4), 523–551. <https://doi.org/10.1111/1467-6486.t01-1-00302>
- Borras, S. M., Jr. (2009). Agrarian change and peasant studies: changes, continuities and challenges – an introduction. *The Journal of Peasant Studies*, 36(1), 5–31. <https://doi.org/10.1080/03066150902820297>
- Briones, R. M. (2015). Small farmers in high-value chains: Binding or relaxing constraints to inclusive growth? *World Development*, 72, 43–52. <https://doi.org/10.1016/j.worlddev.2015.01.005>
- Burt, R. S. (1987). Social contagion and innovation: Cohesion versus structural equivalence. *American Journal of Sociology*, 92(6), 1287–1335. <https://doi.org/10.1086/228667>
- Burton, R. J. F., Kuczera, C., & Schwarz, G. (2008). Exploring farmers’ cultural resistance to voluntary agri-environmental schemes. *Sociologia Ruralis*, 48(1), 16–37. <https://doi.org/10.1111/j.1467-9523.2008.00452.x>
- Chakraborty, D. (2009). Contract farming in India: Unique solution to multilayer agricultural problems? *Review of Market Integration*, 1(1), 83–102.

- Chand, R. (2012). Development policies and agricultural markets. *Economic and Political Weekly*, 53–63.
- Charness, G., Corominas-Bosch, M., & Fréchette, G. R. (2007). Bargaining and network structure: An experiment. *Journal of Economic Theory*, 136(1), 28–65. <https://doi.org/10.1016/j.jet.2005.06.009>
- Chaturvedi, R. (2007). Contract farming and Frito-Lay's model of contract farming for potato. *Potato J*, 34(1–2), 147–150.
- Chaturvedi, S. (2013). *Innovation and Technology Development: Evidence from Indian Seed Industry*. Oxford University Press.
- Carter, J. (2008). *Agricultural Development and Human Rights in the Future of Africa. Agriculture, Human Security, and Peace: A Crossroad in African Development*.
- Chatterjee, P. (2021). Agricultural reform in India: farmers versus the state. *The Lancet. Planetary Health*, 5(4), e187–e189. [https://doi.org/10.1016/s2542-5196\(21\)00060-7](https://doi.org/10.1016/s2542-5196(21)00060-7)
- Chen, K. Z., Joshi, P. K., Cheng, E., & Birthal, P. S. (2015). Innovations in financing of agri-food value chains in China and India: Lessons and policies for inclusive financing. *China Agricultural Economic Review*.
- Chengappa, P. G. (2018). Development of agriculture value chains as a strategy for enhancing farmers' income. *Agricultural Economics Research Review*, 31(1), 1. <https://doi.org/10.5958/0974-0279.2018.00001.0>
- Cheon, M. J., Grover, V., & Teng, J. T. C. (1995). Theoretical perspectives on the outsourcing of information systems. *Journal of Information Technology*, 10(4), 209–219. <https://doi.org/10.1057/jit.1995.25>
- Clapp, R. A. (1994). *The moral economy of the contract. Living under contract: Contract farming and Agrarian transformation in sub-Saharan Africa*. 78–96.
- Coase, R. H. (1988). 1. the nature of the firm: origin. *Economics, and Organization*, 4(1), 3–17.
- Colquitt, J. A., & Chertkoff, J. M. (2002). Explaining injustice: The interactive effect of explanation and outcome on fairness perceptions and task motivation. *Journal of Management*, 28(5), 591–610. <https://doi.org/10.1177/014920630202800502>
- Cook, K. S., & Whitmeyer, J. M. (1992). Two approaches to social structure: Exchange theory and network analysis. *Annual Review of Sociology*, 18(1), 109–127. <https://doi.org/10.1146/annurev.so.18.080192.000545>
- Coram, B. T. (1989). Social Relations and Forces of Production: A Criticism of Cohen's Defense of Materialism. *Social Theory and Practice*, 15(2), 213–229.
- Creswell, J. W., Clark, V. L., Gutmann, M. L., & Hanson, W. E. (2003). Advanced mixed methods research designs. *Handbook of Mixed Methods in Social and Behavioral Research*, 209, 209–240.
- Creswell, J. W., & Creswell, J. D. (2017). *Research design: Qualitative, quantitative, and mixed methods approaches*. Sage publications.

