An Offer You Can’t Refuse: Naked Exclusion, Refusal to Deal, and Exclusive Contracts

Robert Kulick

We introduce a model of anticompetitive exclusive dealing that provides a unified treatment of two of the major categories of potentially anticompetitive single-firm conduct recognized by the FTC: refusal to deal and exclusive purchase agreements. The exclusionary mechanism succeeds by turning the incentives of a pivotal buyer or a pivotal coalition of buyers against the incentives of the group when buyers attempt to coordinate on their preferred equilibrium. However, since all buyers acquiesce to the exclusionary strategy, no pivotal buyer or pivotal coalition of buyers emerges that can gain a competitive advantage and all buyers are strictly worse off. We argue that this approach provides a simple economic framework for evaluating a number of real-world antitrust cases, including the seminal cases Lorain Journal and Denstply, which do not fit neatly into the structure of the main body of economic research focused on exclusive dealing, the Naked Exclusion literature. We then show that by redefining exclusive contracts, this approach can be embedded within a Naked Exclusion style model, yielding a number of new results with implications for both the economic literature on exclusive dealing and antitrust jurisprudence.

1. Email: kulick@econ.umd.edu. We thank Andrew Sweeting and Dan Vincent for their guidance and support of this research. We also thank Einer Elhauge, Nathan Miller, Patrick Greenlee, Dean Williamson, Ethan Kaplan, and Larry Ausubel for helpful comments and input.
In this article, we introduce a model of anticompetitive exclusive dealing that provides a unified treatment of two of the major categories of potentially anticompetitive single-firm conduct recognized by the Federal Trade Commission (FTC): refusal to deal and exclusive purchase agreements. The FTC defines exclusive purchase agreements as contracts “requiring a dealer to sell [the] products of only one manufacturer.” Contracts of this sort have long been the focus of the Naked Exclusion literature (Rasmusen, Wiley, and Ramseyer 1991; Segal and Whinston; Fumagalli and Motta 2006; Simpson and Wickelgren 2007; Abito and Wright 2008; DeGraba 2013), a family of models which serve as the primary applied theoretical framework for the economic evaluation of exclusive dealing cases. The basic structure of the model as introduced by Rasmusen, Wiley, and Ramseyer (1991) and Segal and Whinston (2000) [hereafter RRW-SW] revolves around the behavior of three sets of agents, an incumbent, a potential rival, and $N$ downstream buyers. Exclusive contracts are defined in terms of a commitment by downstream buyers to purchase only from the incumbent and are enforced through an external mechanism (i.e., the legal system). The success of this literature lies in its simple description of equilibria where the incumbent can use exclusive contracts with lump-sum compensation to profitably monopolize the upstream market by thwarting rival entry.

However, many important exclusive dealing cases involve fact patterns that do not fit neatly into existing Naked Exclusion models. For instance, many exclusive dealing cases involve accusations that competitive pressures created by the exclusive contracts force buyers to agree to exclusive contracts to their own detriment; many cases also do not involve any compensation of buyers. Yet, as we discuss in Section I of this article, the exclusionary equilibria predicted by the Naked Exclusion literature provide scant economic foundation for exclusive dealing cases characterized by these fact patterns.
Furthermore, many exclusive dealing cases involve contractual arrangements that are not consistent with the externally enforced buyer commitment contracts assumed in the literature. Rather, many of the most salient antitrust cases involve exclusive contracts that commit the seller to dealing only with buyers who purchase from the seller. One very prominent case that manifests all three of these characteristics is *United States v. Dentsply International, Inc.* (2005). Dentsply, a producer of artificial teeth, imposed a contractual term on distributors of its product known as “Dealer Criterion 6” which stipulated that in order to sell Dentsply products, dealers had to agree not to offer the products of competing manufacturers. The Third Circuit Court of Appeals decision in *Dentsply* suggests that the distributors agreed to the contracts despite being dissatisfied with the terms, were driven to acquiescing by competitive pressures, and were not provided compensation despite being made worse off by the contracts. Consequently, despite its legal importance, *Dentsply* lies outside the ambit of the economic literature on exclusive contracts.

