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ANALYSING FARMERS' BARGAINING POWER AND INTERMEDIARY CONTROL IN THE POTATO MARKET OF BANGLADESH

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Abstract

This study examines how farmgate potato prices are formed and how intermediaries influence farmers' price outcomes in Bangladesh. Using qualitative interviews, thematic analysis, and value chain mapping based on a structured farmer survey across major potato-growing regions, the study finds that price formation is largely governed by an *order-driven procurement system*—a process where terminal-market Aratdars predefine purchase quantities and prices for their local agents (Beparis), leaving little room for open negotiation at the farm level. Farmgate prices are thus shaped not only by supply and demand but also by institutional and informal mechanisms such as commission charges, cold storage receipt trading, and non-standard weighing practices. These factors enable intermediaries to control market information and timing, resulting in asymmetric price transmission where farmers bear most of the downside risk. Limited market information and dependence on storage further weaken farmers' bargaining capacity. The study recommends strengthening cooperative-based storage systems and digital price information platforms to improve farmers' collective bargaining power and ensure fairer value distribution along the potato chain

Keywords: Potato market, farmgate price, intermediaries, cold storage, bargaining power.

1. Introduction

Price volatility in agricultural commodities has long been a concern for policymakers and development economists (Gilbert & Morgan, 2010; Miranda & Helberger, 1988; Kalkuhl *et al*., 2016). Market instability in perishable crops such as potatoes often arises from complex interactions among demand fluctuations, production variability, and storage or stock availability (Russo & Goodhue, 2018; Wright, 2011). Retail pricing mechanisms - including markup, uniform pricing, or scheduled discount systems - significantly affect how volatility is transmitted to

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producers (Li & Sexton, 2013). When retail prices are insulated from changes at the producer level, farmgate prices tend to fluctuate more sharply to restore market equilibrium, often constrained by minimum harvesting and handling costs (Russo & Goodhue, 2018).

Potato (*Solanum tuberosum* L.) is among the most important horticultural crops in Bangladesh, serving as both a staple food and a major source of rural income and employment (Shaheb *et al*., 2015; Alamgir et al., 2020). Although Bangladesh ranks among the world's top ten potato-producing countries, farmers often receive only a small fraction of the final retail price, reflecting inefficiencies and power asymmetries within the marketing system (Vivekanandhan *et al*., 2025). Understanding how farmgate prices are formed and who exerts control over this process is essential for improving farmers' welfare and overall market efficiency.

Potato marketing in Bangladesh is multi-layered and dominated by intermediaries such as *Aratdars* (commission agents), *Beparis* (wholesalers), *Farias* (collectors), and retailers. These actors play decisive roles in setting farm-level prices and managing transactions. Farmers typically depend on price information from local intermediaries or nearby markets, with limited access to real-time prices in terminal markets. Consequently, farmgate prices are determined through asymmetric negotiations in which intermediaries - especially *Aratdars* operating via commission systems and cold storage receipts - hold disproportionate influence.

Institutional and informal arrangements further reinforce this asymmetry. Commission charges, cold storage receipt trading, credit linkages, and non-standard weighing practices often disadvantage smallholders (Huq et al., 2004). Farmers' dependence on immediate cash after harvest, lack of adequate storage, and fragmented production structures compound their weak bargaining position (Abokyi *et al*., 2020; Yeshiwas *et al.,* 2023). While several studies in Bangladesh have analyzed potato production, economics, profitability, and marketing margins (Sujan *et al*., 2017; Islam *et al*., 2018; Haque *et al*., 2011; Akter *et al*., 2016; Akter *et al*., 2023; Mila *et al*., 2022; Hossain *et al*., 2025; Moazzem *et al*., 2004), a few studies have explored the qualitative mechanisms and power relations that shape farmgate price control in practice.

This study fills this critical gap by examining how intermediaries influence potato price determination, how market information and price signals are transmitted, and how institutional and informal practices shape farmers' bargaining power. Specifically, it investigates the extent of open negotiation versus order-based pricing, the role of *Aratdars* and cold storage operators in setting farmgate prices, and the barriers to equitable farmer participation. This study contributes to the literature by uncovering the institutional and relational

mechanisms underpinning farmgate price formation and offering policy insights for improving market transparency and farmer empowerment within Bangladesh's potato value chain.