- Del Prete, M., & Samoggia, A. (2023). Does fairness matter? Consumers' perception of fairness in the agro-food chain. *Frontiers in Sustainable Food Systems*, 7. <https://doi.org/10.3389/fsufs.2023.1116319>
- Dev, S. M., & Rao, N. C. (2005). Food processing and contract farming in Andhra Pradesh: A small farmer perspective. *Economic and Political Weekly*, 2705–2713.
- De Roy, S. (2017). Economic reforms and agricultural growth in India. *Economic and Political Weekly*, 67–72.
- Deshpande, D. R. C. S. (n.d.). *Contracting farming as means of value-added agriculture*. Nabard.org. Retrieved August 2, 2024, from <https://www.nabard.org/auth/writereaddata/tender/1001181555OC%2042.pdf>
- Dhillon, S. S., Singh, N., & Dhillon, S. S. (2006). Contract farming in Punjab: An analysis of problems, challenges and opportunities. *Pakistan Economic and Social Review*, 19–38.
- Dileep, B. K., Grover, R. K., & Rai, K. N. (2002). Contract farming in tomato: An economic analysis. *Indian Journal of Agricultural Economics*, 57(2), 197–210.
- Donovan, J., Franzel, S., Cunha, M., Gyau, A., & Mithöfer, D. (2015). Guides for value chain development: a comparative review. *Journal of Agribusiness in Developing and Emerging Economies*, 5(1), 2–23. <https://doi.org/10.1108/jadee-07-2013-0025>
- Das, R. J. (2007). Introduction: Peasant, state and class. *The Journal of Peasant Studies*, 34(3–4), 351–370. <https://doi.org/10.1080/03066150701830000>
- Druckman, D., & Wagner, L. (2017). Justice and fairness in negotiation. *Group Decision and Negotiation*, 26(1), 9–17. <https://doi.org/10.1007/s10726-016-9496-4>
- Durga, V., & Pitchai, C. (2023). Empowering farmers: The role of dairy-based farmer producers organizations (FPOs). *Indian Journal of Agricultural Marketing*, 37(3spl), 203–213.
- Eaton, C., & Shepherd, A. (2001). *Contract farming: partnerships for growth*. Food & Agriculture Org.
- Ebers, M., & Gotsch, W. (2006). Institutionsökonomische Theorien der Organisation. In A. Kieser & M. Ebers (Eds.), *Organisationstheorien* (pp. 247–308). Kohlhammer.
- Eliazer Nelson, A. R. L., Ravichandran, K., & Antony, U. (2019). The impact of the Green Revolution on indigenous crops of India. *Journal of Ethnic Foods*, 6(1). <https://doi.org/10.1186/s42779-019-0011-9>
- Emerson, R. M. (1972). Exchange theory, part II: Exchange relations and networks. *Sociological Theories in Progress*, 2, 58–87.
- Erappa, S. (2006). Contract farming in Karnataka: A boon or a bane? In S. Erappa (Ed.), *Contract farming in Karnataka: A boon or a bane*.

- Faizi, A. A. A., & Shah, T. M. (2014). Contract farming and gender relations in India. *Journal of Land and Rural Studies*, 2(2), 191–214. <https://doi.org/10.1177/2321024914534041>
- Federgruen, A., Lall, U., & Şimşek, A. S. (2019). Supply chain analysis of contract farming. *Manufacturing & Service Operations Management: M & SOM*, 21(2), 361–378. <https://doi.org/10.1287/msom.2018.0735>
- Fischer, E., & Qaim, M. (2014). Smallholder farmers and collective action: What determines the intensity of participation? *Journal of Agricultural Economics*, 65(3), 683–702. <https://doi.org/10.1111/1477-9552.12060>
- Feller, A., Shunk, D., & Callarman, T. (n.d.). *Value chains versus supply chains*. Psu.edu. Retrieved August 2, 2024, from <https://citeseerx.ist.psu.edu/document?repid=rep1&type=pdf&doi=b02e25922d7641a05dd239eb18130710ed332a69>
- Furner, J. (2018). Social Relations. In *Marx on Capitalism* (pp. 143–177). BRILL.
- Gibbs, J. P., & Coleman, J. S. (1990). Foundations of social theory. *Social Forces; a Scientific Medium of Social Study and Interpretation*, 69(2), 625. <https://doi.org/10.2307/2579680>
- Glover, D., & Kusterer, K. (1990). *Small Farmers, Big Business: Contract Farming and Rural Development*.
- Gouri, K. V., & Mahajan, V. (2017). Different models of financing small farmers' agricultural value chains. In *India Studies in Business and Economics* (pp. 33–53). Springer Singapore.
- Grosh, B. (1994). Contract farming in Africa: An application of the new institutional economics. *Journal of African Economies*, 3(2), 231–261. <https://doi.org/10.1093/oxfordjournals.jae.a036805>
- Grosh, B., Little, P. D., & Watts, M. J. (1996). Living under contract: Contract farming and agrarian transformation in sub-Saharan Africa. *The Journal of Interdisciplinary History*, 27(2), 368. <https://doi.org/10.2307/205223>
- Gudbrandsdottir, I. Y., Olafsdottir, G., Oddsson, G. V., Stefansson, H., & Bogason, S. G. (2021). Operationalization of interorganizational fairness in food systems: From a social construct to quantitative indicators. *Agriculture*, 11(1), 36. <https://doi.org/10.3390/agriculture11010036>
- Gulati, A., Wardhan, H., & Sharma, P. (2022). Tomato, onion and potato (TOP) value chains. In *India Studies in Business and Economics* (pp. 33–97). Springer Nature Singapore.
- Hambloch, C. (2022). Contract farming and everyday acts of resistance: Oil palm contract farmers in the Philippines. *Journal of Agrarian Change*, 22(1), 58–76. <https://doi.org/10.1111/joac.12462>
- Harriss, J. (1992). Does the 'depressor' still work? Agrarian structure and development in India: A review of evidence and argument. *The Journal of Peasant Studies*, 19(2), 189–227. <https://doi.org/10.1080/03066159208438478>

