Food Policy 119 (2023) 102521

Contents lists available at ScienceDirect

Food Policy

journal homepage: www.elsevier.com/locate/foodpol

# Unfair trading practices and countervailing power

Carlo Russo [a], Federica Di Marcantonio [b], Luca Cacchiarelli [c,*], Luisa Menapace [d], Alessandro Sorrentino [c]

[a] University of Cassino and Lazio Meridionale, Department of Economics and Law, Via S. Angelo loc. Folcara, 03043 Cassino, FR, Italy
[b] European Commission, Joint Research Centre, D4, Economics of the Food System, Edificio Expo, Calle Inca Garcilaso, 3, 41092 Seville, Spain
[c] Tuscia University DEIM – Department of Economics and Management, Via del Paradiso 47, 01100 Viterbo, Italy
[d] Technical University of Munich Governance in International Agribusiness, TUM School of Management & TUM School of Life Sciences, Alte Akademie 12, 85354 Freising, Germany

ARTICLE INFO

*Keywords:*
Unfair trading practices
Countervailing power
Fairness
Collective action
Distributive justice

ABSTRACT

This paper investigates whether countervailing power of collective initiatives (cooperatives, producer organizations, associations) can mitigate unfair trading practices in agricultural markets. The study hypothesis is that collective initiatives exerting countervailing power can attenuate the imbalance in the distribution of bargaining power that is considered one of the main causes of unfair trading practices. Our findings suggest that in a multidimensional bargaining setting where all contract terms are negotiated at once, there is no theoretical expectation that exerting countervailing power necessarily results in a mitigation of unfair trading practices. To investigate the topic empirically, we used a data set measuring fairness perception of a sample of Italian kiwifruit producers. The data support the hypothesis that membership in collective initiatives increases the probability that a farmer perceives a transaction as fair. However, countervailing power does not counter all unfair practices in the same way. While patrons of collective initiatives perceive benefits in price and quality determination practices, no such effect was found for contract renegotiation. The analysis compares two policy approaches: supporting countervailing power and banning specific practices (such as EU Directive 633/2019). We conclude that countervailing power is less effective in targeting specific unfair practices, but it is less likely to determine efficiency loss because it does not impose constraints on contractual negotiations.

## 1. Introduction

This paper investigates whether countervailing power can mitigate unfair trading practices (UTPs) in agrifood value chains. The theoretical foundation of the study question is the causal link between asymmetries in the distribution of bargaining power and unfairness in contractual relationships (e.g., Bowie, 1988; Thal 1988, Binmore et al. 1991). The link derives from the very definition of bargaining power, i.e., "the power to obtain a concession from another party by threatening to impose a cost, or withdraw a benefit, if the party does not grant the concession" (Kirkwood 2005 p. 637). A UTP is a concession that a weaker party with limited bargaining power grants (under coercion) to a stronger party with superior bargaining power (Bowie, 1988).[1] The essence of this argument is that unfairness arises from the weaker party's lack of alternatives, because a firm would not accept the UTPs if other alternatives were available. From this perspective, unfair trading practices violate the free trade principle because they emerge when the weaker party is unable to refuse an unfair agreement due to coercion or threats from the other party.[2]

If asymmetries in bargaining power distribution could lead to unfairness and UTPs, a rebalance in the distribution of bargaining power might lead to fairer contracts. In this paper, we investigate this hypothesis with a focus on countervailing power, i.e., an increase in the power of the weaker party (instead of weakening the power of the stronger party, as with the typical antitrust approach) (Bonanno et al. 2018).

* Corresponding author.
*E-mail addresses:* carlo.russo@unicas.it (C. Russo), Federica.DI-MARCANTONIO@ec.europa.eu (F. Di Marcantonio), cacchiarelli@unitus.it (L. Cacchiarelli), luisa.menapace@tum.de (L. Menapace), sorrenti@unitus.it (A. Sorrentino).

[1] According to Bowie (1988 p. 96), "A intentionally coerces B into doing X, only to the extent that (1) B is strongly inclined not to do X, (2) A wants B to do X, even though A knows it is contrary to B's prior interests, and (3) A intentionally puts B in the position of having no acceptable alternative to doing X".

[2] See Thompson (2013 p. 26) for a discussion of fairness from the perspective of social contract theory.

https://doi.org/10.1016/j.foodpol.2023.102521
Received 18 August 2022; Received in revised form 27 July 2023; Accepted 4 August 2023
Available online 14 August 2023

Following Galbraith (1954, 1956), Oxford dictionary defines countervailing power as the use of organizations to protect their members against monopolistic exploitation by others. Alexander (2020, p. 4) defines countervailing power as an increase in the "bargaining leverage" of companies subjected "to the superior bargaining leverage of their counterpart(s)". In this paper, we combine the two definitions, and define countervailing power as the use of organizations to increase the bargaining leverage of suppliers subjected to the superior bargaining leverage of buyers. This definition links countervailing power directly to an imbalance in the distribution of bargaining power, the same condition under which UTPs may originate. Collective action (e.g., the formation and use of cooperatives, producer organizations or associations by farmers) is a classic example of countervailing power in agricultural markets (e.g. Sapiro 1922). For ease of reference, this paper uses the term *collective initiative* to refer to any institution implementing collective action to build countervailing power.

The role of countervailing power in promoting fair trade relationships has important policy implications because of substantial public concern about UTPs and their consequences for market efficiency and distributive justice (e.g., Daskalova 2020, Fałkowski et al. 2017). In fact, free bargaining is one of the key assumptions of the Coase theorem for transaction efficiency (Cooter 1989). If UTPs are associated with limitations on the free trade principle, it is possible—albeit not necessary—they result in market failure. Also, unfairness leads to unjust welfare distribution in the sense of Rawls (1971), because it harms the least well-off individuals. On the other hand, there is concern that overregulation of business-to-business transactions may have unintended consequences, such as loss of efficiency and reduction in trade (Fałkowski et al. 2017).

Following this debate, the European Union has taken regulatory action in the past decade to prevent the possible consequences of UTPs, protect weaker agents in the value chains (farmers, SMEs, consumers), and support competition avoiding unintended consequences (e.g., Cafaggi and Iamiceli 2018; Gorton et al., 2017; Di Marcantonio et al., 2020). In essence, two main strategies have been pursued.

In the first strategy, regulators adopted detailed lists of trading practices considered unfair by law (such as EU Directive 2019/633 or the Perishable Agricultural Commodities Act in the US). Regulators thought these practices to be "so unfair" that proving coercion in court would be unnecessary. A key feature of this approach is that a general definition of UTPs is not provided, and the regulation considers just a limited subset of all practices that might be unfair. Regulation provides a quick and unambiguous reference for identifying UTPs for legal purposes, but it is not intended as an exhaustive collection. For this reason, a distinction is created between practices that are unfair by law and those that are unfair according to economic principles or the perception of weaker agents. For simplicity, we refer to practices banned by regulation as "listed UTPs", while we use "perceived UTPs" for practices perceived as unfair by weak agents, regardless of whether the regulation explicitly covers them. We simply use UTPs to refer to the economic concept as described above, regardless of regulation or perceptions.

In the second strategy, regulators acted to reduce imbalances in the distribution of bargaining power in agrifood value chains. Building countervailing power by supporting collective initiatives such as producer organizations is one of the most important policy measures in this regard (e.g., Velázquez and Buffaria, 2017, Sexton and Iskow 2021). Thus, assessing whether countervailing power is associated with a lower occurrence of UTPs may provide insights into the ability of current agricultural policies to promote efficiency and justice in food value chains.

Our paper contributes to the policy debate because, to the best of our knowledge, the theory of countervailing power in agriculture does not consider UTPs explicitly, and empirical work on this topic is almost non-existent (to our knowledge, Di Marcantonio et al. 2022 is the only empirical contribution). Our contribution expands the discussion to a broader set of business practices beyond price and quantity determination or quality (e.g., Cook 1995, Hendrikse 2011). This approach is motivated by the increasing complexity of organizational structure and governance of food supply chains. Transactions are organized in a variety of alternative arrangements, and there are increasing horizontal and vertical interdependencies—usually implemented through contracting—among firms in the food supply chain (Ménard and Valceschini, 2005; MacDonald and Korb, 2011; Reardon and Timmer, 2012; Sheldon, 2017; Bonanno et al. 2018). We discuss countervailing power in the context of multidimensional bargaining, where multiple provisions of complex contracts are negotiated jointly.

To address the research question, we present a brief theoretical discussion of the relationship between countervailing power and UTPs in a multidimensional bargaining setting (section 2). We conclude that building countervailing power, even when it improves distributional justice, does not necessarily imply a decrease in occurrence or severity of UTPs. A profit-maximizing bargainer must find a trade-off between the multiple dimensions of the contract. For example, listed UTPs may be accepted to make gains in other dimensions of the contract, even if the party's bargaining power increases. As a corollary we found that, in theory, an exogenous change in the distribution of bargaining power may be associated with the occurrence of types of UTPs not included in the contract before.