Our approach to providing a firm economic foundation for cases like *Dentsply* is inspired by a theory of anticompetitive single-firm conduct known as a “refusal to deal.” The FTC explains that in the context of exclusive dealing, the essence of a refusal to deal is a situation where the predatory firm imposes the condition, “I refuse to deal with you if you deal with my competitor.” In Section II of this paper, we introduce a simple “Refusal to Deal Game” inspired by the seminal Supreme Court case *Lorain Journal v. United States* (1951). In *Lorain Journal*, the Supreme Court found that Lorain Journal, a local newspaper, prevented businesses who wanted to advertise on a new radio station from doing so by demanding exclusivity. Lorain Journal enforced its policy of exclusivity by refusing to let any business advertising on the radio station advertise in the newspaper.
Like the Naked Exclusion literature, we show that our simple model exhibits equilibria where the predatory firm (the incumbent) successfully prevents the rival from entering, allowing the incumbent to monopolize the upstream market and equilibria where the rival enters and competition prevails. Unlike the Naked Exclusion literature, however, we show that the exclusionary outcome, is a robust outcome of the game even in the absence of any compensation of the buyers. Furthermore, in applying a weak-dominance equilibrium refinement to isolate exclusion as the unique outcome, we identify a mechanism that demonstrates how the refusal to deal creates an environment where competitive pressures push the downstream buyers to capitulate. Specifically, when buyers are pivotal their incentive is to agree to the incumbent’s scheme so that buyers attempting to deal with rival are excluded from the downstream market. Yet, because all buyers go along with the scheme, no buyer is pivotal and all buyers are strictly worse off.

In Section III, we embed the simple Refusal to Deal Game into a Naked Exclusion model following the structure of Simpson and Wickelgren (2007). The key step in adapting our model to this setting involves defining exclusive contracts in terms of a seller commitment by the incumbent only to deal with downstream buyers who do not enter into exclusive purchase agreements with the rival. This is an alternative to the buyer commitment assumption that is employed in the Naked Exclusion literature (Elhauge and Wickelgren 2014).

The Naked Exclusion structure also places more restrictions on the model relative to the simple Refusal to Deal Game and in many cases the additional structure may be more realistic. With this structure, the exclusionary outcome can still be isolated as the unique outcome by requiring that equilibria be perfectly coalition-proof. Although this equilibrium refinement is weaker, we show that the mechanism by which the exclusionary scheme prevents the
downstream buyers from coordinating on their preferred equilibrium is fundamentally similar to
the mechanism from Section II with pivotal coalitions of buyers taking the place of pivotal
buyers. Finally, in Section IV we compare the results of our model to results from the Naked
Exclusion literature and consider the implications of our results for a number of issues in
antitrust economics and jurisprudence.

In addition to providing a framework for understanding prominent cases like \textit{Dentsply}
and \textit{Lorain Journal}, our approach provides an economic rationale for a number of recent
enforcement actions by the FTC including \textit{In the Matter of Transitions Optical, Inc.} (2010) and
\textit{In the Matter of IDEXX Laboratories, Inc.} (2013).\footnote{The need to clarify the relationship between cases involving an exclusionary strategy predicated on seller commitment and the exclusive dealing models currently considered as part of the Naked Exclusion literature is longstanding. Indeed, RRW cite \textit{Lorain Journal} as one of the cases motivating the very first Naked Exclusion model.} Although the full details have not yet become public, the preliminary allegations suggest that our model may also be applicable to U.S. Justice Department’s recently announced investigation of potential exclusion of craft brewers by AB InBev.\footnote{On October 12, 2015, the Washington Post reported, “Antitrust regulators are also reviewing craft brewers’ claims that AB InBev pushes some independent distributors to carry only the company’s products and end their ties with the craft industry.”}

\textbf{Section I: The Naked Exclusion Literature}

Naked Exclusion models revolve around the behavior of three sets of agents, an
incumbent, a potential rival, and $N$ downstream buyers which purchase a necessary input from
the upstream suppliers. The game proceeds over three periods. In period 1, the incumbent offers
buyers exclusive contracts. The exclusive contracts are defined as a commitment by the buyer to
purchase from the incumbent in return for a specified level of lump-sum compensation.
Typically, the literature assumes that once a buyer signs such an agreement it must purchase only
from the incumbent. However, as we will discuss below, Simpson and Wickelgreen (2007)
consider contracts enforced through breach damages rather than an absolute commitment to buy from the incumbent enforced by an institution with the power to compel purchases. In period 2, the rival decides whether to enter. In period 3, prices are set and purchases are realized.