2. Methodology

2.1 Study Area

The study was conducted in major potato-producing regions of Bangladesh to capture a range of production systems and market conditions. The selected districts were Bagura (Bagura Sadar, Kahaloo), Nilphamari (Kishoreganj), Rangpur (Gangachora, Pirganj), Panchagarh (Debiganj, Boda), and Munshiganj (Sirajdikhan, Tongibari) - all recognized for their significant contribution to national potato output.

2.2 Sampling and Respondent Selection

A multistage stratified sampling method was used. First, key districts were chosen based on production importance and market connectivity. Second, upazilas were selected through consultation with Department of Agricultural Extension (DAE) officials to ensure coverage of high-production zones. Finally, 320 potato farmers and 80 market actors (including *Aratdars*, *Beparis*, *Farias*, retailers, and cold storage operators) were randomly selected to represent both producers and intermediaries.

2.3 Data Collection

Primary data were collected through structured and semi-structured interviews. The questionnaire and interview guide were designed to capture detailed information on:

- Production, storage, and marketing practices;
- Price-setting mechanisms and negotiation experiences and
- Institutional and informal market practices influencing price outcomes.

Key informant interviews were also conducted with *Aratdars*, *Beparis*, and cold storage operators to understand price formation and commission-based trading practices. Interviews were pre-tested for clarity and conducted by the lead researcher with trained local enumerators.

2.4 Analytical Approach

The analysis followed a qualitative thematic framework as stated below:

- Thematic coding identified recurring themes around intermediary influence, price transmission, and farmer bargaining power.

- Value chain mapping was used to illustrate the flow of produce and prices across market actors.
- Triangulation with market reports and interviews enhanced the credibility of insights.

This approach allowed for a deep understanding of the structural, institutional, and behavioral mechanisms shaping farmgate price formation in Bangladesh's potato markets.

3. Results and Discussion

3.1 Potato value chain network

The potato value chain in Bangladesh is characterized by multiple marketing routes that reflect varying levels of intermediary involvement (Fig. 1). Based on the survey findings, five major pathways were identified:

1. Farmer → *Beparis*/*Faria* → Wholesaler → Retailer (7%)
2. Farmer → *Beparis*/*Faria* → *Aratdar* → Wholesaler → Retailer (4%)
3. Farmer → *Beparis*/*Faria* → *Aratdar* → Cold Storage → *Aratdar* → Wholesaler → Retailer (11%)
4. Farmer → Cold Storage → *Aratdar* → Wholesaler → Retailer (77%)
5. Farmer → *Aratdar* → Wholesaler → Retailer (1%)

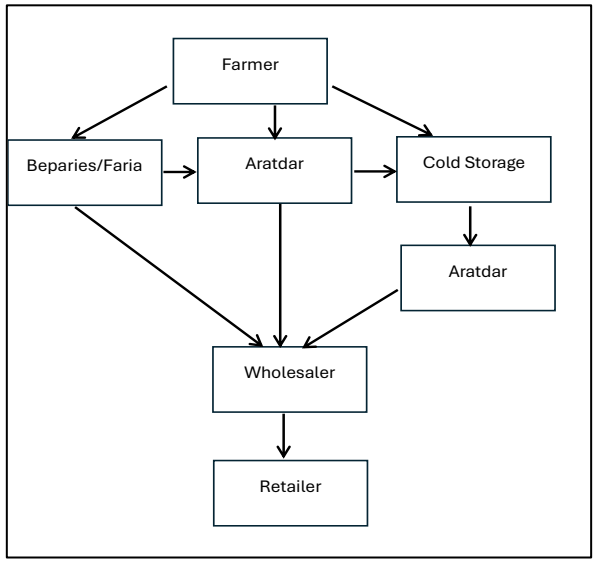

Fig. 1. Potato value chain.[2]

[2] Source: Study field survey 2024-25.