To investigate the study question empirically, we used a European Commission Joint Research Center data set concerning perceptions of fairness in business practices, which was compiled from a sample of 85 Italian kiwifruit producers (sections 3 and 4). We found that perception of the severity of UTPs and participation in collective initiatives are not independent. Also, we found that the nature of perceived UTPs is different. Conclusions and policy implications are presented in section 5.

## 2. Conceptual background

### 2.1. Countervailing power and UTPs in a multidimensional negotiation

Classic countervailing power theory suggests that collective initiatives offer farmers higher (and possibly fairer) prices for their products by strengthening bargaining power (e.g., Sapiro 1922, 1926; Sexton 1986). According to bargaining theory, the outcome of a bargaining process between two parties depends on three key variables: the overall value of the transaction, the parties' disagreement payoffs, and the parties' relative negotiation power (Nash, 1953; Muthoo, 1999). The *disagreement payoff* is the value of the best alternative to the transaction (e.g., selling to an alternative buyer), and it is the minimum payoff the party is willing to accept to engage in the transaction. Admissible solutions to the bargaining problem must grant all parties at least their disagreement payoffs. The *negotiation space* is the set of all solutions meeting this condition. Relative *negotiation power* is the party's ability to choose the most profitable agreement within the negotiation space. Collective action may exert countervailing power, leading to higher prices for farmers in four ways (Sorrentino et al. 2018): i) increasing the farmer's disagreement payoff by providing alternative trade options, ii) reducing the buyer's trade opportunities and disagreement payoff by engaging in joint selling and horizontal consolidation, iii) increasing the farmer's negotiation power, and iv) increasing the total value of transaction by enhancing technical efficiency. Any combination of these four actions is expected to increase farmers' bargaining leverage, leading to higher sale prices. Extensive empirical literature has tested the ability of collective action to grant members higher prices, with mixed results (see Van Herck 2014 for a review).

We argue that the theoretical conclusion of an inverse relation between countervailing power and unfairness found for price negotiations does not necessarily hold when bargaining involves UTPs. In this case, fairness is defined over several dimensions, including price and all contract terms allocating risks, costs and benefits among the parties (such as payment delays, upfront costs and payments and refunds for unsold or deteriorated products). In a multidimensional setting, an

increase in a party's bargaining power does not necessarily result in better terms for that party in all contract dimensions simultaneously (e.g., Sen 2000 or Salas 2016). A trade-off between different practices is possible because firms maximize profits in a multidimensional setting where many contract terms are negotiated at once. For example, a farmer might accept a longer payment delay to obtain higher prices or better delivery conditions, if profitable (or if under coercion). Similarly, a party might accept unfair risk for loss or deterioration of products to obtain a higher upfront payment before delivery. In these cases, more countervailing power might be associated with the occurrence of practices typically listed as UTPs in existing regulation.

This issue can be illustrated using the box diagram in Fig. 1. It represents negotiation outcomes between a buyer and a supplier for selected values of a supplier's relative negotiation power λ in a two-dimensional negotiation process where parties bargain over price and a listed UTP (for example, number of days of delayed payment or the share of costs for after-delivery product deterioration that the supplier must bear). We assume that the supplier's payoff $\pi_S$ is increasing in price and decreasing in UTP, and the buyer's payoff $\pi_B$ is decreasing in price and increasing in UTP. For simplicity, in Fig. 1 we assume that countervailing power improves negotiation power only, without affecting disagreement payoffs. Similar results hold if countervailing power affects disagreement payoffs.

The graph represents three possible bargaining outcomes (points A, B and C) corresponding to different levels of a supplier's relative negotiation power (equal to 0, $\lambda_1$ and 1, respectively, with $\lambda \in [0,1]$). For each outcome, Fig. 1 reports the relevant isoprofits of the supplier (dotted curves IS) and the buyer (solid curves IB). The isoprofits are defined as the set of combinations of the bargaining variables price and UTP yielding the same payoff. The gradient of the buyer's isoprofits points toward the top-left corner of the box (price equal zero and maximum unfairness), and the gradient of the supplier's isoprofits points toward the bottom-right corner of the box (maximum price and no UTP). In the graph, we represent concave supplier isoprofits and convex buyer isoprofits, but this assumption is not a necessary condition for increasing UTPs with countervailing power.

The *negotiation space* is defined by the shaded area between the isoprofit levels corresponding to the buyer and seller disagreement payoffs (the thick solid line $IB_0$ and the thick dotted line $IS_0$ in Fig. 1, respectively). The combinations of price and UTP values in the negotiation space such that buyer and seller isoprofits are tangent (e.g., points A, B, C in Fig. 1) are *pareto-efficient agreements*. For example, point A' in Fig. 1 is pareto inefficient because the parties can agree on the pair A, where the buyer achieves higher payoff and the supplier is not worse off.

Within the set of pareto-efficient agreements, the outcome of the negotiation depends on the relative negotiation power of the parties λ. In Fig. 1, if the supplier has no negotiation power ($\lambda = 0$), the outcome is point A, where the supplier receives a payoff equal to the disagreement payoff, and the buyer captures the highest possible payoff in the negotiation space. On the contrary, if the buyer has no negotiation power ($\lambda = 1$), the outcome is C, where the buyer receives a payoff equal to the disagreement payoff. Point B represents an intermediate distribution of negotiation power ($\lambda = \lambda_1 \in (0,1)$).

The negotiation outcome is defined by the pair of equations.

$$\pi_S^* = f(\text{price, UTP}|\lambda) \quad (1)$$

$$-\frac{\frac{\delta\pi_B}{\delta UTP}}{\frac{\delta\pi_B}{\delta price}} = -\frac{\frac{\delta\pi_S}{\delta UTP}}{\frac{\delta\pi_S}{\delta price}} \quad (2)$$

where equation [1] determines the supplier payoff as a function of price and UTP given λ, and it can be derived using a generalized Nash bargaining solution.[3] Equation [2] identifies the tangency point of the buyer and supplier isoprofits (i.e., the point where the slopes of the isoprofits are the same) and defines the relative values of price and UTP for the given level of payoff.[4]

Under the general assumption that $\pi_S^*$ is strictly increasing in λ, it is implied that—holding everything else constant—suppliers with a high degree of negotiation power can obtain a higher payoff from the agreement than weak suppliers, i.e., to negotiate an agreement on a higher isoprofit. Changes in price and UTP are governed by equation [2].

The example in Fig. 1 illustrates a case where an increase in λ, moving from point A to B and from B to C, results in higher payoffs for the supplier (i.e., higher isoprofits) but higher values of the UTP. This special result is obtained when the slope of the isoprofits changes for different levels of λ. In Fig. 1, the supplier's isoprofits become steeper for higher values of λ. In this case, as λ increases, the UTP becomes relatively less costly compared to a unit change in price, and the supplier is willing to trade an increase in UTP for an increase in compensation. The effect is determined by equation [2]. Holding everything else constant, if the derivative $\frac{\partial\pi_S}{\partial UTP}$ decreases in absolute value, an increase in the value of the UTP is needed to preserve equality.

Bargaining theory suggests that, in a multidimensional negotiation, the exertion of countervailing power does not necessarily result in a limitation of UTPs. If the change in the distribution of bargaining power affects the relative costs of the UTP for the parties, there is the theoretical possibility that the level of UTP increases. In section 2.2 we discuss the application of this finding to collective action.

### 2.2. Implications for collective action

The key point of the analysis is that there is no theoretical expectation that the slope of the isoprofits is invariant when the supplier joins a collective initiative and their bargaining power increases. A collective action providing services mitigating the marginal costs of UTPs may result in members being willing to accept unfair practices if it leads to better trade terms, even if their bargaining leverage is increased.

Because there is no theoretical expectation that collective action affects the marginal costs of all UTPs in the same way, it is possible that countervailing power results in a change in the set of UTPs that members are exposed to. In theory, it is possible that new and different UTPs arise if suppliers become members of collective initiatives. In this section, we illustrate two examples of this principle.

In the first example, we consider a buyer and a seller in Rubinstein's (1982) alternating offers model of bargaining. The parties bargain over the partition of an exogenous value *v*,using price and payment delay as negotiation variables. Payment delay is a standard commercial practice, but it is listed as a UTP by Directive 633/2019 if the delay exceeds 30 days for perishable goods or 60 days for non-perishable goods.

In this setting the payoff function of seller and buyer are, respectively,

$\pi_S = \frac{x}{(1+i_S)^t}$ and $\pi_B = v - \frac{x}{(1+i_B)^t}$,

where × is price, *t* is the number of days before the payment is due with $t \in [0,T]$ and $i_S$, $i_B$ are the daily interest rates of supplier and buyer, respectively. The delay is considered unfair if $t > t^* < T$.

