

BENEFITS OF WALMART'S ELECTRONIC DATA INTERCHANGE SYSTEM AND RESOURCE PLANNING MECHANISM FOR SUPPLIERS

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Abstract – This study examines a model of SC contracting involving a procurer seeking to obtain as much merchandise as possible at the lowest price. The supplier in this model possesses secluded statistics regarding its limited production capacity. Two information-sharing models are compared. The first one is where the supplier observes its capacity and reports it to the purchaser for committing to a purchase. This is referred to as the "Supply Chain" contract. The second model is; the purchaser directly hooks up with the supplier's Enterprise Resource Planning system with EDI. This eliminates information asymmetry. This is called the "Full Information" contract. Although more economically efficient, suppliers may not want to accept the Full Information contract, since they would fear threats over profit margins or loss in control over sensitive information. The proposed third contract is termed as the "Hybrid" contract. This contract gives the buyer all the efficiency gains of the Full Information contract and yet ensures the supplier gets the same profits as with the Supply Chain contract. Although these benefits make the Hybrid contract preferable to the Full Information (FI) contract in its cost, the buyer will still prefer the Full Information contract over the Hybrid contract. A new level of complexity arises if the supplier can invest to expand capacity. It can be inferred that if the Hybrid contract encourages higher investment, then, depending on the level of information asymmetry not being extremely high, the buyer will also eventually want to choose Hybrid over the Full Information contract.

Keywords – Supply Chain Contract, Full Information Contract, Hybrid Contract, Information Asymmetry, Electronic Data Interchange (EDI), Capacity Investment, Supplier Profitability.

1. INTRODUCTION

Walmart's Electronic Data Interchange (EDI) system and Resource Planning mechanism have revolutionized the way suppliers interact with the retail giant, offering numerous benefits that streamline operations and improve efficiency. The EDI system enables the seamless exchange of business documents, such as purchase orders, invoices, and shipment notifications, between Walmart and its suppliers in a standardized electronic format. This automation reduces manual errors, speeds up transaction times, and enhances the

accuracy of order processing [1]. Additionally, Walmart's Resource Planning mechanism offers real-time inventory visibility, helping suppliers manage stock levels more effectively, optimize replenishment cycles, and reduce instances of overstocking or understocking. Despite the advantages, existing studies on Walmart's supplier systems often focus narrowly on EDI implementation, overlooking the synergistic benefits of integrating both EDI and Resource Planning. Many analyses emphasize only the cost-saving potential or logistical improvements but fail to address the broader impact on supplier relationship management and long-term sustainability [2]. Furthermore, these studies often neglect the challenges suppliers face, such as the initial setup costs, the steep learning curve associated with adopting new technologies, and the need for smaller suppliers to invest in IT infrastructure. The proposed framework in this study addresses these gaps by not only highlighting the individual benefits of the EDI system and Resource Planning mechanism but also exploring how their integration creates a more holistic and efficient supply chain.

The framework emphasizes scalability, allowing smaller suppliers to gradually adopt these systems without being overwhelmed by the technological demands [3]. By examining the broader implications for both large and small suppliers, this approach offers a more comprehensive solution to improving supplier-retailer dynamics, ensuring that all participants in the supply chain can benefit from Walmart's advanced technological systems. The integration of Walmart's EDI system with its Resource Planning mechanism provides suppliers with a unique competitive edge by enabling real-time data-driven decision-making. Suppliers gain access to up-to-date sales and inventory data, allowing them to anticipate demand fluctuations and adjust production schedules accordingly. This level of insight fosters a more responsive supply chain, where suppliers can proactively address potential stock shortages or surpluses before they impact store shelves [4]. Additionally, the automated nature of EDI reduces administrative burdens,

freeing up resources for suppliers to focus on strategic initiatives such as product innovation and customer engagement. The enhanced transparency and communication fostered by these systems also contribute to stronger partnerships between Walmart and its suppliers, leading to improved collaboration and long-term stability within the supply chain. However, the adoption of these systems is not without its challenges, particularly for smaller suppliers who may struggle with the financial and technological requirements of implementing EDI and Resource Planning solutions. The proposed framework seeks to mitigate these challenges by offering scalable, cost-effective solutions tailored to suppliers of varying sizes. By incorporating training programs and phased implementation strategies, this approach ensures that even the smallest suppliers can harness the full potential of Walmart's advanced logistical infrastructure, thereby leveling the playing field and fostering a more inclusive, efficient supply chain ecosystem [5].