- Harvey, D. (2005). *A brief history of neoliberalism*. Oxford University Press.
- Hellin, J., & Erenstein, O. (2009). Maise-poultry value chains in India: implications for research and development. *Journal of New Seeds*, 10(4), 245–263.
- Hellin, J., & Meijer, M. (2006). Guidelines for value chain analysis, Food and Agriculture Organization (FAO). *UN Agricultural Development Economics*.
- Hendrickson, M. K., & James, H. S. (2016). Power, fairness and constrained choice in agricultural markets: a synthesising framework. *Journal of Agricultural and Environmental Ethics*, 29(6), 945–967.
- Hendrickson, Mary K., & James, H. S., Jr. (2016). Power, fairness and constrained choice in agricultural markets: A synthesizing framework. *Journal of Agricultural & Environmental Ethics*, 29(6), 945–967. <https://doi.org/10.1007/s10806-016-9641-8>
- Hendrickson, Mary K., James, H. S., Jr, Kendall, A., & Sanders, C. (2018). The assessment of fairness in agricultural markets. *Geoforum; Journal of Physical, Human, and Regional Geosciences*, 96, 41–50. <https://doi.org/10.1016/j.geoforum.2018.07.020>
- Hannan, J., Chen, H. Y. W., & Joseph, K. (2021). Who gets what, according to whom? An analysis of fairness perceptions in service allocation. In *Proceedings of the 2021 AAAI/ACM Conference on AI, Ethics, and Society* (pp. 555–565).
- Hickey, G., & Kipping, C. (1996). A multi-stage approach to the coding of data from open-ended questions: A structured approach to analysing data collected from open-ended questions can help to make the process clear, suggest Gary Hickey and Cheryl Kipping. *Nurse Researcher*, 4(1), 81–91. <https://doi.org/10.7748/nr.4.1.81.s9>
- Holweg, M., & Helo, P. (2014). Defining value chain architectures: Linking strategic value creation to operational supply chain design. *International Journal of Production Economics*, 147, 230–238. <https://doi.org/10.1016/j.ijpe.2013.06.015>
- Hsieh, H.-F., & Shannon, S. E. (2005). Three approaches to qualitative content analysis. *Qualitative Health Research*, 15(9), 1277–1288. <https://doi.org/10.1177/1049732305276687>
- Huo, B., Fu, D., Zhao, X., & Zhu, J. (2016). Curbing opportunism in logistics outsourcing relationships: The role of relational norms and contract. *International Journal of Production Economics*, 182, 293–303. <https://doi.org/10.1016/j.ijpe.2016.07.005>
- Irmer, A. T. (2001). *Contract management as a public economic control instrument (Doctoral dissertation)*.
- Jafar, H., Muda, I., Zainal, A., & Yasin, W. (2010). Profit Maximization Theory, Survival-based theory and contingency theory: A review on several underlying research theories of corporate turnaround. *Jurnal Ekonom*.

- Jain, R. C. A. (2008). *Regulation and dispute settlement in contract farming in India. Contract Farming in India: A Resource Book.*
- James, H. S., Jr, Hendrickson, M. K., & Howard, P. H. (2013). Networks, power and dependency in the agrifood industry. In *The International Library of Environmental, Agricultural and Food Ethics* (pp. 99–126). Springer Netherlands.
- Jodhka, S. S. (2002). Caste and untouchability in rural Punjab. *Economic and Political*, 1813–1823.
- Jodhka, Surinder S. (2021). Why are the farmers of Punjab protesting? *The Journal of Peasant Studies*, 48(7), 1356–1370. <https://doi.org/10.1080/03066150.2021.1990047>
- Johl, S. S. (1995). Agriculture sector and new economic policy. *Indian Journal of Agricultural Economics*, 50, 473–487.
- Jr, T.-O., & Abay, M. P. (2023). Smallholder farmers' participation in profitable value chains and contract farming: Evidence from irrigated agriculture in Egypt. *Intl Food Policy Res Inst*, 42.
- Kar, A., Shegiwal, E., Kumar, P., & Prakash, P. (2020). Impact of contract farming on basmati rice (*Oryza sativa*) in India. *Indian Journal of Agricultural Sciences*, 90(7), 1282–1285. <https://doi.org/10.56093/ijas.v90i7.105581>
- Kaur, A., Kapngaihlian, J., Chopra, S., & Chaudhary, A. (2022). *Contract farming in India: Issues and concerns under changing policy environment.*
- Key, N., & Runsten, D. (1999). Contract farming, smallholders, and rural development in Latin America: The organization of agroprocessing firms and the scale of outgrower production. *World Development*, 27(2), 381–401. [https://doi.org/10.1016/s0305-750x\(98\)00144-2](https://doi.org/10.1016/s0305-750x(98)00144-2)
- Krishnamurthy, M. (2021). Agricultural market law, regulation and resistance: a reflection on India's new 'farm laws' and farmers' protests. *The Journal of Peasant Studies*, 48(7), 1409–1418. <https://doi.org/10.1080/03066150.2021.1998001>
- Kumar, A., Roy, D., Tripathi, G., & Joshi, P. K. (2023). Determinants and impacts of contract farming: evidence from cultivation of onion, okra and pomegranate in Maharashtra, India. *India. India. Journal of Agribusiness in Developing and Emerging Economies.*
- Kumar, A., Tripathi, G., Roy, D., Hayat, A., & Islam, M. S. (2020). 11 *Contract farming and farm performance. Transforming Agriculture in South Asia: The Role of Value Chains and Contract Farming.*
- Kumar, P. (2007). Resources provision, productivity and contract farming: A case study of Punjab. In *Proceedings of the ICAR-NCAP and USAID* (pp. 5–6).
- Kumar, J., & Kumar, K. P. (2008). Contract farming: Problems, prospects and its effect on income and employment. *Agricultural Economics Research Review*, 21(2), 243–250.