The potato value chain in Bangladesh is characterized by layered and intermediary-dominated marketing routes, with storage access serving as the key determinant of farmers' bargaining position. The most dominant pathway—*Farmer → Cold Storage → Aratdar → Wholesaler → Retailer*—accounts for 77% of total transactions, underscoring that cold storage is not merely a preservation facility but a strategic financial leverage point. Farmers who can afford to store their potatoes delay sales and engage directly with *Aratdars*, often securing relatively better prices. In contrast, 11% of potatoes move through a more extended chain involving *Beparis/Farias → Aratdar → Cold Storage → Aratdar → Wholesaler → Retailer*, where collectors store on behalf of traders and reintroduce the produce later at higher margins. Another 7% follow the shorter *Farmer → Bepari/Faria → Wholesaler → Retailer* route, and 4% travel via *Farmer → Bepari/Faria → Aratdar → Wholesaler → Retailer*, reflecting the pathways generally taken by farmers requiring quick cash after harvest. Only 1% of farmers bypass collectors entirely and sell directly to *Aratdars*, confirming that direct farmer-to-market transactions are infrequent.

These percentage-based patterns clearly illustrate that potatoes seldom move directly from producers to retailers or consumers. Instead, market participation is mediated by *Beparis* and *Farias* acting as primary collectors and liquidity providers, *Aratdars* acting as financial anchors and price-setters at the wholesale level, and *Wholesalers* and *Retailers* driving final distribution. The presence or absence of cold storage access largely determines whether farmers enter the value chain as distressed sellers or strategic price holders. More importantly, control over storage and capital allows intermediaries—particularly *Aratdars*—to shape supply timing, influence prices, and capture a disproportionate share of value. Thus, rather than a linear flow of goods, the potato supply system functions as a relational power network, where access to capital, storage rights, and commission-based transactions define who gains and who concedes within the chain.

3.2 Potato Market: Hierarchical Price Control and Limited Farmer Negotiation

The formation of farmgate potato prices in Bangladesh is primarily driven by a hierarchical structure of intermediaries rather than open market negotiation. Aratdars, who operate at terminal markets such as Dhaka, Bogura, or Chattogram, exercise decisive control over price determination. They issue procurement orders to their contracted Beparis, specifying both quantity and price, effectively anchoring farm-level offers to distant market dynamics rather than local supply or production conditions (Figure 2).

Beparis act mainly as price enforcers, transmitting the price dictated by Aratdars rather than independently negotiating with farmers. When visiting villages to collect produce, they typically present a fixed offer, "this is what the market is

paying today," leaving farmers with minimal room to negotiate, usually within a margin of Tk. 0.5–1.0 per kg.

At the lower level, Farias and small-scale traders (often operating within or near cold storage facilities) handle smaller transactions but exert little influence on price-setting. Their activities primarily serve farmers who lack access to Beparis, often at even lower prices. Retailers enter the chain only after farmgate prices are established, extracting margins from an already unequal structure.

This hierarchical and top-down pricing mechanism makes farmers passive recipients of prices rather than active participants in the market. As a result, the concentration of power among Aratdars and Beparis perpetuates asymmetric value capture, limiting farmers' ability to benefit from favorable market movements.