The outcome of the bargaining depends on equations [1] and [2] in section 2.1. From equation [2], we obtain a corner solution: t is equal to 0 if $i_S > i_B$, $t = T$ if $i_S < i_B$ and indeterminate if $i_S = i_B$. The maximization

[3] In the generalized Nash bargaining solution, the outcome price and UTP are the maximands of the so-called generalized Nash product $[\pi_S(price, UTP) - d_S]^{\lambda}[\pi_B(price, UTP) - d_B]^{1-\lambda}$, where $d_S$ and $d_B$ are the supplier's and buyer's disagreement payoffs, respectively.

[4] The payoff of the buyer can be computed as the difference between the net value of the transaction and the supplier's payoff.

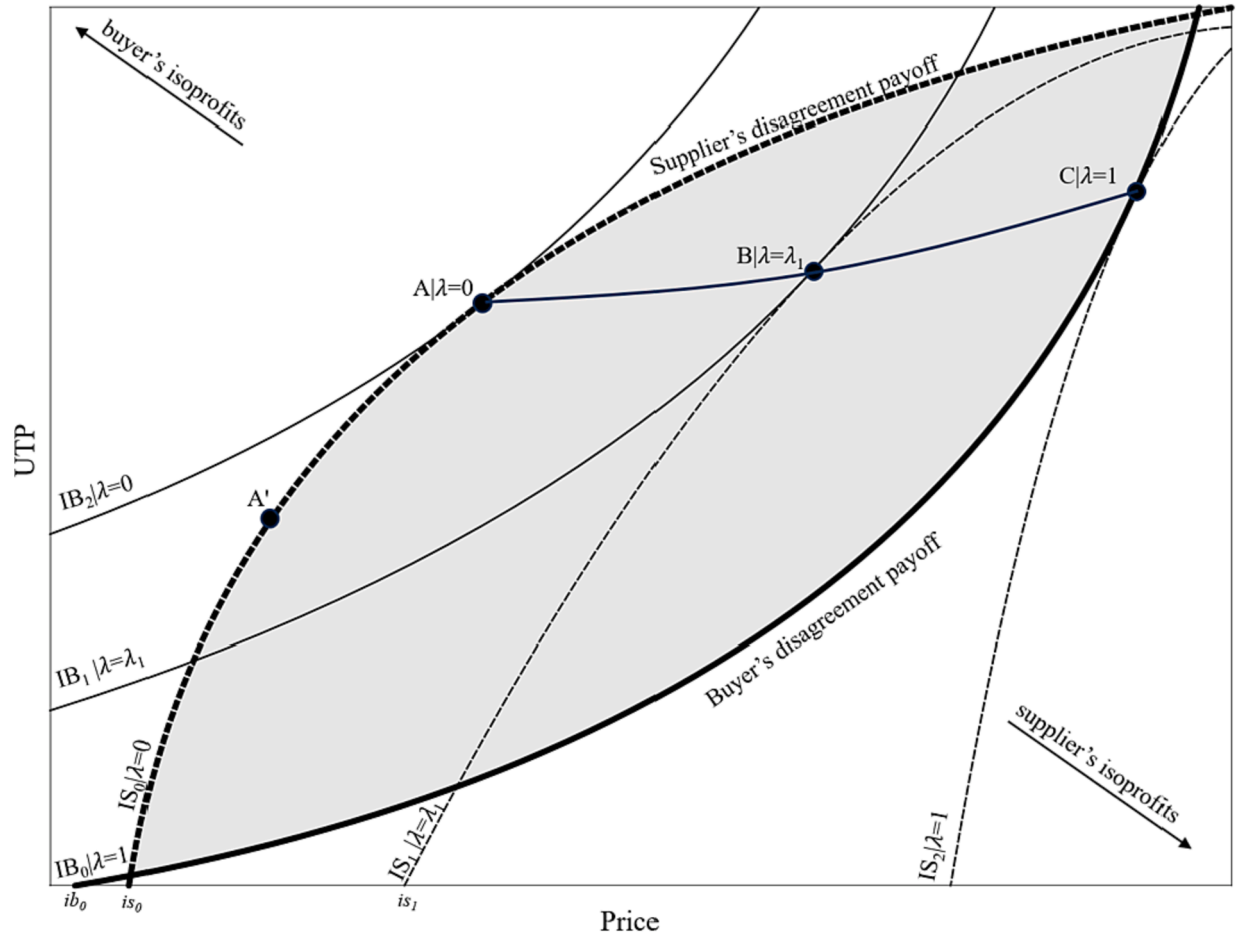


**Fig. 1.** Bidimensional negotiation between a buyer and a supplier.

of the following generalized Nash product given the optimal payment delay gives the solution to equation [1]:

$$(\pi_S - d_S)^{\lambda}(\pi_B - d_B)^{1-\lambda}.$$

The outcome price is.

$$x^* = \left\{ d_S + \lambda \cdot \left[ \frac{(1+i_B)^{\tau}}{(1+i_S)^{\tau}} (v - d_B) - d_S \right] \right\} (1+i_S)^{\tau}, \quad \text{with.} \tau = \begin{cases} 0 if i_S > i_B \\ T if i_S < i_B \\ \tau^* \in [0,T] if i_S = i_B \end{cases}$$

where $x^*$ is a generalization of the "splitting the cake" equilibrium (Muthoo 1999) considering the possible differences in interest rates and the value of time.

In Rubistein's model, the value of λ is defined as a function of a parties' patience or "ability to wait", measured by the their interest rates. If the time interval between the alternate offering is negligible, the relative negotiation power can be expressed as (Muthoo, 1999, p.43).

$\lambda = \frac{i_B}{i_B + i_S}$ and $1 - \lambda = \frac{i_S}{i_B + i_S}$.

A collective initiative willing to increase the member bargaining leverage can improve the supplier's ability to wait, for example, by facilitating access to credit, reducing the cost of financing, and ultimately reducing the member's interest rate to $i_S' < i_S$. In this way, $\lambda$ increases and the supplier obtains a larger share of the transaction value. Also, this implies that the slope of the supplier's isoprofit changes. As $\lambda$ increases, the cost of an additional day of delayed payment decreases.

The special case $i_S > i_B > i_S'$ is an example of countervailing power resulting in the emergence of UTPs not observed before. Before joining the collective initiative, payment was immediate, with $\tau = 0$. After joining the collective action, price increases and payment delays are set to $T$. Even if the supplier is better off (payoff increases), a listed UTP emerges because of countervailing power exertion.

Collective initiatives providing services that improve technical efficiency may result in more UTPs if they reduce the marginal cost of unfair practices. The second example illustrates this point. Consider a seller and a buyer bargaining over the distribution of the transaction value $v$ from the marketing of a perishable commodity. The negotiation involves determining the price paid by the buyer and the measures that must be taken to avoid goods deteriorating after delivery to the buyer. Transferring risk of loss and deterioration to the supplier is listed as a UTP in Directive 2019/633.

For simplicity, assume that an action Y must be taken to avoid deterioration. If Y is not implemented, the goods are lost, and the value of the transaction is zero. Y can be split between the supplier and the seller. For example, the buyer can invest in improved storage facilities, and the seller can adopt stricter quality control by discarding goods that are likely to have short shelf-life. The cost of the supplier action $C_S$ and the cost of the buyer action $C_B$ are $C_S = s \cdot y^2$ and $C_B = b \cdot (Y - y)^2$, where $y$ is the share of Y carried out by the supplier and $s$, $b$ are efficiency parameters. The payoff function of seller and buyer are $\pi_S = x - s \cdot y^2$ and $\pi_B = v - x - b \cdot (Y - y)^2$, respectively.

From equation [2] it is obtained that $y^*$, the optimal share of Y that is undertaken by the suppliers, depends on the relative values of efficiency parameters $s$ and $b$, with

$$y^* = \frac{b}{s+b} Y$$

The maximization of the generalized Nash product

$$\left[x - f\cdot(y^*)^2 - d_S\right]^{\lambda}\cdot\left[v - x - b\cdot(Y - y^*)^2 - d_B\right]^{1-\lambda}$$

yields the outcome price

$$x^* = d_S + f\cdot(y^*)^2 + \lambda\cdot\left[v - d_S - d_B - b\cdot(Y - y^*)^2 - f\cdot(y^*)^2\right]$$

Assume that a collective initiative operates to reduce the supplier's cost parameter $s$. This action improves the efficiency of the supply chain and the net value of the transaction. It is pareto efficient because it improves buyer and supplier payoffs in proportion to $\lambda$. Nevertheless, a reduction in the value of $s$ implies that the share $y^*$ of Y paid by the supplier increases. The result is that the intensity of UTP increases because a larger share of the risk of after-delivery deterioration is passed to the supplier. Because bearing such a risk is less costly than before, the supplier is willing to take it if it is compensated with a price increase. In this case as well, the exertion of countervailing power is associated with a change in the slope of isoprofits, leading to a change in the intensity of the UTP, as explained in Fig. 1.