In the RRW-SW model, the rival has a cost function $c(\cdot)$ where $c(Q) = \bar{c}$ for $Q \geq Q^*$ and $c(Q) > \bar{c}$ at all $Q < Q^*$. The incumbent has a constant marginal cost $c(Q) = \bar{c}$ so that if the rival reaches the minimum efficient scale it is an equally efficient competitor. The exclusionary equilibria arising from the RRW-SW model and the related models of Fumagalli and Motta (2006), Simpson and Wickelgren (2007) and Asker and Bar-Isaac (2014) can be organized into four categories based on the compensation strategy employed by the incumbent, the specification of the buyers as independent purchasers or firms competing in a downstream market, and the payoffs realized by the buyers:

(i) The buyers are either independent purchasers or firms, and a pivotal segment of the downstream market is fully compensated for agreeing to the exclusive contracts. The remainder of the participants in the downstream market receive no compensation and are strictly worse off as they receive the input at the monopoly price.

4. Simpson and Wickelgren’s model is predicated on the observation that courts in the United States do not enforce contracts by forcing or compelling specific behavior, but rather, as will be discussed more below, through damages.
5. While other papers in the literature implement alternative cost assumptions, we introduce the original RRW-SW cost structure as it will play an important role in Sections II and III. Note, however, we have modified it slightly so that all that is required is that the rival’s marginal cost is strictly greater than $\bar{c}$ below the minimum efficient scale.
6. The results for the model in Section III can accommodate a more efficient rival, however, the results for the model in Section II will only hold up to an equally-efficient competitor.
7. Fumagalli and Motta make assumptions that end up ruling out the exclusionary equilibria of their model, but Simpson and Wickelgren show that their model accommodates exclusionary outcomes as well. Because of their article’s important role in considering downstream buyers as firms competing in terms of perfect substitutes, we include the article here despite their conclusion ultimately ruling out exclusion.
8. Asker and Bar-Isaac considers the potential for exclusionary resale price maintenance rather than anticompetitive exclusive contracts. However, in the perfect competition setting they show that resale price maintenance can drive monopolization through a mechanism similar to the exclusive contracts from the Naked Exclusion literature. Their results help to clarify the potential for compensated exclusion in a downstream market characterized by perfect competition.
(ii) The buyers are firms who compete with each other in the downstream market. Downstream competition is sufficiently strong so that the incumbent can afford to compensate all of the downstream firms for agreeing to the exclusive contracts without spending more than the total monopoly surplus. The downstream firms suffer no harm and all of the loss of surplus is suffered by the end users who purchase from the downstream firms. Included in this case is the specification where the downstream firms compete in terms of perfect substitutes and the incumbent can monopolize the market providing no compensation, as the downstream firms are indifferent between monopoly and competition in the upstream market.

(iii) The buyers are either independent purchasers or firms who compete in terms of imperfect substitutes. All buyers receive zero compensation for agreeing to the exclusive contracts but fail to coordinate on their preferred equilibrium. All buyers are worse off, but this anticompetitive equilibrium is weakly dominated. There is also always an equilibrium where the rival successfully enters the market and competition prevails.

(iv) The buyers are either independent purchasers or firms. The buyers receive positive compensation for agreeing to the exclusive contracts but still fail to coordinate on their preferred equilibrium as no buyer receives compensation sufficient to make up for the loss of surplus resulting from monopoly pricing. All buyers are worse off, but these equilibria do not survive application of the perfectly coalition-proof Nash equilibrium refinement. Again, there is also always an equilibrium where the rival successfully enters and this equilibrium survives the coalitional refinement.

This taxonomy of results gives rise to three observations. First, case (iii) indicates that the Naked Exclusion literature provides little theoretical support for the possibility of uncompensated exclusive dealing outside of a downstream market characterized by perfect
Indeed, when uncompensated monopolization occurs in the context of perfect competition, the downstream buyers are not rendered strictly worse off as they are indifferent between either outcome. Second, in the most robust cases, (i) and (ii), successful monopolization essentially turns all or some portion of downstream buyers into accomplices rather than victims of the anticompetitive scheme. Third, for cases (iii) or (iv) there is no mechanism suggesting how or why the buyers fail to coordinate on their preferred equilibrium. Indeed, applying simple Nash equilibrium refinements in both cases illustrates specific rationales for why the competitive equilibrium is likely to succeed rather than the anticompetitive equilibrium. As discussed above, the absence of both a justification for exclusive dealing cases involving no compensation of buyers and, more generally, the absence of a mechanism indicating how exclusion succeeds in the absence of full compensation is problematic as it places a number of the most significant antitrust cases outside of the ambit of the Naked Exclusion literature.