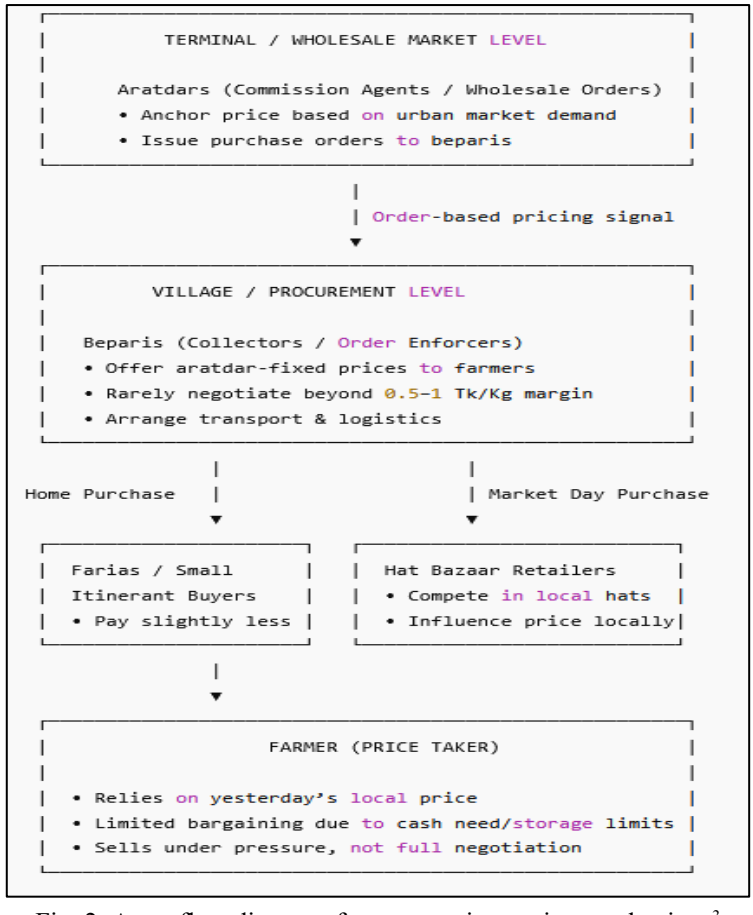

Fig. 2. Actor flow diagram: farm gate price-setting mechanism.[3]

[3] Source: Author's own investigation from the field survey.

3.3 Potato Market: Nominal Negotiation within a Pre-Set Price Band

In the potato market, price formation at the farmgate level is largely influenced by order-based directives rather than free market negotiation (Fig. 3). Farmers usually sell their produce to Beparis or Farias, who act as intermediaries on behalf of Aratdars operating in major wholesale hubs such as Bogura, Munshiganj, or Rangpur. Prior to village-level collection or market (hat) days, these intermediaries receive specific orders from Aratdars that include desired quantities and a ceiling purchase price—commonly known among traders as the "yesterday price." This reference price effectively anchors all local transactions and leaves minimal room for independent bargaining.

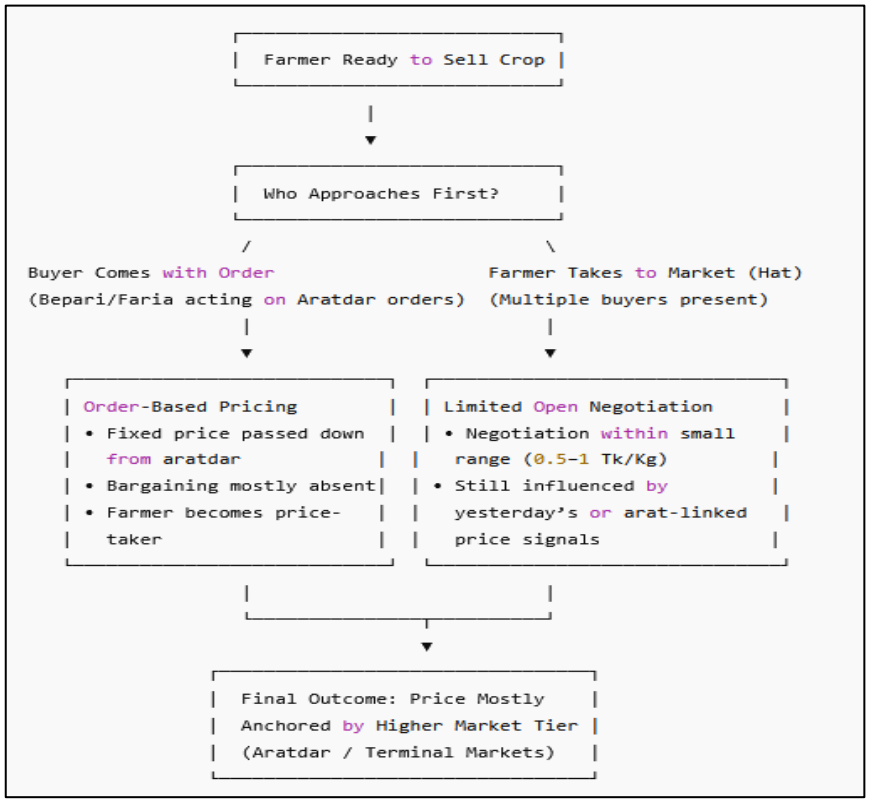

Fig. 3. Decision flow diagram: open negotiations vs. order-based pricing.[4]