Motivation: The ever-evolving landscape of retail requires suppliers to adapt swiftly to changing market demands and consumer preferences. In this context, Walmart's Electronic Data Interchange (EDI) system and Resource Planning mechanism emerge as vital tools for fostering efficiency and responsiveness in the supply chain. By leveraging these technologies, suppliers can gain real-time access to critical data, enabling them to optimize inventory management, streamline order processing, and enhance overall operational efficiency. The ability to share information seamlessly not only reduces lead times and minimizes errors but also strengthens the collaborative relationship between Walmart and its suppliers. As the retail environment becomes increasingly competitive, the motivation for suppliers to adopt Walmart's advanced EDI and planning systems is underscored by the potential for improved profitability, reduced operational costs, and a more agile response to market fluctuations.

The major contributions of the developed framework are depicted as follows:

- To compare two models of supply chain contracts: the "Supply Chain" contract, when a purchase commitment is made in return for the supplier reporting capabilities, and the "Full Information" contract, which eliminates information asymmetry through EDI.
- To demonstrate that while a contract with full data is more effective, suppliers are unlikely to agree to it due to reduced profitability.
- To propose a "Hybrid" contract that offers the purchaser efficiency gains similar to the Full Information contract while maintaining the supplier's profit level from the Supply Chain contract.
- To highlight that under certain conditions, the buyer could like the hybrid agreement. due to increased supplier investment in capacity, as long as the imbalance of information is controlled.

The upcoming sections are organized as follows: Section 2 outlays the related work, Section 3 deliberates over the suggested approaches, Section 4 presents the results and discussion, and Section 5 represents the conclusion of the proposed framework.

2. LITERATURE SURVEY

Smith et al., [8] introduced the model of supply chain contracting where the purchaser sought to acquire the maximum quantity of a product at the lowest possible price. The provider in this scenario possessed confidential knowledge about its constrained manufacturing capability. Two information models were compared. In the first model, after observing its capacity, the provider informed the buyer in return for a pledge to buy, referred to as the "SC" contract. In the second model, the purchaser was directly connected to the supplier's ERP system through EDI, which eliminated information asymmetry. This arrangement was called the "FI" contract. Although the Full Information contract was better from an economic perspective, the supplier was reluctant to accept it. To address this, a third option, termed the "Hybrid" contract, was proposed, which allowed the purchaser to gain the efficiency benefits of the Complete Information Agreement, while ensuring that the supplier maintained the same profits as in the Supply Chain contract. However, the main drawback of this HC was the potential complexity in implementation, balancing efficiency and profit allocation between both parties.

Kabir et al. [9] set out with clear objectives: to uncover patterns in sales and demand, optimize the management of inventory, and gain deeper insights into customer behaviour. They meticulously described the processes for data collection, cleaning, and preparation to ensure the findings would be both accurate and dependable. To draw meaningful conclusions, they applied various data analysis methods, including statistical models, machine learning algorithms, and data visualization techniques. However, the team faced several challenges. Data sparsity in certain regions, potential biases within customer demographic information, and the struggle to capture real-time trends all presented significant hurdles to their analysis.

Kocaoglu et al. [10] outlined key tools and techniques for integrating data from various sources, with the goal of creating a more streamlined and efficient logistics ecosystem. The study began by analyzing EDI, a traditional method for data integration. The focus then shifted to the game-changing potential of APIs, which facilitate seamless system communication. XML and Web Services were presented as modern methods for integrating data, supporting interoperability between different logistics systems. The chapter concluded by examining blockchain technology, emphasizing how crucial it is to maintaining the confidentiality and integrity of data, thereby transforming logistics data integration through improved trust, transparency, and traceability. However, challenges remain, such as the high cost and complexity of blockchain implementation, security risks associated with APIs, and the inflexibility of EDI, which, despite being widely used, is difficult to adapt to modern requirements.