- Kumar, N., Scheer, L. K., & Steenkamp, J.-B. E. M. (1995). The effects of supplier fairness on vulnerable resellers. *JMR, Journal of Marketing Research*, 32(1), 54–65. <https://doi.org/10.1177/002224379503200107>
- Kumar, P. (2006). Contract farming through agribusiness firms and state corporation: A case study in Punjab. *Economic and Political Weekly*, 5367–5375.
- Kumar, S. (2021). Class, caste and agrarian change: the making of farmers' protests. *The Journal of Peasant Studies*, 48(7), 1371–1379. <https://doi.org/10.1080/03066150.2021.1990046>
- Kumar, S. M. (2013). Does access to formal agricultural credit depend on caste? *World Development*, 43, 315–328. <https://doi.org/10.1016/j.worlddev.2012.11.001>
- Laibman, D. (2019). Forces of Production and Relations of Production. In *The Oxford Handbook of Karl Marx* (pp. 77–96). Oxford University Press.
- Larson, D. W., Jones, E., Pannu, R. S., & Sheokand, R. S. (2004). Instability in Indian agriculture—a challenge to the Green Revolution technology. *Food Policy*, 29(3), 257–273. <https://doi.org/10.1016/j.foodpol.2004.05.001>
- Lerche, J. (2021). The farm laws struggle 2020–2021: class-caste alliances and bypassed agrarian transition in neoliberal India. *The Journal of Peasant Studies*, 48(7), 1380–1396. <https://doi.org/10.1080/03066150.2021.1986013>
- Lalitha, N., Viswanathan, P. K., & Vinayan, S. (2024). Institutional strengthening of farmer producer organizations and empowerment of small farmers in India: Evidence from a case study in Maharashtra. *Millennial Asia*, 15(2), 278–299.
- Limnirankul, B. (2007). *Collective action and technology development: up-scaling of innovation in rice farming communities in Northern Thailand*.
- Lin, N. (2002). *Structural analysis in the social sciences: Social capital: A theory of social structure and action series number 19*. Cambridge University Press.
- Little, P. D., & Watts, M. (Eds.). (1994). *Living under contract: contract farming and agrarian transformation in sub-Saharan Africa*. Univ of Wisconsin Press.
- Lorrain, F., & White, H. C. (1977). Structural equivalence of individuals in social networks. In *Social Networks* (pp. 67–98). Elsevier.
- Lu, J., Liu, H., Zhang, Z., Wang, J., Goudos, S. K., & Wan, S. (2021). Toward fairness-aware time-sensitive asynchronous federated learning for critical energy infrastructure. *IEEE Transactions on Industrial Informatics*, 18(5), 3462–3472.
- Mahadevan, R. (2004). Productivity growth in Indian agriculture: The role of globalization and economic reform. *Asia-Pacific Development Journal*, 10(2), 57–72. <https://doi.org/10.18356/5728288b-en>

- Mazwi, F., Chemura, A., Mudimu, G. T., & Chambati, W. (2019). Political economy of command agriculture in Zimbabwe: A state-led contract farming model. *Journal of Political Economy*, 8(1–2), 232–257.
- Maoz, Z., Kuperman, R. D., Terris, L., & Talmud, I. (2006). Structural equivalence and international conflict: A social networks analysis. *Journal of Conflict Resolution*, 50(5), 664–689.
- Maoz, Z., Kuperman, R., Terris, L., & Talmud, I. (2003). Structural Equivalence and International Conflict, 1816-2000: A Social Networks Analysis of Dyadic Affinities and Conflict. In *Annual Meeting of the American Political Science Association* (pp. 28–31).
- Meemken, E.-M., & Bellemare, M. F. (2020). Smallholder farmers and contract farming in developing countries. *Proceedings of the National Academy of Sciences of the United States of America*, 117(1), 259–264. <https://doi.org/10.1073/pnas.1909501116>
- Miller, C., & Jones, L. (2010). *Agricultural value chain finance: tools and lessons*. Practical Action Publishing.
- Miller, G. (1992). *Managerial Dilemmas. The political economy of hierarchy*. Cambridge University Press.
- Miller, C. (2012). *Agricultural value chain finance strategy and design*. International Fund for Agricultural Development (IFAD).
- Minot, N., & Sawyer, B. (2016). *Contract farming in developing countries: Theory, practice, and policy implications. Innovation for inclusive value chain development: Successes and challenges*. 127–155.
- Minten, B., Murshid, K. A. S., & Reardon, T. (2013). Food quality changes and implications: Evidence from the rice value chain of Bangladesh. *World Development*, 42, 100–113. <https://doi.org/10.1016/j.worlddev.2012.06.015>
- Mishra, A. K., Kumar, A., Joshi, P. K., & D'Souza, A. (2018). Production risks, risk preference and contract farming: Impact on food security in India. *Applied Economic Perspectives and Policy*, 40(3), 353–378. <https://doi.org/10.1093/aep/ppy017>
- Mishra, A. K., Kumar, A., Joshi, P. K., D'Souza, A., & Tripathi, G. (2018). How can organic rice be a boon to smallholders? Evidence from contract farming in India. *Food Policy*, 75, 147–157. <https://doi.org/10.1016/j.foodpol.2018.01.007>
- Mishra, A. K., Kumar, A., Joshi, P. K., & Souza, A. (2016). Impact of contracts in high yielding varieties seed production on profits and yield: The case of Nepal. *Food Policy*, 62, 110–121.
- Mitra, A., & Rao, N. (2021). Contract farming, ecological change and the transformations of reciprocal gendered social relations in Eastern India. *The Journal of Peasant Studies*, 48(2), 436–457. <https://doi.org/10.1080/03066150.2019.1683000>