Although farmers may attempt to negotiate slight premiums based on quality differentials, such as moisture content, tuber size, or potato type (seed vs. table potato), these variations rarely exceed Tk. 0.50–1.00 per kilogram from the price dictated by Aratdars (Fig. 3). In most cases, farmers are compelled to accept these

[4] Source: Author's own investigation from the field survey.

offers due to liquidity constraints or the absence of storage facilities, especially during peak harvesting periods when prices are lowest. Consequently, what superficially appears as negotiation is largely symbolic bargaining within a pre-determined range. The actual price-setting power rests with distant market actors at higher levels of the supply chain, reinforcing the structural dependency of farmers on intermediary networks.

3.4 Potato Market: Slow Upward Transmission and Rapid Downward Adjustment

It is evident from Figure 4 that, in the potato market, price transmission between terminal markets and farmgate levels demonstrates clear asymmetry. Ideally, farm-level prices should respond proportionally and promptly to wholesale market movements. However, evidence shows that positive price signals from major wholesale hubs such as Dhaka or Chattogram are often delayed or diluted before reaching producers. When terminal prices rise, Aratdars and Beparis typically continue to procure potatoes from farmers at earlier, lower prices, even when market information about higher rates is already circulating at the upper levels of the chain. Farmers often hear explanations such as "the local price has not yet adjusted," indicating that intermediaries consciously delay upward price transmission to capture the additional margin.

In contrast, negative price changes are transmitted immediately and forcefully. When terminal-market prices fall, collectors promptly inform farmers — often using phrases like "Arat-dara price kom," leaving little room for bargaining. This elastic downward but rigid upward transmission pattern reveals strategic manipulation rather than market-driven efficiency. Intermediaries exploit information asymmetry to appropriate surplus gains during rising markets while shifting losses onto producers during downturns.

Farmers with cold storage access occasionally mitigate this imbalance by delaying sales until prices stabilize, benefiting from their ability to hold stocks. However, the high cost of storage and the immediate need for cash among smallholders limit this option to a minority of producers. Consequently, the majority of farmers remain price-takers, unable to respond effectively to terminal-market dynamics. This systematic asymmetry in price transmission underscores the market power imbalance that favors intermediaries over primary producers in the potato value chain.

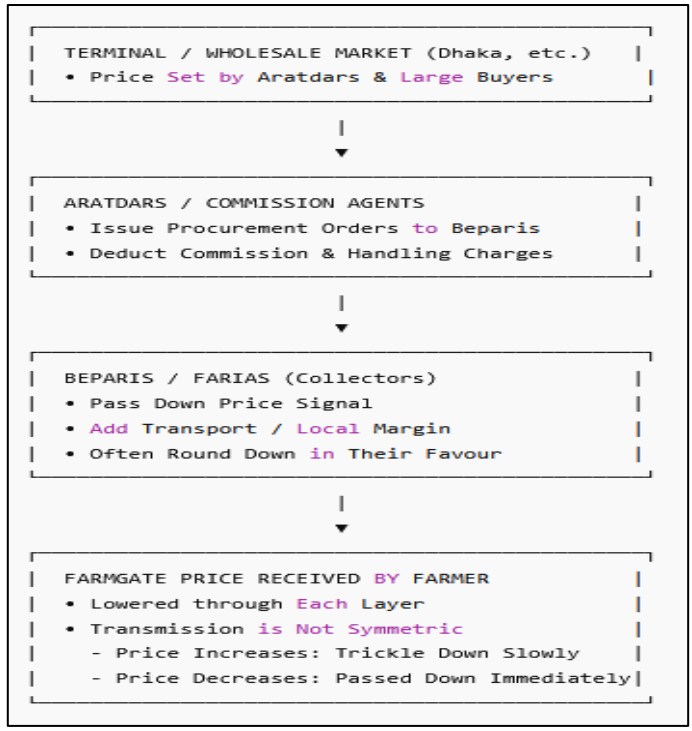

Fig. 4. Price transmission funnel.[5]

3.5 Potato Farmers: Highly Localized and Reactive Information Access

In the potato market, farmers' access to market information remains highly localized, fragmented, and reactive, creating a persistent disadvantage in farmgate negotiations. Survey data indicate that over 80% of potato farmers depend primarily on verbal communication with neighbouring farmers or local traders (Beparis or Farias) as their main source of price updates. Such information usually reflects the previous day's prices at nearby village hats (markets) rather than real-time movements in major wholesale centers such as Dhaka, Bogura, or Chattogram.