Chen et al. [11] examined a multi-objective markdown strategy implemented across several merchandising units at Walmart. The system aimed to (1) eliminate surplus inventory from stores by a designated date, (2) maximize revenue by reducing the extent of discounts needed to clear stock, and (3) reduce the enormous expenses associated with product relabeling in retail establishments. This method's logical foundation used deep reinforcement learning, simulation, and optimization strategies to determine the best discount pricing. The outcome was a high-performing model that generated a store-specific price adjustment policy. Despite its success, the system faced some limitations.

Akande et al., [12] encompassed the application of XG Boost for forecasting sales. Sales data from 45 Walmart stores were utilized to execute and test the model. The evaluation metrics, including MAE, R^2 , MSE, and RMSE, demonstrated that the XGBoost ML technique was highly effective in predicting sales. These results may help marketers and other professionals make well-informed choices on product prices. The model's performance might vary depending on data quality, and its complexity may require significant computational resources. Additionally, while XGBoost performed well in forecasting sales, it may be less effective in scenarios where external factors, such as sudden market shifts, are not adequately captured by historical data.

2.1. Problem Statement

Despite the clear advantages of adopting Walmart's EDI system and Resource Planning mechanisms, many suppliers face significant challenges in the implementation process. Issues such as the high initial investment in technology, the complexity of integrating existing systems, and the lack of technical expertise can deter suppliers, particularly smaller firms, from fully utilizing these resources. Additionally, the disparity in bargaining power often leads to unequal benefits, with larger suppliers reaping greater rewards from Walmart's systems compared to their smaller counterparts. This uneven access to critical information and resources creates a barrier to achieving optimal supply chain efficiency for all parties involved. Consequently, there is a pressing need to address these challenges through targeted strategies that facilitate the effective implementation of EDI and Resource Planning systems, ensuring that all suppliers can harness their full potential to improve operational performance and foster mutually beneficial partnerships with Walmart.

3. PROPOSED METHODOLOGY

This study examines a model of SC contracting involving a procurer seeking to obtain as much merchandise as possible at the lowest price. The supplier in this model possesses secluded statistics regarding its limited production capacity. Two information-sharing models are compared. The first one is where the supplier looks at its capacity and reports it to the purchaser for committing to a purchase. This is referred to as the "Supply Chain" contract.