Another aspect of the Naked Exclusion literature that is potentially problematic from the perspective of real-world antitrust analysis is the way in which the buyer-committing exclusive contracts are typically defined. Simpson and Wickelgren (2007) observe that although the Naked Exclusion literature assumes that once buyers sign an exclusive contract they have no choice but to purchase under the contract, this is not consistent with the legal treatment of contracts. Rather, they note that contracts are enforced through the imposition of breach damages by courts against parties that fail to perform their contractual obligations. Simpson and Wickelgren modify the basic structure of the RRW-SW model to allow for breach damages by splitting period 3 into three sub-periods. In period 3.1, prices are set. In period 3.2, the downstream buyers, which are specified as firms in competition with one another, decide whether to breach or maintain their

---

9. The case of perfect substitutes in the downstream market is likely to be of little relevance in real-world antitrust cases which tend to involve product markets with at least some differentiation.
contract with the incumbent. Finally, in period 3.3, sales are realized and breach damages are assessed.

The Simpson and Wickelgren model implicitly assumes that purchases from the rival require a forward purchase arrangement. Otherwise, breach could simply occur in period 3.3 with a downstream firm choosing to purchase from the rival. Thus, the effect of including breach damages in the model is to impose a cost on buyers transitioning from a purchasing arrangement with the incumbent to a purchasing arrangement with the rival. Using this structure, they show that when breach damages are set at or below the level of expectation damages, the penalty under common law, the prediction of the model ceases to be monopolization through rival exclusion. Instead, the incumbent firm maintains monopoly profits by allowing the rival to enter and collecting damages from downstream firms breaching the contracts.

While the Simpson and Wickelgren model addresses some potentially unrealistic aspects of the basic Naked Exclusion structure, it too has important limitations as a model of real world antitrust cases. Exclusion or impairment of rivals is at the heart of most major antitrust cases involving exclusive dealing and the absence of a compelling and general explanation for this phenomenon would be problematic for a literature predicated on understanding anticompetitive exclusive dealing. Furthermore, antitrust cases where contracts are enforced through breach damages are certainly far less common than strategies involving punishment or discounts. Thus,

10. Expectation damages are damages paid by the breaching party to the injured party that place the injured party in the position it would have enjoyed had the contract been performed by the breaching party.
11. If breach damages are specified above the level of expectation damages, then the model will provide the same exclusionary outcome as in RRW-SW. However, Simpson and Wickelgren argue that this will not generally apply. Furthermore, when breach damages are set exactly equal to expectation damages, both the exclusionary RRW-SW result and the breach result are possible equilibria. They rule out the exclusionary equilibrium assuming that a downstream firm will choose to breach when indifferent. However, another way to arrive at this conclusion is to assume that legal action on the part of the incumbent has a small non-recoverable cost. This assumption is quite plausible given the costs and uncertainty associated with litigation. Either way, their model suggests important limitations on the power of buyer-committing exclusive contracts to induce exclusionary outcomes.
in developing our model of exclusive dealing we will focus on strategic or contractual
arrangements that are observed in real-world antitrust cases while still taking advantage of
simple structure and appealing characteristics of Naked Exclusion models.

Section II: A Simple Refusal to Deal Game

In this section, we introduce a simple “Refusal to Deal Game” which models
anticompetitive exclusive dealing using *Lorain Journal* as inspiration. Specifically, we build the
model around three features that are motivated as stylized representations of the fact pattern
associated with the case. 12 First, as *Lorain Journal* did not involve explicit exclusive purchase
contracts, the refusal to deal is imposed on the downstream market without a bargaining process
in period 1. Second, as the only lever used by Lorain Journal to enforce compliance was access
to its advertising platform, we assume that downstream firms are free to purchase from the rival
at any time if it is active in the upstream market. Third, we specify that the refusal to deal is
activated by any agreement a downstream enters to purchase from the rival. 13 In the next
section, we adapt this simple model into the more structured setting of the Naked Exclusion
model. Consequently, we maintain their convention of labeling period 3 in terms of three sub-
periods.