Although national television and radio occasionally broadcast wholesale price data, farmers often disregard these figures as irrelevant or unreliable, believing that they do not correspond to actual local offers. Consequently, price awareness at the production end of the chain remains both delayed and distorted. Farmers who sell under cash pressure—especially those without access to cold storage—are forced to accept whatever prices local traders offer, with minimal capacity to verify their fairness.

[5] Source: Author's own investigation from the field survey.

In contrast, Beparis and Aratdars operate within dense, real-time communication networks spanning multiple districts. Through mobile phones and coordinated buyer groups, they continuously monitor price shifts in terminal markets and adjust procurement strategies accordingly. This information asymmetry allows intermediaries to exploit timing advantages: price increases at wholesale levels are transmitted slowly to farmers, while price declines are communicated almost instantly. Farmers thus face a consistent lag in benefiting from upward market trends but bear the full brunt of downturns immediately.

This pattern represents a structural asymmetry in market intelligence — where intermediaries use superior information access not only to guide procurement decisions but also to shape farmers' price expectations. The result is a system where price formation reflects buyer coordination rather than open information flow, reinforcing farmers' role as passive price takers in the potato market.

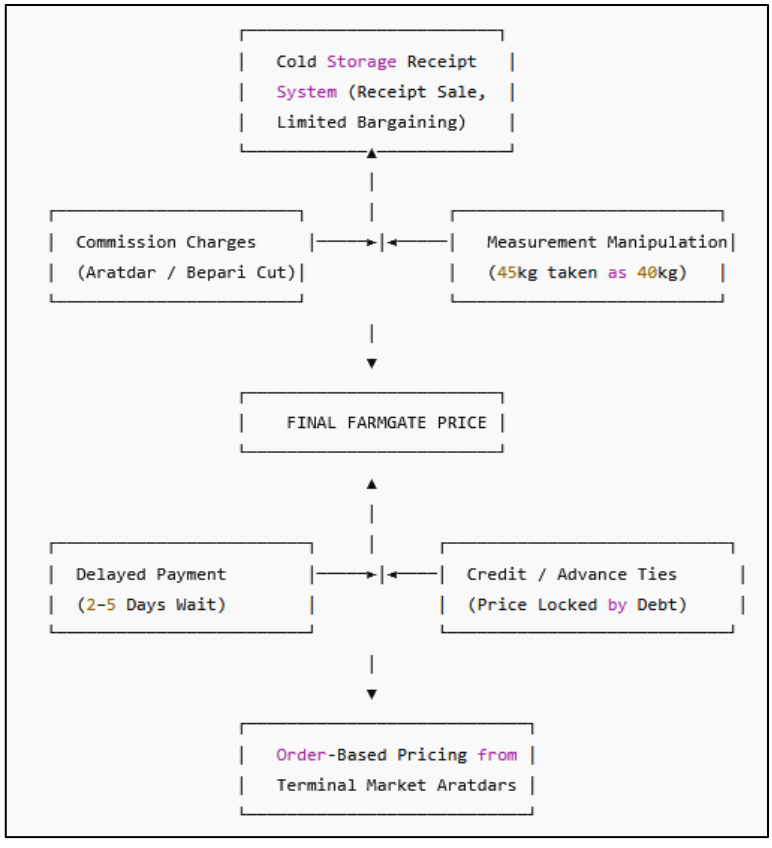

Fig. 5. Mechanism web diagram – determinants of final farmgate price.[6]

[6] Source: Author's own investigation from the field survey.

3.6 Bargaining Power and Information Asymmetry in Potato Marketing

The findings from the field survey and focus group discussions reveal that potato farmers in Bangladesh operate under highly unequal bargaining conditions, where information asymmetry and dependency relations overwhelmingly favor intermediaries. Farmers typically face immediate liquidity needs following harvest, while Beparis and Aratdars control critical market functions such as access to buyers, storage facilities, price information, and credit. This imbalance transforms farmers into passive price receivers rather than active negotiators.