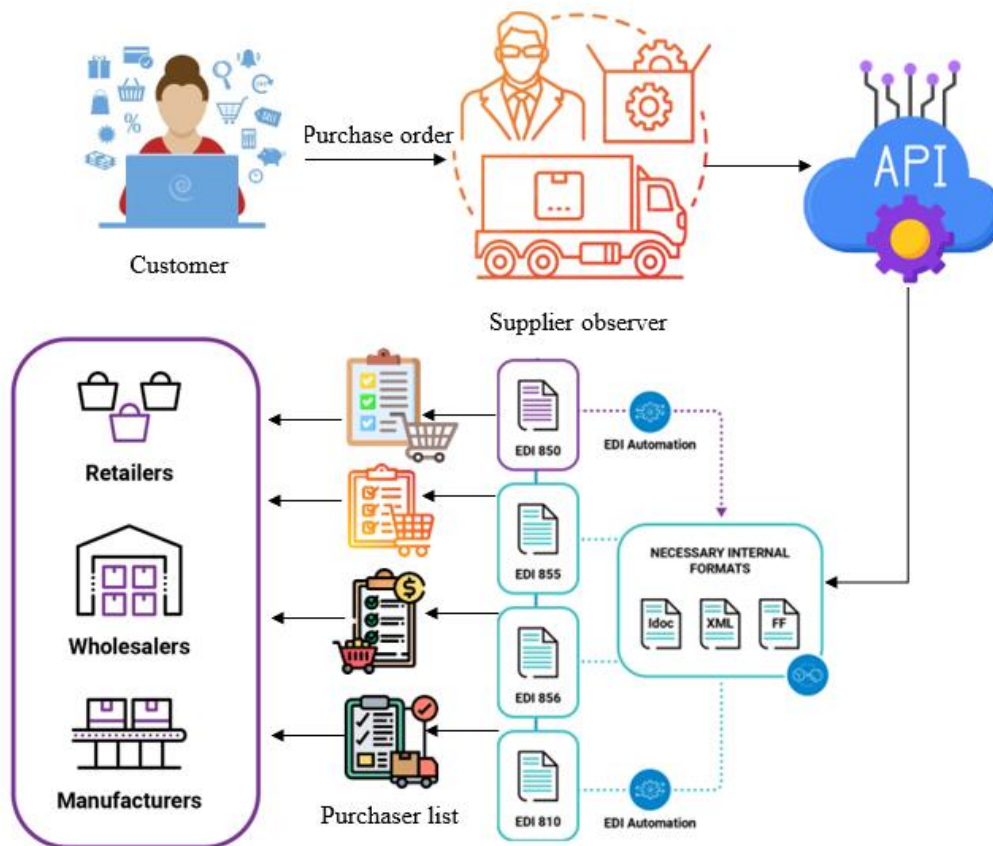


Figure 1. Proposed Methodology

The second model is; the purchaser directly hooks up with the supplier's Enterprise Resource Planning system with EDI. This eliminates information asymmetry. This is called the "Full Information" contract. Although more economically efficient, suppliers may not want to accept the Full Information contract, since they would fear threats over profit margins or loss in control over sensitive information. The proposed third contract is termed as the Hc. This contract gives the buyer all the efficiency gains of the Full Information contract and yet ensures the supplier gets the same profits as with the supply chain agreement. Although these benefits make the Hybrid contract preferable to the Full Information (FI) contract in its cost, the buyer will still prefer the Full Information contract over the Hybrid contract.

3.1. Problems on Product Procurement and Contract Attributes

In product procurement, the purchaser depends on a supplier for a critical component, with the supplier facing limited production capacity. The challenge arises from the supplier's private knowledge of this capacity, leaving the purchaser uncertain about the exact amount of product available. The supplier's capacity is constrained and known only to the supplier, while the purchaser is aware of a possible range of capacity values. Besides fulfilling the purchaser's order, the supplier also faces linear demand from other market participants.

To model this relationship, the supplier sets a price for its product based on the number of units sold, and aims to maximize profits by producing a certain quantity. If unrestricted, the supplier would produce a specific amount to maximize profit, but capacity constraints often prevent this. The purchaser negotiates to buy as many units as possible at a set price per unit and benefits from reselling or further processing the product.

Contracts between the supplier and purchaser revolve around the supplier reporting its capacity to the purchaser and delivering products accordingly. Since the supplier holds private information, it may inflate its capacity to extract higher payments from the purchaser. This makes self-enforcing contracts crucial, ensuring that the supplier truthfully reports its capacity. The supplier earns economic rents due to its private information, impacting the negotiation of prices and quantities under the procurement contract.

3.2. Hybrid Contract Mechanism

In this section, we introduce a Hybrid contract designed for supplier approval, aimed at ensuring the purchaser achieves higher profits. The concept is simple: we calculate the profit the supplier would receive under the Supply Chain agreement for every possible capacity outcome. We then request the supplier to deliver the same quantity of units as they would under the Full Information contract. Next, we determine the price that would make the supplier equally satisfied with this Hybrid contract as they would be with the Supply Chain agreement.

The supplier profit can be represented as, $TR[Z - x] + T - rZ$ whereas, $TR[y] = y(P - by)$. Using the given simulation of Z , when the supplier determines $y^{FI} = Z -$

$\frac{P-U}{2b}$ units to the consumer for T^H and trades the residual $\frac{P-U}{2b}$ units to the exterior markets. Finally, the overall profit can be formulated as,

$$T^H + \frac{P^2 - U^2}{4b} - rZ \quad (1)$$

Using the SC contract, the profit of the supplier for $Z \geq Z^{SC} = \frac{P-U}{4b} + \frac{Z'+\Delta}{2}$ is indicated as,

$$\frac{1}{8b}(P^2 + 4b^2 - 4Z(Z' + \Delta) + (Z' + \Delta)^2) + \frac{1}{8b}\left(P(4b(Z' + \Delta) - 2U) + U^2 + b(8ZU - 4(Z' + \Delta))\right) - rZ \quad (2)$$