As in the Naked Exclusion literature, the model involves an incumbent, a potential rival,
and N buyers who we specify as firms competing in a downstream market. The incumbent and
the rival produce a homogenous product that is essential for production of the downstream good.
The downstream firms compete in a market characterized by competition in Bertrand

---

12. Our assessment of the circumstances of the case are based on the description provided by the Supreme Court.
13. The court records in cases involving exclusionary conduct of this nature frequently indicate that simply
contacting or entering into an initial agreement with a rival is often sufficient to cause an incumbent to activate a
refusal to deal. For instance, in *Lorain Journal*, the Supreme Court noted that mere suspicion of an agreement to
advertise on radio was sufficient to trigger the refusal to deal. In *Dentsply*, when Trinity Dental entered into an
agreement to sell another competitor’s teeth, Dentsply responded by refusing to supply Trinity.
differentiated products. One of the primary factors that drives our model is the production
technology, which is adapted from RRW-SW. As described above, the rival has a cost function
\( c(\cdot) \) where \( c(Q) = \bar{c} \) for \( Q \geq Q^* \) and \( c(Q) > \bar{c} \) at all \( Q < Q^* \) and the incumbent has a constant
marginal cost \( c(Q) = \bar{c} \). We assume where useful the existence of a sufficiently fine discrete
price space to address open set problems. We also assume that the rival never needs to sell to the
entire market in order to reach the minimum efficient scale. The timing of the game is as follows:
In period 1, the incumbent commits to a refusal to deal.
In period 2, the rival decides whether to enter.
In period 3.1, the incumbent and the rival set prices \( p_I \) and \( p_A \), respectively.
In period 3.2, the rival takes orders to determine if it will reach the minimum efficient scale. The
results of this model turn on how we specify what happens when the rival does not reach the
minimum scale. By placing an order at this stage with the rival, a downstream firm is prevented
from purchasing from the incumbent at any remaining point in the game as a result of the refusal
to deal. Consequently, whether the rival reaches the minimum efficient scale is determined by
the number of firms who place orders with the rival.\(^{14}\) If the rival does not reach the minimum
efficient scale and is not able to profitably honor the price set in period 3.1 the rival declares
bankruptcy, exits the upstream market, and incurs a small exit cost. Let \( R \) represent the number
of downstream firms that place orders with the rival and are thus subject to the refusal to deal
and let \( I \) represent the number of downstream firms who remain eligible to purchase from the
incumbent. Let \( \mathcal{R} \) and \( \mathcal{I} \) represent the respective sets associated with \( R \) and \( I \).

\(^{14}\) There are however no similar limitations in this section on the purchasing behavior of firms that do not place
orders with the rival. Thus, for simplicity, we assume that those firms which do not place orders with the rival will
purchase from the incumbent unless the price offered by the rival is superior to that offered by the incumbent. As a
result, the number of firms placing orders with the rival is sufficient for the rival to determine whether it will reach
the minimum efficient scale.
In period 3.3, if the rival reaches scale, competition proceeds at the prices declared in period 3.1. If not and the rival exits, the downstream firms that placed orders with the rival are now excluded from the downstream market as they cannot gain access to the necessary input. For the remainder of this section we also assume that if the rival does reach the minimum scale, the downstream firms in $J$ remain free to purchase from the rival.

**Lemma 1:** If $p_l = p_R = \bar{c}$, there exists a number $N^*$ such that the rival reaches the minimum efficient scale if and only if $R > N - N^*$.

**Proof:**

Let $Q_m$ represent the size of the market when all of the downstream firms purchase the input at a price of $\bar{c}$ so that each downstream firm purchases $q_l = \frac{Q_m}{N} = q$ units and the rival’s quantity supplied can be written as $Q_R = (N - I)q$. The rival reaches the minimum efficient scale if and only if $Q_R \geq Q^*$. Thus, the expression $Q^* = (N - \bar{N})q$ implicitly defines a real number $\bar{N}$ such that the rival reaches the minimum efficient scale if and only if $I \leq \bar{N}$. For a real number $x$, let $\lfloor x \rfloor$ represent the closest integer greater than $x$. By rearranging the expression above, we have $\bar{N} = N - \frac{Q^*}{q}$. Letting $N^* = \left\lfloor N - \frac{Q^*}{q} \right\rfloor$ we have that the rival reaches the minimum efficient if and only if $I < N^*$. Note that $I + R = N$ so we can rewrite the condition as $N - R < N^*$. Rearranging we have that the rival reaches the minimum efficient scale if and only if $R > N - N^*$. □

---

15. As will become clear from the results below, we need not specify what happens if the rival does not meet the minimum scale but remains in the market as the rival must set a price equal to marginal cost in period 3.1.