The results from these illustrative examples have two major implications for our research question. Even if collective initiatives can build countervailing power, they do not necessarily reduce the occurrence of all UTPs at once. Effective countervailing power may lead to an overall value distribution more favorable to farmers, but there is no theoretical evidence that this is a sufficient condition for eradicating UTPs or even reducing their occurrence or degree. In theory, countervailing power may even increase the degree of a UTP.

In a highly dimensional negotiation where multiple UTPs are possible, a change in bargaining power distribution (such as the formation of a producer organization) may also lead to a change in the type of UTPs or the emergence of new types of UTPs. In this case, differences in UTPs between members of collective initiatives and independent farmers might concern not only occurrence and intensity but also nature. In principle, members of collective initiatives and independent farmers may experience different UTPs in the same market.

### 2.3. Countervailing power versus ban on UTPs

The theoretical model can be used to illustrate the key difference between the two policy approaches for addressing UTPs, namely, collective actions and bans on specific practices (such as EU Directive 633/2019). Consider the example in Fig. 1. Assume that the *status quo ante* regulation is represented by point B and that a regulator wants to contrast the UTP. If the policy is effective in promoting countervailing power, the change in the distribution of relative bargaining power may result in a shift from point B to point C, as discussed in section 2.1. In this case, the supplier moves to a higher isoprofit, and the degree of UTP increases. As explained in section 2.1, a decrease in the degree of UTP is not necessarily the result; depending on the shape of the isoprofits, the degree may increase or remain unchanged.

If the UTP is banned, the parties must bargain for compensation under the constraint that the degree of UTP is equal to zero. In the example in Fig. 1, the outcome is constrained to the abscissa by the regulation. In the example, the abscissa it is outside the negotiation space. This implies that the parties prefer disagreement to a UTP-free trade. In this special case, the ban on the UTP results in inefficient allocation. As noted in section 2.1, the results of the analysis depend on the assumption of the shape of the isoprofits and are not a general conclusion.

It must be noted that the outcome of the UTP ban is driven by the relative values of the intersection of $IB_0$ with the abscissa (point $ib_0$ in Fig. 1) and the intersections of $IS_0$ and $IS_1$ ($is_0$, $is_1$ in Fig. 1, respectively). In Fig. 1, $ib_0 < is_0$, so the maximum price a buyer is willing to pay in the absence of UTPs, is lower than the minimum price the supplier is willing to accept, and no agreement is possible. If $is_0 \leq ib_0 < is_1$, an agreement is possible under the ban, but the supplier must accept a move to an isoprofit lower than the status quo ante because $IS_1$ is not in the negotiation space under the ban. In this case, the UTP ban reduces the supplier's payoff. If $is_1 \leq ib_0$, agreement under the UTP ban is feasible and not expected to harm the supplier.

How support for collective action affects UTPs is an empirical question and depends on the effectiveness of the measures used for building countervailing power and the shape of the isoprofits. However, if participation in collective action is free, the policy is not expected to harm farmers. A ban on practices is effective in lowering the degree of UTPs, but the outcome of the policy may harm farmers if the result of constrained negotiation is a reduction in compensation more severe than the loss from the status quo UTP.

## 3. Methods

Because the effect of countervailing power on UTPs can be considered an empirical question, we address the issue empirically using the data from a 2019 sample survey of UTPs in the Italian kiwifruit industry provided by the Joint Research Center of the European Commission (JRC). The survey collected information on occurrence and subjective assessment of the intensity (degree) of a set of UTPs in a stratified sample of kiwi farmers and provides sampling weights.[5] The sample includes both farmers who participate in collective initiatives and those who do not.

### 3.1. Data

The empirical analysis uses a UTP-focused data set collected via a survey of 85 kiwifruit growers in Italy's Agro-Pontino area. The case is of general interest because the area alone grows approximately one-third of Italian kiwifruit and roughly five percent of global kiwifruit. The data were collected by the Joint Research Centre of the European Commission between February and May 2019 for a research project on UTP pass-.

In the first stage, two panels of experts—including 11 representatives of producer organizations, cooperatives, farmer associations, buyers and stakeholders—were presented lists of UTPs from the literature and current political debate and were asked to assess if any of those lists or their combinations could be used to describe unfairness in the Agro-Pontino kiwifruit industry. The expert panel concluded that those lists did not match perceived UTPs, and it instead identified four *unfairness areas* (i.e., the main fairness-related issues in the industry): price determination, quality assessment, cost/risk transfers and contract renegotiation. Within each area, a set of statements was drafted describing the main issues and concerns. According to the panelists, several different UTPs may emerge in each area, and overall perception of unfairness depends on the different combinations of interacting practices. For this reason, focusing on individual practices may be misleading because their interdependences are lost. Hence, an overall assessment of unfairness perception within the four areas identified by the panelists is a more solid approach compared to an assessment of individual practices.

In stage two, in-depth, semi-structured interviews with three farmers and four middlemen (cooperatives and private traders) validated the conclusions of the expert panel. The respondents discussed their perceptions regarding the four unfairness areas, the completeness of the experts' list of statements and the actual impact of each issue on their business. During these interviews the statements were adapted to incorporate local jargon, as appropriate, to prevent misunderstanding by the interviewees during the survey. The farmers and middlemen confirmed the importance of interaction between UTPs and supported focusing on unfairness areas instead of addressing each item separately.

The output at this stage was a list of statements (items) that could be used to measure perceptions of Agro-Pontino kiwifruit farmers regarding unfairness in the four areas of interest (Table 1). The items do

[5] Sampling strategies and weights are reported in Russo 2020, p. 165 table 14-1. Results from the unweighted analysis lead to similar conclusions and are available upon request.

**Table 1**
Items detecting unfair trading practices in the Agro-Pontino kiwifruit industry through in the EU. A detailed discussion of the design, implementation and limitations of the empirical strategy is available in Russo 2020. For readers' convenience, we have summarized here the key elements of the three-step approach.

| Unfairness Areas | Items |
|---|---|
| **Price determination**(discretional/arbitrary price determination, lack of transparency, late and unpredictable payments) | Pricing rules are transparent and clear (R) |
| | Buyers set prices at their discretion |
| | At delivery, I have a reasonably reliable expectation about price (R) |
| | Payments are timely (R) |
| | I must insist to be paid |
| | Sometimes prices are lower than expected |
| | Sometimes prices are higher than expected (R) |
| | Overall, prices are determined in a fair and transparent way (R) |
| | I believe that the main buyer would cheat on prices if they could |
| **Quality assessment**(arbitrary quality standards, arbitrary and strategic quality testing) | Quality requirements are clear (R) |
| | Rules for quality tests are clear (R) |
| | Buyers set quality requirements at their discretion |
| | I am allowed to be present during quality testing (R) |
| | I am entitled to ask for a re-test if I think the quality assessment is wrong (R) |
| | Overall, quality assessment is fair (R) |
| | I believe that my buyer would cheat on quality if they could |
| **Cost and risk transfer**(arbitrary and unpredictable access costs not clearly defined before contract) | I paid for large investments in order to sell to the main buyer |
| | Selling to the main buyer is increasingly costly |
| | Requisites for selling to the main buyer change over time |
| | Main buyer asks for investments that cannot be used for other buyers |
| | I had a clear estimate of investments before trading with the main buyer (R)I have a reliable estimate of cost for future investments (R) |
| | I believe that my buyer is asking for unnecessary investments |
| **Renegotiation**(unpredictable buyer behavior, including unpredictable orders, unilateral changes of contract terms and commercial retaliation) | My business with the most important buyer is predictable (R) |
| | My main buyer uses unexpected events to obtain concessions |
| | My main buyer changes contract terms whenever it is profitable |
| | My main buyer uses vague contracts to be interpreted at their advantage |
| | My main buyer always keeps their word (R) |
| | It is important to avoid problems with the main buyer |
| | Main buyer is willing to help if I have problems (R) |
| | I had to give up contractual rights to keep the business relationship |

(R) indicates items referring to fairness instead of unfairness.
*Source: elaboration from* Russo 2020.

not refer to listed UTPs and are intended to describe perceived unfairness as a proxy for UTPs. In some cases, items refer to buyer behavior or characteristics of the transactions that are not UTPs per se, but they provide necessary information to describe farmers' unfairness perceptions. In this way, an accurate representation of perceptions in each unfairness area is possible.[6] The goal of the set of items is to measure overall perception regarding fairness in the four areas, rather than measure the occurrence of specific practices. It must be noted that the statements are specific to the case study and would need to be adapted to measure fairness perceptions in other areas or industries.