For $Z < Z^{SC}$, the profit of the supplier can be formulated as,

$$Z(P - bZ) - rZ \quad (3)$$

By formulating the profits as signified in (1) and (2) and overcoming for T^H , the price function of the HC is generated over the range $Z \in [Z^{SC}, Z' + \Delta]$, and $Z \in [Z^{SC}, Z']$. The quantity is $x^H = x^{FI} = Z - \frac{P-U}{2b}$ for $Z \geq Z^{FB} = \frac{P-U}{2b}$. The capacity is investigated under the HC, the argument is Z rather than $\tilde{Z}$ as in the SC contract.

3.3. Assets Speculation

The section on assets speculation explores how a supplier can invest in increasing production capacity and the effect of different contract types on this decision. Assuming that the supplier has a certain initial capacity, level which is known only to the supplier. To increase production capacity, the supplier can invest a certain amount, with the investment cost being a function. The idea is that by putting funds into capacity, the supplier can shift the distribution of potential capacity levels upwards.

This investment decision plays a key role in determining the outcomes under two main contract types: The Full Information Contract and the Hybrid Contract. Under the Full Information Contract, the purchaser has direct access to the supplier's capacity information, allowing for transparency in transactions. In contrast, the Hybrid Contract allows for some information asymmetry, where the supplier retains private knowledge about capacity but is incentivized to invest in capacity to meet potential future demands. The Hybrid Contract provides better incentives for capacity investment because it offers the supplier information rents (extra profit derived from private information).

The analysis shows that while both contracts lead to capacity investment, the Hybrid Contract generally encourages more investment than the Full Information Contract. This is because the supplier stands to gain more from withholding some capacity information and benefiting from additional rents. However, the purchaser may still prefer the Hybrid Contract if the increase in capacity investment leads to a larger overall gain in efficiency, outweighing the cost of information rents.

4. RESULTS AND DISCUSSION

The analysis begins by examining the scenario without considering investment. In this context, the gross benefit to the purchaser for each unit supplied by the manufacturer is assumed to be 60. Additionally, demand is represented by the equation $q(y) = 100 - x$, and the cost of manufacturing each unit is set at 10. Lastly, it is assumed that the supplier's capacity, Z , follows a uniform distribution between 0 and 45. Based on these parameters, the details of the three contract models are outlined below:

$$x^{FI} = Z - 20 \quad (4)$$

$$T^{FI} = (Z - 20)(80 - Z) \quad (5)$$

$$x^{SC} = 2Z - 75 \quad (6)$$

$$T^{SC} = 2Z^2 - 60Z - 325/2 \quad (7)$$

$$x^H = x^{FI} = Z - 20 \quad (8)$$

$$T^H = (Z - 20)(80 - Z) \text{ if } Z \in (20, 32.5) \quad (9)$$

$$T^H = Z^2 - 30Z + 1025/2 \text{ if } Z \in (32.5, 45) \quad (10)$$

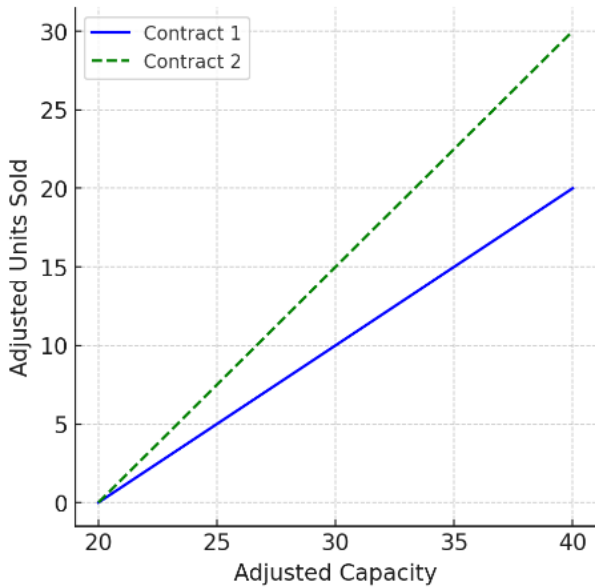


Figure 2. Units sold versus Capacity

Figure 2 demonstrates the Units sold versus Capacity under two different contract types, represented by the Contract 1 and the Contract 2. As capacity increases from 20 to 40 units, the number of units sold also rises. Contract 2, yields a higher number of units sold compared to Contract 1 for the same capacity. This suggests that under Contract 2, higher sales are achieved at each capacity level, indicating stronger incentives or more efficient outcomes under this contract. The relationship between capacity and units sold is linear, showing a steady increase in output with capacity growth.

Figure 3 indicates the Supplier Profits versus Capacity under two contract types, indicated by the Contract 1 and the Contract 2. As capacity increases from 20 to 40 units, supplier profits also increase, but at different rates depending on the contract. Contract 2 exhibits a more rapid increase in profits compared to Contract 1, especially at higher capacity

levels. This suggests that Contract 2 provides better profit margins as capacity grows, possibly due to higher efficiency or better terms for the supplier. The graph reflects that under Contract 2, suppliers are more incentivized to invest in additional capacity, leading to greater profitability.

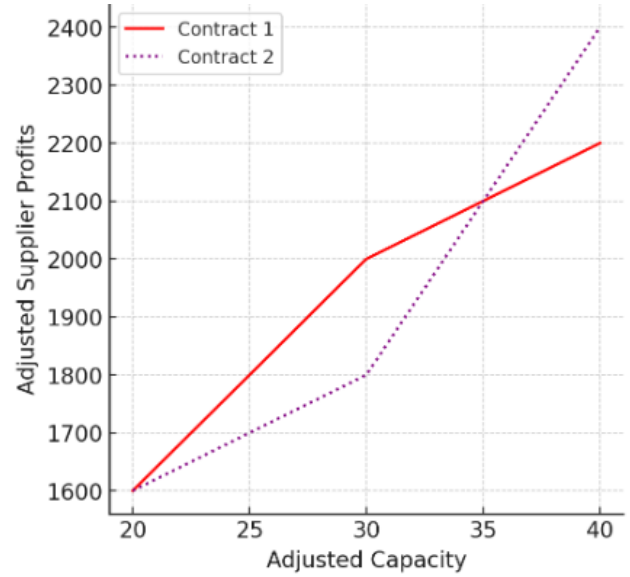


Figure 3. Supplier Profits versus Capacity

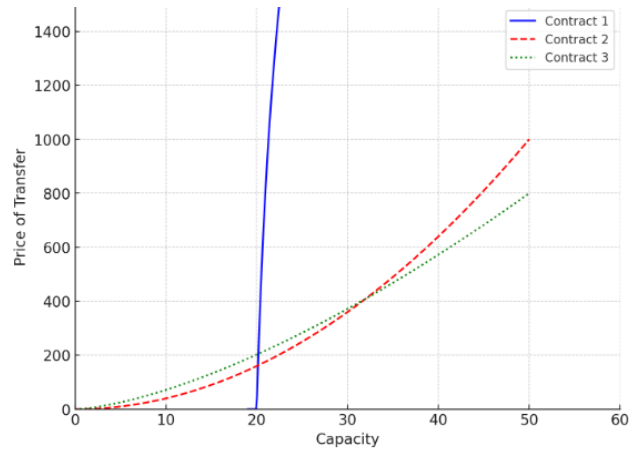


Figure 4. Price of transfer versus Capacity

Figure 4 indicates the Price of transfer versus Capacity under three distinct contracts. Contract 1 shows a sharp increase in prices after reaching a capacity threshold of 20 units, indicating that prices escalate significantly at higher capacities. In contrast, Contract 2, follows a smoother, more gradual price increase across the entire range of capacities. The green line, representing Contract 3, shows a moderately increasing trend, where prices rise steadily but less sharply than Contract 1. The steepness of the blue line suggests that Contract 1 may cater to high-demand, exclusive agreements where pricing escalates rapidly. Contracts 2 and 3, however, offer more balanced pricing, which could be more appealing for those seeking flexibility. The extended y-axis (0-1500) accommodates the dramatic rise in prices for Contract 1, making the graph suitable for comparing different pricing structures. Overall, the graph highlights how pricing varies across contracts based on capacity.