16. A similar condition is applied, but not formally derived in RRW-SW. An implicit assumption in both papers is that $\bar{N}$ is not integer valued so that the strict inequality holds after applying the function $f(x) = \lfloor x \rfloor$. For convenience, we maintain this assumption.
Lemma 2: The rival must set \( p_R = \bar{c} \) to make any sales in an equilibrium of the subgame beginning in period 3.1.

Proof: Suppose that the rival sets \( p_R > \bar{c} \). If \( p_I < p_R \) the rival makes no sales. If the incumbent sets \( p_I \geq p_R \), the incumbent will deviate so that \( p_I' = p_R - \varepsilon \) and sell to the entire market unless at \( p_I = p_R \) the incumbent already sells to the entire market. ■

For the sake of simplicity, we will remove from consideration any pricing equilibrium in the subgame beginning in period 3.1 where either the incumbent or the rival cannot make any sales at the set prices no matter what transpires in the remainder of the game. Consequently, we assume without any loss of generality that the rival sets \( p_R = \bar{c} \) throughout the remainder of the analysis.

For the next lemma, we define \( \bar{p} \) as the price such that if \( p_R = \bar{c} \), for any \( p_I \geq \bar{p} \) a single downstream firm placing an order from the rival is sufficient for the rival to reach the minimum efficient scale. At this point it is also useful to introduce the following notation. Let \( \pi \) represent the profits of a downstream firm and let \( Z_S \) represent the vector with \( S \) elements where each element has the identical value \( z \). Then \( \pi(p, \mathbf{P}_{N-1}) \) represents the profits of a buyer who receives the input at price \( p \) while the other \( N-1 \) firms also receive the input at price \( p \). Furthermore, \( \pi(p, \mathbf{P}_{N^*-1}) \) represents the profits of a buyer who receives the input at \( p \) while only \( N^*-1 \) firms receive the input at \( p \) and the remaining firms are excluded from the market.

\[17. \text{ Without loss of generality we assume throughout that } \bar{p} < p^m.\]
Lemma 3: Equilibrium in the subgame beginning in period 3.1 following rival entry can take any form where \( p_R = \bar{c}, \bar{c} \leq p_I < \bar{p} \). Furthermore, given any equilibrium pricing pair \((\bar{c}, p_I)\), there is an equilibrium where the rival achieves the minimum efficient scale and an equilibrium where the rival does not achieve the minimum scale and is forced to exit.

Proof:

If \( p_I \geq \bar{p} \), then the incumbent must achieve \( I = N \) in period 3.2 to prevent the rival from reaching minimum scale and deviation by a single firm to purchasing from the rival is sufficient to render the rival viable. Since \( \pi(\bar{c}, \bar{c}_{N-1}) > \pi(p_I, P^l_{N-1}) \), such a deviation is optimal for a downstream firm, demonstrating that we can rule out \( p_I \geq \bar{p} \) as the incumbent will never be able to make sales at that price.\(^{18}\)

Now, using our assumption of a discrete price space we consider \( p^* < \bar{p} \) such that \( p^* \) is one increment below \( \bar{p} \). We also suppose for ease of exposition and without loss of generality that \( p^* \) is such that the rival need only secure purchase orders from two buyers in period 3.2 to reach the minimum efficient scale. Suppose in the subgame beginning in period 3.2, \( I = N \). If a single downstream firm deviates, the rival does not achieve the minimum scale. However, the incumbent still enforces the refusal to deal so that the buyer is excluded from the downstream market and earns zero profits as opposed to \( \pi_b(p^*, P^*_N) \). Thus, \( I = N \) represents an equilibrium of the subgame beginning in period 3.2.

---

\(^{18}\) The deviating firm is equally well off in the model in this section. It can still purchase from the rival in period 3.3 as the refusal to deal only restricts the behavior of firms dealing with the rival. One of the crucial differences introduced into the model in Section III is that the deviating firm would now be strictly worse off as it would have to purchase from the incumbent at \( p^* \).
If we alternatively suppose that in the subgame beginning in period 3.2 $R = N$, then following a deviation by a downstream firm the rival remains viable.\textsuperscript{19} Thus, $R = N$ also represents an equilibrium of the subgame beginning in period 3.2.