In the third step, a questionnaire collecting general information about farmers, their operations and fairness perceptions was administered to a sample of 85 kiwifruit growers in the Agro-Pontino area. Respondents were asked to agree or disagree with the items in Table 1 on a five-point Likert scale ranging from 1 (totally disagree) to 5 (totally agree). To reduce response bias, 14 items were proposed in a "reversed" form, meaning they referred to fair behavior instead of unfair practices. These statements are marked with (R) in Table 1. To simplify the presentation, we refer to a "lower" score when the data refer to a lower perception of unfairness (that is, also for higher scores of reversed items).

Respondents were selected through stratified random selection by orchard size (Russo 2020).[7] Sampling weights were computed based on the inverse probability of sampling the firm. Unless otherwise specified, all data in this article are projected to the universe using weights.

The choice of the JRC data set from the kiwifruit industry was motivated by two main characteristics of the survey. First, Agro-Pontino kiwifruit producers have homogeneous technologies and are located in a relatively small area with similar trade opportunities. This limits unobserved heterogeneity in the data. Second, the survey focused on the contract between the respondent and the *main buyer* only (unlike previous studies that considered farmers' transactions with all buyers) thus avoiding possible confusion stemming from UTPs from multiple sources.[8] Data from a single contract have the same scope as our conceptual framework and can be used to test hypotheses.

The main limitation of this survey is that information about farmer prices was not collected. Countervailing power theory considers price a key element of negotiation, and the missing data prevented us from a comprehensive assessment of the effects of collective action on farmers' payoffs. Nevertheless, the data can be used to assess changes in the degree of UTPs and describe trade-offs between different areas of unfairness. Another important limitation is the use of farmers' *perceptions* of fairness instead of objective data. Although this is common practice in almost all UTP studies, it may result in bias if farmers' perceptions are systematically affected by external factors.

### 3.2. Empirical strategy and testable hypotheses

The objective of the empirical analysis is to assess the differences between farmers who participate in collective initiatives and those who do not in terms of perception of unfairness in the four areas. The result of

[6] For example, the item "My business with the most important buyer is predictable" (in the renegotiation area) is not a UTP per se, but it is useful to understand farmers' perceptions. If the business is predictable despite renegotiations, we can argue that unfairness perception is limited.

[7] The response rate was approximately 25 percent, meaning that on average four farmers were contacted to collect one questionnaire. In case a farmer refused to participate, another farm from the same stratum was randomly selected from a pre-determined list of alternatives.

[8] The main buyer was defined as the buyer purchasing the highest value of the respondent's product at the time of the survey.

the comparison is used to infer the effectiveness of countervailing power in promoting fair trade.

Farmers' fairness perceptions are measured with an index based on normalized simple averages of the numerical scores (from 1 to 5) from the Likert scale for the items in each unfairness area.[9] Let $s_{i,h,k}$ be the scores from item $h$ in unfairness area $k$ (for example, the score for item 4 ("payments are timely") in unfairness area 1 ("price")) for farmer $I$; $S_{h,k}$ the population average score of item $h$ in unfairness area $k$; and $n_k$ the number of items in unfairness area $k$ (for example, in unfairness area "price" there are nine items). Then, the Index of Perceived Unfairness (IPU) for unfairness area $k$ and farmer $i$ $IPU_{i,k}$ is defined as follows:

$$IPU_{i,k} = \frac{\sum_{h=1}^{n_k}(s_{i,h,k} - S_{h,k})}{n_k}.$$

IPU is positive if the individual (or group average) unfairness score is above the estimated population average and negative if it is lower. High values of the IPU are associated with a perception of severe unfairness.

Farmers are grouped into four *participation modes* based on their participation in collective initiatives. The four participation modes are obtained from the interaction of two binary variables: (i) the farmer is (or is not) a member of a collective initiative, and (ii) the farmer's main buyer is (or is not) a collective initiative. The four resulting combinations are the following:

- *Patrons* are members of a collective initiative and have a collective initiative as their main buyer (the mode includes 777 farmers).
- *Service users* are members of a collective initiative but sell to other types of buyers. This group includes members of input-purchasing cooperatives or farmers using intermediation or financial services (444 farmers).
- *External suppliers* sell to a collective initiative but are not members. According to Italian law, cooperatives and Pos can buy up to 49 percent of total products from non-members. In this case, the cooperative acts as a private buyer (83 farmers).
- *Independent farmers* sell to privately-owned buyers and are not members of collective initiatives (1004 farmers).

Independent farmers are used as a benchmark. Without any interaction with collective initiatives, they do not benefit from countervailing power directly. An indirect competitive yardstick effect is still possible because the collective initiatives in the area have open membership, and independent farmers may choose to become a member if private traders exert strong bargaining power (Cotterill 1992, Nourse 1992). We assume that the level of countervailing power in this mode is not greater than in any other mode.

Patrons benefit from collective initiatives in two ways. First, joint marketing can create countervailing power in the downstream market, reducing the risk that strong buyers impose UTPs. Second, mutualistic collective initiatives have low incentive to exert bargaining power and impose UTPs on members.

The remaining two modes of participation in collective initiatives are assumed to benefit from a lower degree of countervailing power than patrons. External suppliers sell to collective initiatives but are not members. Therefore, the collective initiative may have incentive to exert bargaining power in the transaction because it may find it profitable to behave as a private buyer. Service users do not sell their product collectively and may not be able to counter buyer power in the downstream transaction.

Given the definition of the IPU and participation modes, the following three hypotheses are tested. First, the independence between the four IPUs and the participation modes is tested using ANOVA. The null hypothesis is that the average values of the IPUs do not vary with the participation modes. If no differences are found, it is possible to conclude that participation in collective initiatives is not associated with changes in unfairness perception. This may be the result of two causes: countervailing power is ineffective in mitigating unfairness or collective initiatives in the Agro-Pontino kiwifruit industry are ineffective in creating countervailing power. Thus, this test alone is not sufficient to address the study question.

Second, we test if the average IPUs of patrons are lower than those of independent farmers. The hypothesis is tested using a $t$-test on the average IPUs using Šidák correction for multiple comparisons (Abdi 2007). If the null hypothesis of equal means is rejected, it is possible to conclude that countervailing power is associated with a lower perception of unfairness.

Third, we test if average IPUs of patrons are different from those of external suppliers and service users. This test investigates if differences in collective action participation are associated with differences in perception of unfairness. Pairwise t-tests with Šidák correction are used for this purpose.

## 4. Results

Table 2 reports the survey results by participation mode. To provide a meaningful and concise comparison of unfairness perceptions in each area, the IPUs were computed. Fig. 2 illustrates the average IPUs and their 99 percent confidence intervals by participation modes. Visual inspection finds differences between modes. Patrons exhibit negative average IPUs in all areas except renegotiation, where the values are not statistically different from zero at 99 percent confidence level. Other modes report positive average IPUs in different areas. Independent farmers perceive unfairness in price and cost/risk transfer areas; external suppliers of collective initiatives perceive unfairness in quality and renegotiation; and service users perceive unfairness in all areas except price.

Table 3 reports the results of a statistical F-test rejecting the null hypothesis that average IPUs do not vary across participation modes. Data support the conclusion that perception of unfairness and participation in collective action are not independent. Note that the effect of countervailing power may be underestimated due to the competitive yardstick effect. Because several open-membership collective initiatives operate in the area, private buyers may be unable to impose UTPs because farmers have trade alternatives that do not engage in these practices.

Table 4 reports the results of pairwise comparison of average IPUs between modes of participation in collective action. The average IPUs of patrons are lower than those of independent farmers except for the renegotiation area, where the values are not statistically different at the 99 percent confidence level. This result is consistent with expectations regarding collective initiatives and suggests that countervailing power may affect unfairness perceptions in the four areas differently.

Service users exhibit average IPUs higher than patrons for the unfairness areas quality, cost/risk transfer and renegotiation, while the average IPU for price is lower than that for patrons. Collective initiative membership does not help service users in negotiating with their buyers. Interestingly, service users have higher average IPUs than independent farmers in all areas except price.

External suppliers report average IPUs higher than those of patrons in the areas quality and renegotiation. The IPUs of other areas are not statistically different at the 99 percent confidence level. This result suggests that collective initiatives may discriminate against non-members. The comparison with the IPUs of independent farmers concludes that non-members selling to a collective initiative instead of a private buyer are, on average, better-off in the price and cost/risk transfer unfairness areas but worse-off in the renegotiation area.

The data support the predictions of the theoretical model. Participation in collective initiatives does not necessarily improve fairness in

[9] Note that statements marked with (R) in Table 1 are "reversed", that is, the value 5 is associated with agreement to a statement suggesting that the transaction is fair. This is a common practice adopted to minimize response bias. In this case, the value used to compute the average is 6 minus the average score.