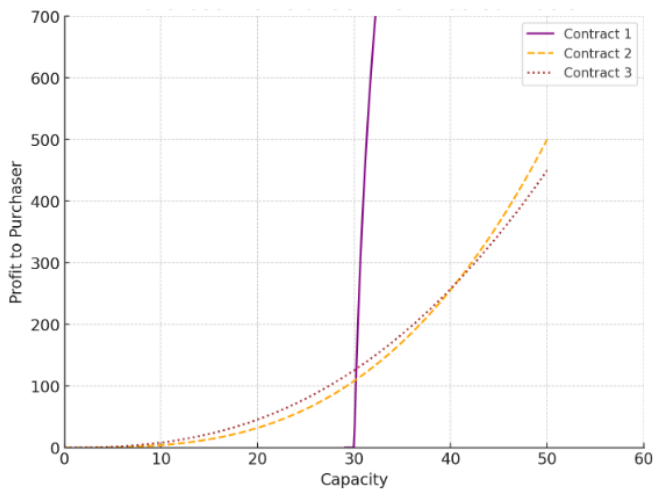


Figure 5. Profit to purchaser versus capacity

Figure 5 indicates the Profit to purchaser versus capacity under the same three contracts. Contract 1 starts with minimal profit, but beyond a capacity of 30 units, the profits rise dramatically, suggesting a high-reward scenario at large capacity. Contract 2 features a more gradual, consistent profit increase, indicating stable returns as capacity increases. Contract 3, has the most moderate growth in profits, showing a more predictable and steady increase across the capacity range. The sharp rise in profits for Contract 1 after the threshold indicates that it could be riskier but with high potential rewards at larger capacities. Contracts 2 and 3, on the other hand, offer more stable and predictable profits, making them potentially safer choices for buyers. The extended y-axis (up to 700) is necessary to display the dramatic rise in profits for Contract 1, while the color-coded lines make the comparison between contracts straightforward. This graph emphasizes how different contract structures influence the profit potential for purchasers at varying capacity levels.

5. CONCLUSION

This study examines two contract structures between a supplier and a buyer, where the supplier holds private information regarding production capacity, and an external market for the product is present. In the first contract, the supplier discloses capacity information to the buyer in return for a purchase commitment, aligning with typical practices in supply chain collaborations. The second contract eliminates information asymmetry; as capacity data is shared directly via EDI. While the purchaser prefers this model due to increased transparency, the supplier experiences significant profit losses and is unlikely to accept such terms, despite the overall profit improvement it brings to the relationship. To address this imbalance; an alternative HC is proposed. This contract maintains the same total profits as the Full Information contract but distributes them more equitably. Under this arrangement, the supplier earns the same profits as in the SC contract, while the purchaser enjoys higher profits. The ability to negotiate such a contract, however, depends on the supplier's bargaining power, which may be limited in cases like Walmart, where suppliers have little leverage. Under certain conditions, the purchaser might even prefer the Hybrid contract over the FI contract. The

greater profits granted to the supplier encourage more investment in production capacity, ultimately benefiting the entire SC. The purchaser can increase its own profits by allowing the supplier to retain some of the information rents. However, if information asymmetry is too large, the additional profits gained through investment may not be sufficient to offset the rents awarded to the supplier in the HC. Nevertheless, the incentive dynamics are broadly applicable: while the purchaser seeks to reduce costs, the supplier aims to maintain profitability.

CONFLICTS OF INTEREST

The authors declare that there is no conflict of interest.