- Miyata, S., Minot, N., & Hu, D. (2009). Impact of contract farming on income: Linking small farmers, packers, and supermarkets in China. *World Development*, 37(11), 1781–1790. <https://doi.org/10.1016/j.worlddev.2008.08.025>
- Mourya, M., & Mehta, M. (2021). Farmer producer company: India's magic bullet to realise select SDGs? *International Journal of Rural Management*, 17(1_suppl), 115S-147S.
- Moe, T. (1984). The new economics of organisation". *American Journal of Political Science*, 28(4), 739–777.
- Morrissey, J. D. (1974). *Agricultural Modernization through Production Contracting: The Role of the Fruit and Vegetable Processor in Mexico and Central America*. Praeger Publishing. Praeger Publishing.
- Motkuri, V., & Veslawatha, S. N. (2005). *On the Implications of Contract Farming on Agricultural and Rural Development in India: With Special Reference to Karanataka*.
- Mukherjee, S. (2022). Contract farming in West Bengal: Patterns, determinants and policy implications. *The Indian Economic Journal: The Quarterly Journal of the Indian Economic Association*, 70(4), 670–684. <https://doi.org/10.1177/00194662221118310>
- Murthy, M. R. K., & Madhuri, S. B. (2013). A case study on suguna poultry production through contract farming in Andhra Pradesh. *Asia Pacific Journal of Marketing & Management Review* _____ ISSN.
- Mwambi, M. M., Oduol, J., Mshenga, P., & Saidi, M. (2016). Does contract farming improve smallholder income? The case of avocado farmers in Kenya. *Journal of Agribusiness in Developing and Emerging Economies*, 6(1), 2–20. <https://doi.org/10.1108/jadee-05-2013-0019>
- Nagaraj, N., Chandrakanth, M. G., Chengappa, P. G., Roopa, H. S., & Chandakavate, P. M. (2008). Contract farming and its implications for input-supply, linkages between markets and farmers in Karnataka. *Agricultural Economics Research Review*, 21, 307–316.
- Nakandala, D., Smith, M., & Lau, H. (2020). Shared power and fairness in trust-based supply chain relationships in an urban local food system. *British Food Journal (Croydon, England)*, 122(3), 870–883. <https://doi.org/10.1108/bfj-05-2019-0309>
- Nikam, V., Singh, P., Ashok, A., & Kumar, S. (2019). Farmer producer organisations: Innovative institutions for upliftment of small farmers. *The Indian Journal of Agricultural Sciences*, 89(9), 1383–1392.
- Narayanan, S. (2012). *Notional contracts: The moral economy of contract farming arrangements in India*.
- Narayanan, Sudha. (2014). Profits from participation in high value agriculture: Evidence of heterogeneous benefits in contract farming schemes in Southern India. *Food Policy*, 44, 142–157. <https://doi.org/10.1016/j.foodpol.2013.10.010>

- Omvedt, G. (1983). Capitalist agriculture and rural classes in India. *Bulletin of Concerned Asian Scholars*, 15(3), 30–54. <https://doi.org/10.1080/14672715.1983.10404881>
- Ornberg, L. (2003). Farmers' choice: Contract farming, agricultural change and modernisation in Northern Thailand. In *3rd International Convention of Asia Scholars (ICAS3)* (pp. 19–22).
- Ostrom, E. (2000). Social capital: a fad or a fundamental concept. *Social Capital: A Multifaceted Perspective*, 172, 172–215.
- Ostrom, E. (2000). *Social capital: a fad or a fundamental concept?* (P. Dasgupta & I. Serageldin, Eds.).
- Oya, C. (2012). Contract farming in sub-Saharan Africa: A survey of approaches, debates and issues. *Journal of Agrarian Change*, 12(1), 1–33. <https://doi.org/10.1111/j.1471-0366.2011.00337.x>
- Padmaja, S. S., Ojha, J. K., Shok, A., & Nikam, V. R. (2019). *Farmer Producer Companies in India: Trends, Patterns, Performance and Way Forward*.
- Pandit, A., Lal, B., & Rana, R. K. (2015). An assessment of potato contract farming in west Bengal state, India. *Potato Research*, 58(1), 1–14. <https://doi.org/10.1007/s11540-014-9259-z>
- Patel, R. (2013). The Long Green revolution. *The Journal of Peasant Studies*, 40(1), 1–63. <https://doi.org/10.1080/03066150.2012.719224>
- Patnaik, U. (1976). Class differentiation within the peasantry: an approach to analysis of Indian agriculture. *Economic and Political Weekly*, A82–A101.
- Paul, S., Laha, A., & Kuri, P. K. (2019). Economics of contract farming in potato cultivation: micro empirical evidences from Hooghly District of West Bengal (India). *Journal of Rural and Industrial Development*, 7(1), 58–63.
- Picot, A., Dietl, H., & Franck, E. (1999). *Organisation - Eine ökonomische Perspektive*. Schäffer-Poesche.
- Pramanik, R. N. (2021). Changing employment conditions in the rural labour market of west Bengal. *Indian Journal of Labour Economics*, 64(3), 825–841. <https://doi.org/10.1007/s41027-021-00331-z>
- Rahman, S. (2015). Green revolution in India: environmental degradation and impact on livestock. *Asian Journal of Water, Environment and Pollution*, 12(1), 75–80.
- Ramachandran, V. K. (2011). Classes and class differentiation in India's countryside. *World Review of Political Economy*.
- Ramakumar, R. (2009). Indian Agriculture Under Economic Reforms: A Preliminary Review. In *International conference on "The Crisis of Neo-liberalism in India: Challenges and Alternatives" Organised by Tata Institute of Social Sciences (TISS), Mumbai and International Development Economics Associates (IDEAs)* (pp. 13–15).