Over 90 percent of potato farmers rely on cold storage facilities; however, rather than using storage receipts to secure better prices later in the season, most farmers are forced to sell early to repay debts or finance cultivation costs. In many cases, Beparis purchase potatoes directly from cold storage receipts at a pre-determined low rate, thereby gaining control over the produce even before market price discovery takes place. As a result, the potential benefits of delayed sales are largely captured by intermediaries instead of producers.

In price negotiations, the margin of discussion for farmers usually remains limited to Tk. 0.50–1.00 per kilogram, reflecting a severely constrained negotiation bandwidth. Conversely, intermediaries operate within much wider margins through vertical bargaining with Aratdars and wholesalers, extracting higher profits through price arbitrage. The absence of real-time market information exacerbates farmers' vulnerability, as they have little means to verify the prices being quoted by buyers. Thus, instead of genuine negotiation, farmers often accept prices anchored by intermediaries' informational advantage.

Furthermore, the commission-based trading system allows Beparis to claim that they merely "pass on" prices fixed by Aratdars, thereby deflecting responsibility and minimizing farmers' bargaining leverage. Hidden extraction mechanisms such as manipulated weighing practices—treating 40 kg as 45 kg per mon—further reduce farmers' effective returns without open confrontation (Fig. 5). Collectively, these conditions create a structure where intermediaries dominate price formation, and farmers remain locked in a cycle of dependency and information disadvantage.

4. Conclusion and Recommendation

4.1 Conclusion

This study shows that farmgate potato price formation in Bangladesh is governed by a structurally asymmetric marketing system in which intermediaries—particularly Aratdars and Beparis—exercise substantial market power, leaving farmers with limited bargaining capacity. Although cold storage facilities are widely used, they often intensify farmers' dependence through loan obligations, commission-based transactions, and receipt-linked sales, rather than enabling

strategic market participation. The findings reveal pronounced price transmission asymmetry, whereby declines in wholesale prices are quickly passed on to farmers, while price increases are delayed or diluted. Informal yet institutionalized practices such as non-standard weighing, advance payments, and order-driven procurement further entrench intermediary dominance. Overall, the results indicate that institutional embeddedness and intermediary control, rather than competitive supply–demand forces alone, play a decisive role in shaping farmgate price outcomes in Bangladesh's potato market.

4.2 Recommendations

- Promote farmer cooperatives and storage-based producer organizations to strengthen collective bargaining power and reduce farmers' reliance on individual intermediaries.
- Introduce digital price information systems that provide farmers with real-time price updates from terminal and wholesale markets.
- Regulate *Aratdar* commissions and trading practices through transparent fee structures and formal transaction documentation.
- Enforce standardized weighing and transaction procedures to prevent systematic under-measurement and hidden price reductions.
- Encourage future research combining qualitative and econometric approaches, particularly price pass-through and volatility transmission analysis, to support evidence-based market reforms.

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References

Abokyi E, D. Strijker, K. F. Asiedu and M. N. Daams. 2020. The impact of output price support on smallholder farmers' income: evidence from maize farmers in Ghana. *Heliyon* **6**(9): e05013, Doi:10.1016/j.heliyon.2020.e05013.

Akter S, K. T. Rahman, A. R. Anik and M. R. Amin. 2023. Growth and trend analysis of onion production in Bangladesh. *Annals of Bangladesh Agriculture* **27**(2):201–210, Doi:10.3329/aba.v27i2.72547.

Akter, T, M. M. Rahman and M. S. Miah. 2016. An analysis of potato value chain in Bogra district of Bangladesh. *Asian Journal of Agricultural Extension, Economics & Sociology* 1–8, Doi:10.9734/AJAEES/2016/23507.

Alamgir, M. S., M. R. Ahmed, J. U. Ahmed and R. B. Mostafiz. 2020. Economic evaluation of production costs and returns of potato crop in Sylhet region of Bangladesh. *Natural Resources* **11**(3):96–111. Doi:10.4236/nr.2020.113006.