**Table 2**
Survey results: Average and standard deviations of scores by participation mode.

| | Patrons | | Service Users | | External Suppliers | | Indepen. | |
|---|---|---|---|---|---|---|---|---|
| Item | mean | s.d. | mean | s.d. | mean | s.d. | mean | s.d.. |
| Pricing rules are transparent and clear (R) | 4.4 | 0.8 | 3.8 | 0.8 | 4.0 | 0.8 | 3.6 | 0.6 |
| Buyers set prices at their discretion | 2.6 | 1.5 | 3.4 | 1.5 | 2.4 | 0.9 | 3.3 | 1.1 |
| At delivery, I have a reasonably reliable expectation about price (R) | 1.9 | 1.3 | 3.1 | 1.2 | 3.3 | 0.8 | 3.0 | 1.3 |
| Payments are timely (R) | 4.4 | 0.9 | 5.0 | 0.0 | 4.8 | 0.4 | 4.3 | 1.2 |
| I must insist to be paid | 2.3 | 1.7 | 1.1 | 0.7 | 1.0 | 0.0 | 1.9 | 1.3 |
| Sometimes prices are lower than expected | 3.7 | 1.3 | 3.1 | 1.2 | 3.1 | 1.3 | 3.8 | 1.2 |
| Sometimes prices are higher than expected (R) | 3.6 | 1.3 | 2.6 | 1.4 | 2.2 | 0.9 | 2.1 | 1.2 |
| Overall, prices are determined in a fair and transparent way (R) | 3.8 | 1.6 | 4.6 | 0.6 | 3.6 | 1.8 | 4.6 | 2.4 |
| I believe that the main buyer would cheat on prices if they could | 1.2 | 0.5 | 2.0 | 1.4 | 1.6 | 1.2 | 1.7 | 1.1 |
| Quality requirements are clear (R) | 4.8 | 0.4 | 4.5 | 0.5 | 5.0 | 0.0 | 4.5 | 1.0 |
| Rules for quality tests are clear (R) | 4.8 | 0.5 | 4.0 | 0.7 | 4.0 | 1.0 | 4.5 | 1.0 |
| Buyers set quality requirements at their discretion | 3.0 | 1.8 | 4.3 | 0.5 | 4.4 | 1.2 | 2.7 | 1.7 |
| I am allowed to be present during quality testing (R) | 4.8 | 0.4 | 3.4 | 1.7 | 4.5 | 0.5 | 4.6 | 0.9 |
| I am entitled to ask for a re-test (R) | 4.8 | 0.4 | 3.8 | 1.0 | 4.6 | 0.5 | 4.6 | 0.9 |
| Overall, quality assessment is fair (R) | 4.8 | 0.6 | 4.9 | 0.4 | 5.0 | 0.0 | 4.6 | 0.6 |
| I believe that my buyer would cheat on quality if they could | 1.2 | 0.8 | 3.0 | 1.9 | 1.0 | 0.0 | 1.5 | 0.9 |
| I paid for large investments in order to sell to the main buyer | 2.8 | 1.2 | 2.3 | 1.9 | 3.7 | 1.4 | 3.4 | 1.1 |
| Selling to the main buyer is increasingly costly | 2.3 | 1.5 | 2.9 | 1.1 | 2.6 | 1.1 | 2.9 | 0.9 |
| Requisites for selling to the main buyer change over time | 2.8 | 1.4 | 3.3 | 0.5 | 2.2 | 1.2 | 2.6 | 1.3 |
| Main buyer asks for investments that cannot be used for other buyers | 1.2 | 0.4 | 1.4 | 0.8 | 1.3 | 0.5 | 1.6 | 0.9 |
| I had a clear estimate of investments before trading (R) | 4.3 | 0.9 | 3.7 | 0.9 | 4.5 | 0.5 | 3.8 | 0.7 |
| I have a reliable estimate of cost for future investments (R) | 3.1 | 1.9 | 2.3 | 1.9 | 4.4 | 1.2 | 3.3 | 1.7 |
| I believe that my buyer is asking for unnecessary investments | 1.3 | 1.0 | 1.0 | 0.0 | 1.2 | 0.4 | 1.0 | 0.1 |
| My business with the most important buyer is predictable (R) | 3.2 | 1.4 | 1.9 | 1.0 | 2.4 | 1.1 | 3.1 | 1.1 |
| My main buyer uses unexpected events to obtain concessions | 2.0 | 1.3 | 1.3 | 0.5 | 1.5 | 0.5 | 2.0 | 1.2 |
| My main buyer changes contract terms whenever it is profitable | 1.7 | 1.3 | 2.9 | 1.2 | 2.3 | 0.8 | 2.3 | 1.4 |
| My main buyer uses vague contracts to their advantage | 2.1 | 1.1 | 1.0 | 0.0 | 3.6 | 0.8 | 1.8 | 0.9 |
| My main buyer always keeps their word (R) | 3.6 | 1.5 | 3.6 | 1.6 | 2.7 | 1.7 | 4.0 | 1.2 |
| It is important to avoid problems with the main buyer | 3.7 | 1.3 | 4.3 | 0.4 | 3.9 | 0.8 | 3.9 | 1.5 |
| Main buyer is willing to help if I have problems (R) | 3.5 | 1.4 | 3.1 | 0.7 | 3.4 | 1.1 | 3.2 | 0.9 |
| I had to give up contractual rights to keep the business relationship | 2.4 | 1.2 | 2.7 | 1.7 | 2.4 | 1.1 | 2.6 | 1.5 |

(R) indicates items referring to fairness instead of unfairness.

all areas. In the Agro-Pontino kiwifruit industry, collective initiatives do not improve fairness in the renegotiation area.

A trade-off between unfairness areas emerges. The no participation mode strictly dominates in all unfairness areas. For example, patrons have higher average IPU scores than service users in the price area. This result confirms the possibility that increased countervailing power may lead to more unfairness in some areas.

## 5. Policy implications and conclusions

Public support for collective initiatives (i.e., cooperatives and producer organizations) is a common strategy to build countervailing power in agricultural markets. For example, the EU has developed extensive regulation to support producer organizations (e.g., Regulation 1308/2013); the US has had a long tradition of cooperative support since the Capper-Volstead Act in 1922; and China has approved specific laws in the past two decades (e.g., the 2007 law on Specialized Farmers Cooperatives). The rationale for this extensive support is that collective initiatives are effective tools for fostering development in rural areas, enhancing efficiency and promoting justice and fairness in agricultural markets by limiting the negative effects of buyer power. From this perspective, public support for collective initiatives is part of a general strategy aimed at a more socially sustainable food system. In the EU, the Farm to Fork Strategy provides the general reference framework in this regard. Yet, despite the ongoing public support, understanding how farmers' collective initiatives can improve contractual relations remains a challenge.

We contributed to this debate by investigating the role of collective initiatives in reducing the occurrence and intensity of UTPs. The question was motivated by the link between occurrence of UTPs and imbalances in the distribution of bargaining power. By building countervailing power, collective initiatives are expected to mitigate such imbalances and prevent the occurrence of UTPs. Furthermore, because they act on behalf of and in the interest of members, they have no incentive to impose UTPs on patrons.

Despite these policy expectations, previous studies have suggested that fair contractual terms are often difficult to achieve, even when collective initiatives are involved (Di Marcantonio et al. 2022). Our research confirms and expands this knowledge. In fact, even if collective initiatives are effective in building countervailing power, this may not result in a reduction of occurrence and intensity of all kinds of UTPs. From negotiation theory and our empirical investigation of the Agro-Pontino kiwifruit industry, we found that countervailing power may fail to reduce UTPs for two main reasons.

First, in a multidimensional negotiation, a party can accept a UTP to obtain concessions on other contract terms. Even if countervailing power can successfully lead to a more favorable allocation of value to farmers, bargaining theory suggests that this does not necessarily imply that occurrence or intensity of UTPs are attenuated. In fact, even under strong farmer bargaining power, UTPs can persist if they are compensated with other favorable contract terms, such as higher prices, higher trade volumes, longer-term contracts or mitigation.

This conclusion is supported by the empirical data. The results show patrons with a negative Index of Perceived Unfairness in all areas except renegotiation, which suggests that, on average, collective bargaining is associated with below-average perception of unfairness. Noticeably, service users and external suppliers exhibit unfairness perceptions different from patrons. This finding suggests that the institutions governing the relationship between the farmer and the collective initiative affect the occurrence and incidence of UTPs.