- Ramakumar, R. (2021, November 20). *The defeat of hubris, a confrontation on hold*. The Hindu. <https://www.thehindu.com/opinion/lead/the-defeat-of-hubris-a-confrontation-on-hold/article37588069.ece>)
- Ramakumar, R. (2022). *Distress in the fields: Indian agriculture after liberalization*. Tulika Book Publishers.
- Ramaswami, B., BIRTHAL, P. S., & Joshi, P. K. (2009). Grower heterogeneity and the gains from contract farming: the case of Indian poultry. *Indian Growth and Development Review*.
- Ramsay, J. (2005). The real meaning of value in trading relationships. *International Journal of Operations & Production Management*, 25(6), 549–565. <https://doi.org/10.1108/01443570510599719>
- Rao, E. J. O., & Qaim, M. (2011). Supermarkets, farm household income, and poverty: Insights from Kenya. *World Development*, 39(5), 784–796. <https://doi.org/10.1016/j.worlddev.2010.09.005>
- Rao, S. (2017). Caste discrimination and agricultural performance in India. *Economic and Political Weekly*, 52(26), 32–38.
- Rawal, V. (2001). Agrarian reform and land markets: A study of land transactions in two villages of west Bengal, 1977–1995. *Economic Development and Cultural Change*, 49(3), 611–629. <https://doi.org/10.1086/452518>
- Ray, N., Clarke, G., & Waley, P. (2021). The impact of contract farming on the welfare and livelihoods of farmers: A village case study from West Bengal. *Journal of Rural Studies*, 86, 127–135. <https://doi.org/10.1016/j.jrurstud.2021.06.003>
- Reardon, T. (2015). The hidden middle: the quiet revolution in the midstream of agrifood value chains in developing countries. *Oxford Review of Economic Policy*, 31(1), 45–63. <https://doi.org/10.1093/oxrep/grv011>
- Reardon, T., Timmer, C. P., Barrett, C. B., & Berdegue, J. (2003). The rise of supermarkets in Africa, Asia, and Latin America. *American Journal of Agricultural Economics*, 85(5), 1140–1146.
- Roy, A. (2022). Political economy of dispossession and economic change: A case of Rajarhat in West Bengal, India. *The International Journal of Community and Social Development*, 4(1), 10–38. <https://doi.org/10.1177/25166026221076630>
- Rudra, A. (1978). Class Relations in Indian Agriculture: III. *Economic and Political Weekly*, 998–1004.
- Ruml, A., & Qaim, M. (2021). Smallholder farmers' dissatisfaction with contract schemes in spite of economic benefits: Issues of mistrust and lack of transparency. *The Journal of Development Studies*, 57(7), 1106–1119. <https://doi.org/10.1080/00220388.2020.1850699>
- Rutherford, D. D., Burke, H. M., Cheung, K. K., & Field, S. H. (2016). Impact of an agricultural value chain project on smallholder farmers, households, and children in Liberia. *World Development*, 83, 70–83. <https://doi.org/10.1016/j.worlddev.2016.03.004>

- Saha, D., Nanduri, K., & Das, R. (2021). Agrarian reforms and farmers' protests in India: a policy perspective. *New Agenda: South African Journal of Social and Economic Policy*, 80, 37–41.
- Samoggia, A., & Beyhan, Z. (2022). Fairness-enabling practices in Agro-food chain. *Sustainability*, 14(11), 6391. <https://doi.org/10.3390/su14116391>
- Satyasai, K. J. S., & Tiwari, A. (2021). Rural Credit: Can We Make it More Inclusive. In *23rd Annual Conference of SSCA* (pp. 143–160).
- Sarkar, A. (2020). Agricultural mechanization in India: A study on the ownership and investment in farm machinery by cultivator households across agro-ecological regions. *Millennial Asia*, 11(2), 160–186.
- Saulters, M. M., Hendrickson, M. K., & Chaddad, F. (2018). Fairness in alternative food networks: an exploration with midwestern social entrepreneurs. *Agriculture and Human Values*, 35(3), 611–621. <https://doi.org/10.1007/s10460-018-9852-x>
- Sawaoka, T., Hughes, B. L., & Ambady, N. (2015). Power heightens sensitivity to unfairness against the self. *Personality & Social Psychology Bulletin*, 41(8), 1023–1035. <https://doi.org/10.1177/0146167215588755>
- Schipmann, C., & Qaim, M. (2011). Supply chain differentiation, contract agriculture, and farmers' marketing preferences: The case of sweet pepper in Thailand. *Food Policy*, 36(5), 667–677. <https://doi.org/10.1016/j.foodpol.2011.07.004>
- Senthilnathan, S., Palanisami, K., & Chandrasekaran, M. (2006). Economics of production and marketing of cotton under contract and non-contract farming: A case study in Salem district of Tamil Nadu. *Indian Journal of Agricultural Marketing*, 3.
- Sethi, A. (2021). One year later: Reflections on the farmers' protest in India. *HAU: Journal of Ethnographic Theory*, 11(2), 869–876.
- Sezen, B., & Yilmaz, C. (2007). Relative effects of dependence and trust on flexibility, information exchange, and solidarity in marketing channels. *Journal of Business & Industrial Marketing*, 22(1), 41–51. <https://doi.org/10.1108/08858620710722815>
- Shakeel, A., Salman, M. S., Shazli, T., Naqvi, H. R., & Siddiqui, M. A. (2023). Reforming Indian agriculture and the rise of farmer's protest in India: Tracing the discourse and the way ahead. *Journal of Public Affairs*, 23(1). <https://doi.org/10.1002/pa.2847>
- Sharma, K. L. K. L. (1984). Caste and class in India: Some conceptual problem. *Sociological Bulletin*, 33(1–2), 1–28.
- Sharma, N. (2016). Determining growers' participation in contract farming in Punjab. *Economic and Political Weekly*, 51(2), 58–64.
- Sharma, V. P. (2008). India's agrarian crisis and corporate-led contract farming: Socio-economic implications for smallholder producers. *International Food and Agribusiness Management Review*, 11(4), 25–48.
- Sheahan, M., & Barrett, C. B. (2014). *Understanding the agricultural input landscape in sub-Saharan Africa*.