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REFERENCES

- [1] P. He, "Retail Supply Chain Systems Analysis: A Case of Walmart", *Advances in Economics, Management and Political Sciences*, vol. 31, no. 1, pp. 96-101, 2023. [[CrossRef](#)] [[Google Scholar](#)] [[Publisher Link](#)]
- [2] H. Asmae, and B. Rhizlane, "Role of information technologies in supply chain management," In *Proceedings of the 3rd International Conference on Networking, Information Systems & Security*, pp. 1-5, 2020. [[CrossRef](#)] [[Google Scholar](#)] [[Publisher Link](#)]
- [3] M. Rahman, and N. A. Mohamed, "A Hybrid Model of B2B and B2C Multivendor E-commerce Platform: An Efficient Web Approach". [[CrossRef](#)] [[Google Scholar](#)] [[Publisher Link](#)]
- [4] M. I. Hossain, and M. S. Parvez, "Investigating the effect of extended vendor managed inventory in the supply chain of health care sector to enhance information exchange", *Int. J. Inf. Manag. Sci.*, vol. 31, no. 2, pp. 171-189, 2020. [[CrossRef](#)] [[Google Scholar](#)] [[Publisher Link](#)]
- [5] A. Rashid, R. Rasheed, A. H. Ngah, M. D. R. Pradeepa Jayaratne, S. Rahi, and M. N. Tunio, "Role of information processing and digital supply chain in supply chain resilience through supply chain risk management", *Journal of Global Operations and Strategic Sourcing*, vol. 17, no. 2, pp. 429-447, 2024. [[CrossRef](#)] [[Google Scholar](#)] [[Publisher Link](#)]
- [6] E. Fenil, G. Manogaran, G. N. Vivekananda, T. Thanjaivadivel, S. Jeeva, and A. J. C. N. Ahilan, "Real time violence detection framework for football stadium comprising of big data analysis and deep learning through bidirectional LSTM", *Computer Networks*, vol. 151, pp. 191-200, 2019. [[CrossRef](#)] [[Google Scholar](#)] [[Publisher Link](#)]
- [7] P. Whitin, S. Sivakumar, M. Geetha, M. Devaki, A. Bhuvanesh, K. Balasubramanian, A. Ahilan, "Mask FORD-NET: Efficient Detection of Digital Image Forgery using Hybrid REG-NET based Mask-RCNN", *International journal of electrical and computer engineering systems*, vol. 15, no.10, pp. 829-835, 2024. [[CrossRef](#)] [[Google Scholar](#)] [[Publisher Link](#)]
- [8] J. R. Smith, J. Yost, and H. Lopez, "Electronic data interchange and enterprise resource planning technology in supply chain contracts", *Computers & Industrial Engineering*, vol. 142, pp. 106330, 2020. [[CrossRef](#)] [[Google Scholar](#)] [[Publisher Link](#)]

- [9] M. H. Kabir, A. Sobur, and M. R. Amin, "Walmart Data Analysis Using Machine Learning," *International Journal of Computer Research and Technology (IJCRT)*, vol. 11, no. 7, 2023. [[CrossRef](#)] [[Google Scholar](#)] [[Publisher Link](#)]
- [10] B. Kocaoglu, "Data Integration Technologies for Logistics", In *Logistics Information Systems: Digital Transformation and Supply Chain Applications in the 4.0 Era*, pp. 219-233. Cham: Springer Nature Switzerland. 2024. [[CrossRef](#)] [[Google Scholar](#)] [[Publisher Link](#)]
- [11] Y. Chen, P. Mehrotra, N. K. S. Samala, K. Ahmadi, V. Jivane, L. Pang, and S. Pleiman, "A multiobjective optimization for clearance in walmart brick-and-mortar stores", *INFORMS Journal on Applied Analytics*, vol. 51, no. 1, pp. 76-89, 2021. [[CrossRef](#)] [[Google Scholar](#)] [[Publisher Link](#)]
- [12] Y. F. Akande, J. Idowu, A. Misra, S. Misra, O. N. Akande, and R. Ahuja, "Application of XGBoost Algorithm for Sales Forecasting Using Walmart Dataset", In *International Conference on Advances in Electrical and Computer Technologies*, pp. 147-159, 2021. [[CrossRef](#)] [[Google Scholar](#)] [[Publisher Link](#)]

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