Gilbert, C. L. and C. W. Morgan. 2010. Food price volatility, *Philosophical Transactions of the Royal Society B: Biological Sciences*. Doi:10.1098/rstb.2010.0139.

Haque, M. A., M. M. Miah, S. Hossain, M. S. Rahman and M. Moniruzzaman. 2011.'Profitability of onion cultivation in some selected areas Of Bangladesh. *Bangladesh Journal of Agricultural Research* **36**(3):427–435. Doi:10.3329/ bjar.v36i3.9271.

Hossain, M. Z., M. A. Kashem, M. M. Rashid, F. Ferdous and M. M. H. Molla. 2025. Diversity of potato varieties, farmers choices and production constraints in the selected areas of Bangladesh', *SAARC Journal of Agriculture* **23**(1):40-53. https://doi.org/ 10.3329/sja.v23i1.76784

Huq, A. S. M. A., S. Alam and S. Akter. 2004. Marketing efficiency of different channels for potato in selected areas of Bangladesh. *Bangladesh Journal of Agricultural Economics*. Doi:10.22004/ag.econ.200337.

Islam, Q. M. S., M. A. Matin, M. S. H. Siddiquee and M. T. Islam. 2018. Adoption and profitability of BARI released potato varieties in northern region of Bangladesh. *Bangladesh Journal of Agricultural Research* **43**(2):309–322. Doi:10.3329/bjar. v43i2.37334.

Kalkuhl, M, J. von Braun and M. Torero. 2016. *Food Price Volatility and Its Implications for Food Security and Policy*. https://mpra.ub.uni-muenchen.de/72164/, accessed 1 October 2025.

Li, C. and R. J. Sexton. 2013. Grocery-Retailer Pricing Behavior with Implications for Farmer Welfare. *Journal of Agricultural and Resource Economics*. Doi:10.22004/ag. econ.158282.

Mila, F. A., A. Nahar, M. R. Amin, R. J. Culas and A. Ahmed. 2022. Empirical assessment of onion supply chain constraints in Bangladesh: A pre-covid to covid situation. *Journal of Agriculture and Food Research* **10**:100418. Doi:10.1016/j.jafr.2022. 100418.

Miranda, M. J. and P. G. Helmberger. 1988). The effects of commodity price stabilization programs. *The American Economic Review* **78**(1):46–58. https://www.jstor.org/stable/ 1814697

Moazzem, K. G. and K. Fujita. 2004. The potato marketing system and its changes in Bangladesh: from the perspective of a village study in Comilla district. *The Developing Economies* **42**(1):63–94, Doi:10.1111/j.1746-1049.2004.tb01016.x.

Russo, C. and R. Goodhue. 2018. Farmgate prices, retail prices, and supermarkets' pricing decisions: An integrated approach. *Agribusiness* **34**(1):24–43. Doi:10.1002/agr.21530.

Shaheb, M. R. S., M. M. Begum, K. U. Ahmed, M. I. Nazrul and S. G. Wiersema. 2015. Challenges of seed Potato (*Solanum tuberosum* L.) production and supply system in Bangladesh - A Review. *The Agriculturists* **13**(1):173–188. Doi:10.3329/agric.v13i1. 26560.

Sujan, H. K., F. Islam ,M. H. Kazal and R. K. Mondal. 2017. Profitability and resource use efficiency of potato cultivation in Munshiganj district of Bangladesh. *SAARC Journal of Agriculture* **15**(2):193–206. Doi:10.3329/sja.v15i2.35151.

Vivekanandhan, V., S. Sneha, S. R. S. Y. Sowndarya and V. Vishnukumar. 2025. Empowering farmers through direct market access. *International Research Journal on Advanced Engineering Hub (IRJAEH)* **3**(05):2569–2580. Doi:10.47392/IRJAEH. 2025.0383.

Wright, B. D. 2011. The economics of grain price volatility. *Applied Economic Perspectives and Policy* **33**(1):32–58. Doi:10.1093/aepp/ppq033.

Yeshiwas Y, M. Alemayehu and E. Adgo. 2023. The rise and fall of onion production; its multiple constraints on pre-harvest and post-harvest management issues along the supply chain in northwest Ethiopia. *Heliyon* **9**(5):e15905. Doi:10.1016/j.heliyon. 2023.e15905.