- Shrimali, R. (2016). Accumulation by dispossession or accumulation without dispossession: The case of contract farming in India. *Human Geography*, 9(3), 77–88. <https://doi.org/10.1177/194277861600900306>
- Shonhe, T., & Scoones, I. (2022). Private and state-led contract farming in Zimbabwe: Accumulation, social differentiation and rural politics. *Journal of Agrarian Change*, 22(1), 118–138.
- Silva, D., & Rankin, C. A. (2014). Contract farming for inclusive market access: Synthesis and findings from selected international experiences. *FOR INCLUSIVE MARKET ACCESS*, 1.
- Singh, A. K., Sagar, M. P., & Thakur, D. (2017). Adoption of scientific broiler farming practices among contract and non-contract broiler farmers in eastern plain zone of Uttar Pradesh. *Int. J. Sci. Environ. Technol*, 6(1), 721–728.
- Singh, K. M., & Meena, M. S. (2012). *Livestock value chains: prospects, challenges and policy implications. Status of Agricultural Development in Eastern India.*
- Singh, S. (2000). Contract farming for agricultural diversification in the Indian Punjab: A study of performance and problems. *Indian Journal of Agricultural Economics*, 55(3), 283–294.
- Singh, S. (2002). Multi-national corporations and agricultural development: a study of contract farming in the Indian Punjab. *Journal of International Development*, 14(2), 181–194.
- Singh, S. (2003). *Contract farming in India: Impacts on women and child workers.* International Institute for Environment and Development.
- Singh, S. (2004). Crisis and diversification in Punjab agriculture: Role of state and agribusiness. *Economic and Political Weekly*, 5583–5590.
- Singh, S. (2005). Role of the state in contract farming in Thailand: experience and lessons. *ASEAN Economic Bulletin*, 22(2), 217–228.
- Singh, S. (2006). *Corporate Farming in India: Is it a Must for Agricultural Development? Working Paper No.*
- Singhi, L. C., Arora, S., & Deshpande, R. S. (2008). Land tenancy and contract farming: A policy dilemma. In *Contract farming and tenancy reforms: Entangled without tether* (pp. 79–86).
- Singh, S. (2012). New markets for smallholders in India: Exclusion, policy and mechanisms. *Economic and Political Weekly*, 95–105.
- Singh, S., & Bhaumik, K. (2008). *Contract farming for agricultural development: Review of Theory and practice with special reference to India.* Bhaumik SK, *Reforming indian agriculture: towards employment generation and poverty reduction. essays in honour of GK Chadha.*
- Singh, Sukhpal. (2002). Contracting out solutions: Political economy of contract farming in the Indian Punjab. *World Development*, 30(9), 1621–1638. [https://doi.org/10.1016/s0305-750x\(02\)00059-1](https://doi.org/10.1016/s0305-750x(02)00059-1)
- Singh, S. (2020). Contract Farming for Agrarian Transformation? Experiences from Punjab in the Context of Union Contract Farming Act, 2020. *Journal of Sikh & Punjab Studies.*
- Skinner, C. J. (2014). Probability proportional to size (PPS) sampling. In *Wiley StatsRef: Statistics Reference Online*. Wiley. <https://doi.org/10.1002/9781118445112.stat03346>

- Staritz, C. (2012). *Value chains for development? Potentials and limitations of global value chain approaches in donor interventions.*
- Suchting, W. (1982). Productive Forces” and “Relations of Production” in Marx. *Marx. Analyse & Kritik*, 4(2), 159–181.
- Suh, S. (2005). Fairness and relationship quality perceived by local suppliers: In search of critical success factors for international retailers. *Journal of Global Marketing*, 18(1–2), 5–19.
- Sutherland, L.-A., & Burton, R. J. F. (2011). Good farmers, good neighbours? The role of cultural capital in social capital development in a Scottish farming community. *Sociologia Ruralis*, 51(3), 238–255. <https://doi.org/10.1111/j.1467-9523.2011.00536.x>
- Suthar, S. K., & Kumar, M. (2022). Contemporary farmer’s movements in India: Hybrid political agenda and modernisation of protests. *Sociological Bulletin*, 71(4), 495–511.
- Swain, B. B. (2011). Contract farming in Andhra Pradesh: A case of rice seed and gherkin cultivation. *Economic and Political Weekly*, 46(42), 60–68.
- Swain, B. B. (2020). Contract Farming and Farmers’ Empowerment & Protection Bill 2020. *Contract*.
- Swain, Braja Bandhu. (2012). Determinants of farmers’ participation in contract farming: The cases of gherkin and paddy seed in Andhra Pradesh, India. *Millennial Asia*, 3(2), 169–185. <https://doi.org/10.1177/097639961200300203>
- Swamy, V., & Dharani. (2016). Analyzing the agricultural value chain financing: approaches and tools in India. *Agricultural Finance Review*, 76(2), 211–232. <https://doi.org/10.1108/afr-11-2015-0051>
- Swinnen, J. F., & Kuijpers, R. (2016). *Value chain innovations for technology transfer in developing and emerging economies: concept, typology and policy implications.* LICOS Centre for Institutions and Economic Performance.
- Swinnen, J. F., & Maertens, M. (2014). Finance through food and commodity value chains in a globalised economy. In *Finance for Food* (pp. 45–65). Springer.
- Trebbin, A. (2014). Linking small farmers to modern retail through producer organizations-Experiences with producer companies in India. *Food Policy*, 45, 35–44.
- Tripathi, R. S., Singh, R., & Singh, S. (2005). Contract farming in potato production: An alternative for managing risk and uncertainty. *Agricultural Economics Research Review*, 18, 47–60.
- Torres, G. (1997). *The Force of Irony Power in the Everyday Life of Mexican Tomato Workers* By Gabriel Torres.
- Valentinov, V., Imami, D., & Xhoxhi, O. (2024). Contract farming in transitional economies: A stakeholder theory perspective. *International Food and Agribusiness Management Review*, 1, 1–17.
- van de Vijver, F. J. R., & Poortinga, Y. H. (2002). Structural equivalence in multilevel research. *Journal of Cross-Cultural Psychology*, 33(2), 141–156. <https://doi.org/10.1177/0022022102033002002>