Second, countervailing power does not affect all unfairness areas in the same way. The empirical analysis supports this conclusion. Even if collective initiatives succeed in reducing the patrons' unfairness perception in three out four areas, perceptions in the contract renegotiation area are not statistically different from those of independent farmers. It must be noted that this result may be the consequence of

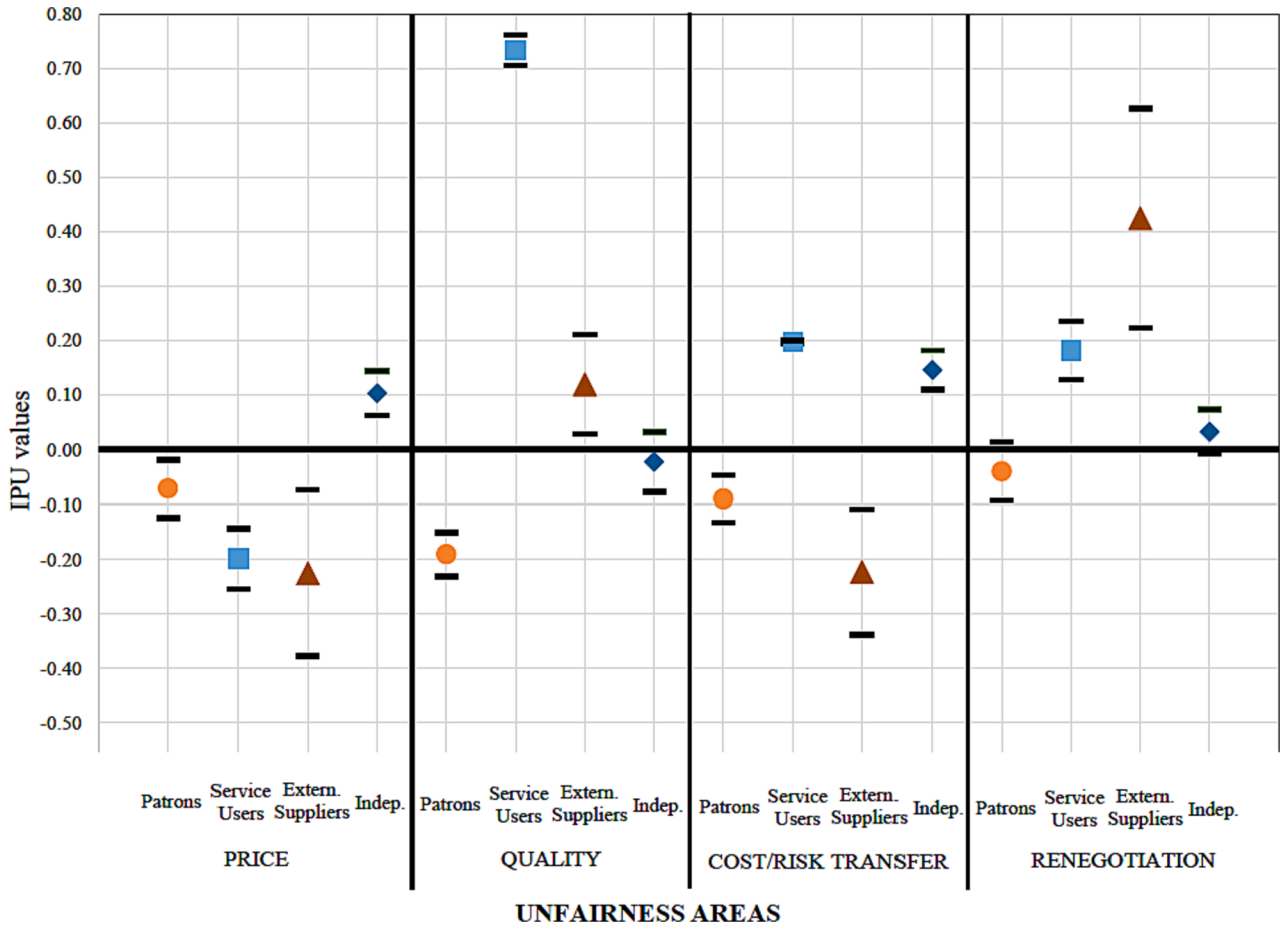


**Fig. 2.** Average Index of Perceived Unfairness (IPU) for four areas of unfairness by mode of participation in collective action (black marks define the 95 percent confidence intervals).

**Table 3**
Average Indexes of Perceived Unfairness (IPU) by mode of participation in collective action.

| Area of Unfairness | | Average IPU by participation modes | | | | ANOVA | |
|---|---|---|---|---|---|---|---|
| | | Patrons | Service users | External sup. | Independent | F-stat | p-value |
| Price | Mean | −0.071 | −0.199 | −0.226 | 0.103 | 43.744 | 0.000 |
| | Std. Error | 0.020 | 0.021 | 0.058 | 0.016 | | |
| Quality | Mean | −0.190 | 0.734 | 0.120 | −0.022 | 307.019 | 0.000 |
| | Std. Error | 0.016 | 0.011 | 0.035 | 0.021 | | |
| Cost/risk transfer | Mean | −0.090 | 0.197 | −0.223 | 0.146 | 82.731 | 0.000 |
| | Std. Error | 0.016 | 0.001 | 0.044 | 0.014 | | |
| Renegotiation | Mean | −0.040 | 0.182 | 0.425 | 0.033 | 31.721 | 0.000 |
| | Std. Error | 0.021 | 0.021 | 0.076 | 0.016 | | |

collective action. Because cooperatives and producer organizations are residual claimants, the prices for patrons' products are determined after the production is marketed. Before that time, members have expectations about the final price, based on available information such as market conditions or prices offered by private buyers. An outcome inconsistent with patrons' expectations may be perceived as renegotiation. Furthermore, managerial capitalization strategies not aligned with patrons' immediate financial objectives may be perceived as unfair if they result in lower-than-expected prices (e.g., Russo et al. 2000). Consequently, agricultural policies supporting collective action may unexpectedly result in perception of unfair renegotiations, even if they succeed in building countervailing power.

Also, patrons' perceptions differ from those of service users and external suppliers. These findings suggest that the institutions governing the relationship between farmer and collective initiative affect the occurrence and incidence of UTPs.

Although countervailing power may improve fairness, our results indicate that they alone may not solve the problem entirely. Yet, it must be noted that collective actions have two key advantages in promoting fairness compared to current regulations banning UTPs (such as EU Directive 633/2019).

The analysis of the Italian kiwifruit industry showed that UTPs can be specific to the transaction. Expert panelists and entrepreneurs involved in the survey design agreed that lists of UTPs from existing literature and current policy debate were not suited to describe unfairness in the specific case of the kiwifruit industry, and they proposed alternative measures based on an ad-hoc list of statements. The items in Table 1 are suited to our case but do not necessarily capture unfairness in other markets or areas. This suggests that a general list of UTPs applicable to all transactions in all markets may be difficult to obtain.

**Table 4**
Pairwise comparison of average IPUs between modes of participation in collective action.

| | | Price | | | | | Quality | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Service users | External suppliers | Indepen. | | | Service users | External suppliers | Indepen. |
| Patrons | difference | 0.128 | 0.155 | −0.174 | Patrons | difference | −0.924 | −0.310 | −0.168 |
| | t-stat | 4.083 | 2.396 | 6.886 | | t-stat | 41.539 | 6.346 | 6.009 |
| | p-value(*) | 0.000 | 0.065 | 0.000 | | p-value(*) | 0.000 | 0.000 | 0.000 |
| Service users | difference | | 0.027 | −0.302 | Service users | difference | – | 0.614 | 0.756 |
| | t-stat | | 0.487 | 10.865 | | t-stat | | 20.966 | 22.840 |
| | p-value(*) | | 0.980 | 0.000 | | p-value(*) | | 0.000 | 0.000 |
| External suppl. | difference | | | −0.329 | External suppl. | difference | | – | 0.142 |
| | t-stat | | | 5.274 | | t-stat | | | 1.898 |
| | p-value(*) | | | 0.000 | | p-value(*) | | | 0.213 |
| | | Cost/Risk Transfer | | | | | Renegotiation | | |
| | | Service users | External suppliers | Indepen. | | | Service users | External suppliers | Indepen. |
| Patrons | difference | −0.287 | 0.133 | −0.236 | Patrons | difference | −0.222 | −0.465 | −0.073 |
| | t-stat | 13.185 | 2.559 | 11.04 | | t-stat | 7.014 | 6.833 | 2,847 |
| | p-value(*) | 0.000 | 0.042 | 0.000 | | p-value(*) | 0.000 | 0.000 | 0.018 |
| Service users | difference | – | 0.420 | 0.051 | Service users | difference | – | −0.243 | 0.149 |
| | t-stat | | 21.971 | 2.43 | | t-stat | | 4.200 | 5.472 |
| | p-value(*) | | 0.000 | 0.060 | | p-value(*) | | 0.000 | 0.000 |
| External suppl. | difference | | – | −0.369 | External suppl. | difference | | – | 0.393 |
| | t-stat | | | 7.407 | | t-stat | | | 6.705 |
| | p-value(*) | | | 0.000 | | p-value(*) | | | 0.000 |

(*) computed using Šidák correction for multiple comparisons.