- Vijayakumar, A. N. (2021). Farmer producer organisation: an emerging business model for empowering small and marginal farmers in India-a case study. *International Journal of Indian Culture and Business Management*, 24(4), 481–502.
- Vicol, M., Fold, N., Hambloch, C., Narayanan, S., & Niño, H. (2022). Twenty-five years of Living Under Contract: Contract farming and agrarian change in the developing world. *Journal of Agrarian Change*, 22(1), 3–18.
- Vicol, Mark. (2017). Is contract farming an inclusive alternative to land grabbing? The case of potato contract farming in Maharashtra, India. *Geoforum; Journal of Physical, Human, and Regional Geosciences*, 85, 157–166. <https://doi.org/10.1016/j.geoforum.2017.07.012>
- Vicol, Mark. (2019). Potatoes, Petty Commodity Producers and Livelihoods: Contract farming and agrarian change in Maharashtra, India. *Journal of Agrarian Change*, 19(1), 135–161. <https://doi.org/10.1111/joac.12273>
- Vicol, Mark, Fold, N., Hambloch, C., Narayanan, S., & Pérez Niño, H. (2022). Twenty-five years of Living Under Contract: Contract farming and agrarian change in the developing world. *Journal of Agrarian Change*, 22(1), 3–18. <https://doi.org/10.1111/joac.12471>
- Vyas, V. S. (2001). Agriculture: The second round of economic reforms. *The Indian Economic Journal: The Quarterly Journal of the Indian Economic Association*, 48(3), 24–33. <https://doi.org/10.1177/0019466220010302>
- Wang, H. H., Wang, Y., & Delgado, M. S. (2014). The transition to modern agriculture: Contract farming in developing economies. *American Journal of Agricultural Economics*, 96(5), 1257–1271.
- Watanabe, K., & Zylbersztajn, D. (2014). Contract farming in the Brazilian agri-business system: private institutions and State intervention. *Uniform Law Review*, 19(3), 459–478.
- Watts, M. (1992). Peasants and flexible accumulation in the Third World: Producing under contract. *Economic and Political Weekly*, E90–E97.
- Williamson, O. E. (1975). *Markets and hierarchies: analysis and antitrust implications: a study in the economics of internal organization*.
- Williamson, O. E. (1979). Transaction-cost economics: the governance of contractual relations. *The Journal of Law and Economics*, 22(2), 233–261.
- Williamson, Oliver E. (1991). Comparative economic organization: The analysis of discrete structural alternatives. *Administrative Science Quarterly*, 36(2), 269. <https://doi.org/10.2307/2393356>
- Winn, M., Miller, C., & Gegenbauer, I. (2009). The use of structured finance instruments in agriculture in Eastern Europe and Central Asia. In *AGSF Working Document (FAO)*.
- Winters, P., Davis, B., Carletto, G., Covarrubias, K., Quiñones, E. J., Zezza, A., Azzarri, C., & Stamoulis, K. (2009). Assets, activities and rural income generation: Evidence from a multicountry analysis. *World Development*, 37(9), 1435–1452. <https://doi.org/10.1016/j.worlddev.2009.01.010>
- Yadav, S. (2022). Caste, diversification, and the contemporary agrarian question in India: A field perspective. *Journal of Agrarian Change*, 22(4), 651–672. <https://doi.org/10.1111/joac.12487>

Zhang, Q. F. (2012). The political economy of contract farming in China's agrarian transition. *Journal of Agrarian Change*, 12(4), 460–483.

News Article

The Hindu. (2019a). *PepsiCo loses rights to special Lays variety potato in India*. Available at: <https://www.thehindu.com/news/national/pepsico-loses-rights-to-special-lays-variety-potato-in-india/article37831634.ece> (Retrieved on: 27:12:2023).

The Hindu. (2019b). *PepsiCo agrees to withdraw cases against Gujarat farmers*. Available at: <https://www.thehindu.com/business/Industry/pepsico-to-withdraw-case-against-gujarat-potato-farmers/article27013935.ece> (Retrieved on: 27:12:2023).

India Today. (2019). *PepsiCo sues Gujarat potato farmers, says they're growing variety used in Lay's chips*. Available at: <https://www.indiatoday.in/business/story/pepsico-india-lays-potato-farmers-gujarat-sued-1510090-2019-04-25> (Retrieved on: 27:12:2023).

Times of India. (2019). *Hot potato: Gujarat farmers sued for copy-farming*. Available at: <https://timesofindia.indiatimes.com/city/ahmedabad/hot-potato-gujarat-farmers-sued-for-copy-farming/articleshow/68880885.cms> (Retrieved on: 27:12:2023).