Collective actions may promote fairness without the need for detailed lists of target practices.

Furthermore, collective actions do not impose constraints on negotiations, unlike bans on practices. In this way, parties are free to pursue an efficient bargain (as discussed in section 2.3). The limitations of collective initiatives arise from two key points. They can fail to build effective countervailing power, and—even if successful—the collective negotiator may prefer to focus bargaining on contract terms other than UTPs.

In this regard, public support for collective actions and regulatory bans on listed UTPs can be considered policy actions with different goals: While the former aims at providing general (though incomplete) protection from all UTPs, the latter provides a stronger defense against specific practices.

Care must be taken in drawing general conclusions since the empirical analysis suffers from limitations. Most importantly, the data set did not include farmer compensation. This missing information prevented us from applying the theoretical framework to a set of UTPs only. Also, the limited sample size and focus on a specific geographic area and single product may limit the generality of the empirical findings. More extensive data collection could be used in future research to overcome these limitations.

## CRediT authorship contribution statement

**Carlo Russo:** Conceptualization, Methodology, Formal analysis, Writing – original draft. **Federica Di Marcantonio:** Formal analysis, Data curation, Writing – original draft. **Luca Cacchiarelli:** Methodology, Formal analysis, Writing – review & editing. **Luisa Menapace:** Conceptualization, Validation, Writing – review & editing. **Alessandro Sorrentino:** Conceptualization, Validation, Writing – review & editing.

## Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

## Acknowledgment

The research originating this article was funded by the Joint Research Centre of the European Commission (Contract No. 936081 2018 A08 IT - Pass-through of Unfair Trading Practices in EU food supply chains: Methodology and Empirical Application"). The opinions expressed in this article are those of the authors alone, and cannot be attributed to the Joint Research Centre of the European Commission or to the European Commission. The authors are thankful for the financial support.

## References

Abdi, H., 2007. Bonferroni and Šidák corrections for multiple comparisons. Encyclopedia of measurement and statistics 3 (01), 2007.
Alexander, L.M., 2020. Countervailing Power: a Comprehensive Assessment of a Persistent but Troubling Idea. AAI American Antitrust Institute. Available at https://www.antitrustinstitute.org/wp-content/uploads/2020/10/AAI_CountervailingPower10-15-20.pdf.
Binmore, K., Morgan, P., Shaked, A., Sutton, J., 1991. Do people exploit their bargaining power? An experimental study. Games and Economic Behavior 3 (3), 295–322.
Bonanno, A., Russo, C., Menapace, L., 2018. Market power and bargaining in agrifood markets: A review of emerging topics and tools. Agribusiness 34 (1), 6–23.
Bowie, N.E., 1988. Fair markets. Journal of Business Ethics 7, 89–98.
Cafaggi, F., & Iamiceli, P., 2018. Unfair Trading Practices in the Business-to-Business Retail Supply Chain. Publications Office of the European Union, Luxembourg, 2018, ISBN 978-92-79-92903-8, doi:10.2760/946607, JRC112654.
Cooter, R.D., 1989. The coase theorem. In: Allocation, Information and Markets. Palgrave Macmillan, London, pp. 64–70.
Cotterill, R.W., 1992. EG Nourse's Place in Contemporary Cooperative Theory and Practice. Journal of Agricultural Cooperation 7 (1141–2016-92518), 115–118.
Daskalova, V., 2020. Regulating unfair trading practices in the EU agri-food supply chain: A case of counterproductive regulation? Yearbook of Antitrust and Regulatory Studies (YARS) 13 (21), 7–53.
Di Marcantonio, F., Ciaian, P., Fałkowski, J., 2020. Contracting and farmers' perception of unfair trading practices in the EU dairy sector. Journal of Agricultural Economics 71 (3), 877–903.
Di Marcantonio, F., Havari, E., Colen, L., Ciaian, P., 2022. Do producer organizations improve trading practices and negotiation power for dairy farms? Evidence from selected EU countries. Agric. Econ.
Fałkowski, J., Ménard, C., Sexton, R. J., Swinnen, J., Vandevelde, S., & Ciaian, P., 2017. Unfair trading practices in the food supply chain. Joint Research Centre Technical Reports, 1st ed.; Di Marcantonio, F., Ciaian, P., Eds, 1-85.
Galbraith, J.K., 1954. Countervailing power. Am. Econ. Rev. 44 (2), 1–6.
Galbraith, J.K., 1956. American capitalism: The concept of countervailing power, Vol. 619. Transaction Publishers.
Gorton, M., Lemke, F., Alfarsi, F., 2017, July. Methodological framework: review of approaches applied in the literature to analyse the occurrence and impact of UTPs. In: *workshop on 'Unfair Trading Practices in the Food Supply Chain.* European Commission, Brussels, pp. 17–18.
Hendrikse, G., 2011. Pooling, access, and countervailing power in channel governance. Manag. Sci. 57 (9), 1692–1702.
Kirkwood, J.B., 2005. Buyer Power and Exclusionary Conduct: Should Brooke Group Set the Standards for Buyer-Induced Price Discrimination and Predatory Bidding? Antitrust Law Journal 72, 625.
Nash, J.F., 1953. The bargaining problem. Econometrica 18 (2), 155–162.

Nourse, E.G., 1992. The place of the cooperative in our national economy. Reprint from American Cooperation 1942 to 1945. J. Agric. Cooperation, 7(1141-2016-92521), 105-110.
MacDonald, J.M., Korb, P., 2011. Agricultural contracting update: Contracts in 2008. eib-72. us dept. of agriculture. Econ. Res. Serv.
Ménard, C., Valceschini, E., 2005. New institutions for governing the agri-food industry. European Review of Agricultural Economics 32 (3), 421–440.
Muthoo, A., 1999. *Bargaining theory with applications*. Cambridge University Press.
Rawls, J., 1971. 1971: A theory of justice. Harvard University Press, Cambridge, MA.
Reardon, T., Timmer, C.P., 2012. The economics of the food system revolution. Annu. Rev. Resour. Econ. 4 (1), 225–264.
Rubinstein, A., 1982. Perfect equilibrium in a bargaining model. Econometrica: Journal of the Econometric Society 97–109.
Russo, C., Weatherspoon, D., Peterson, C., Sabbatini, M., 2000. Effects of managers' power on capital structure: a study of Italian agricultural cooperatives. The International Food and Agribusiness Management Review 3 (1), 27–39.
Russo C. (editor), 2020. Pass-Through of Unfair Trading Practices in EU Food Supply Chains: Methodology and Empirical Application, Publications Office of the European Union, Luxembourg, 2020, ISBN 978-92-76-19668-6, doi:10.2760/837579, JRC120994.
Salas, P.C., 2016. Relational contracts and product quality: the effect of bargaining power on efficiency and distribution. Agric. Resour. Econ. Rev. 406–424.
Sapiro, A., 1922. Cooperative marketing. Iowa Law Review. 8, 193.
Sapiro, A., 1926. The Law of Cooperative Marketing Associations. Kentucky Law Journal 15, 1.
Sen, A., 2000. Multidimensional bargaining under asymmetric information. Int. Econ. Rev. 41 (2), 425–450.
Sexton, R.J., 1986. Cooperatives and the forces shaping agricultural marketing. Am. J. Agric. Econ. 68 (5), 1167–1172.
Sexton, R.J., Iskow, J., 2021. The competitive role of cooperatives in market-oriented economies: a policy analysis. In: Agricultural cooperatives in transition. Routledge, pp. 55–83.
Sheldon, I.M., 2017. The competitiveness of agricultural product and input markets: A review and synthesis of recent research. Journal of agricultural and applied economics 49 (1), 1–44.
Sorrentino, A., Russo, C., Cacchiarelli, L., 2018. Market power and bargaining power in the EU food supply chain: the role of Producer Organizations. New medit 17 (4), NA-NA.
Thal, S.N., 1988. The inequality of bargaining power doctrine: the problem of defining contractual unfairness. Oxford J. Legal Stud. 8, 17.
Thompson, P.B., 2013. Conceptualizing fairness in the context of competition: Philosophical sources. In: The Ethics and Economics of Agrifood Competition. Springer, Dordrecht, pp. 23–36.
Van Herck, K., 2014. Assessing efficiencies generated by agricultural producer organizations (No. 473441). KU Leuven, Faculty of Economics and Business (FEB), LICOS-Centre for Institutions and Economic Performance.
Velázquez, B., Buffaria, B., 2017. About farmers' bargaining power within the new CAP. Agricultural and Food Economics 5 (1), 1–13.