Specifying $I = N$ as the continuation equilibrium following $p_I = p^*$ in the subgame beginning in period 3.2 implies that $p_I = p^*$ is the only equilibrium of the subgame beginning in period 3.1. Any higher price would result in deviation by a downstream firm, successful competition from the rival, and zero profits for the incumbent. Thus $p_I = p^*$ and the rival exiting the upstream market is an equilibrium of the subgame beginning in period 3.1.

However, specifying $R = N$ as the continuation equilibrium following $p_I = p^*$ in the subgame beginning in period 3.2 is also consistent with $p_I = p^*$ representing an equilibrium in the subgame beginning in period 3.1. If, for instance, we specify off of the equilibrium path that all downstream firms purchase from the rival unless $p_I = \bar{c}$, then any pricing deviation by the incumbent in period 3.1 will result in zero profit, which is the same profit the incumbent earns from setting $p_I = p^*$. Indeed, this same argument establishes any $p_I$ such that $\bar{p} \geq p_I \geq \bar{c}$ can describe an equilibrium of the subgame beginning in period 3.1 where the rival achieves minimum scale and successfully competes.

Finally, it follows that by specifying off of the equilibrium path the latter type of equilibrium where in period 3.2 the rival achieves the minimum efficient scale for any price $p > p_I$, any $p_I$ such that $p^* > p_I \geq \bar{c}$ can represent an equilibrium of the game beginning in period 3.1 where the rival is forced to exit the market. ■

\textsuperscript{19} This follows from our assumption above that we can rule out pricing equilibria where the upstream firms have no chance of making sales in period 3.3.
Given that following the decision to enter in period 2, there are continuation equilibria in period 3 where the rival succeeds and continuation equilibria where the rival fails, the game as a whole has equilibria where the rival enters and equilibria where the rival does not enter. If the rival does not enter the incumbent is able to set $p_I = p^m$. The situation is summarized in Proposition One.

**Proposition 1:** Play along the equilibrium path for the simple Refusal to Deal Game can take two forms:

(i) the rival does not enter, $p_I = p^m$, and all downstream firms purchase from the incumbent.

(ii) the rival enters and all downstream firms purchase the input at $\bar{c}$.

Just as in the original RRW-SW Naked Exclusion model there are equilibria of the game as a whole where the downstream firms coordinate on their preferred outcome and equilibria where the downstream firms fail to coordinate on their preferred outcome. However, as discussed above, in the RRW-SW model there is no mechanism to explain why in the absence of compensation the downstream firms may fail to coordinate. Proposition 2 suggests a specific mechanism for how exclusion succeeds in the absence of any compensation of buyers by the incumbent and also indicates that in this simple model the exclusionary outcome is the more robust outcome.

**Proposition 2:** Suppose that the downstream firms always coordinate on their preferred equilibrium unless the inferior equilibrium is an equilibrium in dominant strategies (including weakly dominant strategies). Then the simple refusal to deal game has a unique equilibrium where the rival does not enter and all downstream firms purchase from the incumbent at $p_I = p^m$.  

---

20. Expressing the proposition in this way emphasizes the power of the mechanism preventing the downstream firms from coordinating on their preferred equilibrium. There are also two technical benefits of expressing the conditions.
Proof:

Suppose that in period 2 the rival enters, in period 3.1 \( p_R = p_I = \bar{c} \), and consider the decision of an arbitrary downstream firm in period 3.2 which we label as firm one. If \( R_{-i} > N - N^* \) then no matter what strategy firm one chooses, the rival will reach the minimum efficient scale and firm one will be able to purchase at \( \bar{c} \). If \( R_{-i} = N - N^* \) then firm one is pivotal. Since \( \pi(\bar{c}, P_{N^*-1}) > \pi(\bar{c}, C_{N-1}) \), firm one benefits from preventing the rival from reaching the minimum efficient scale as \( N - N^* \) downstream rival are now excluded from the downstream market. As a result, firm one will choose not to place an order from the rival. Finally, if \( R_{-i} < N - N^* \), then no matter what strategy firm one chooses, the rival will not achieve the minimum efficient scale. Since firm one will make positive profits by choosing to purchase from the incumbent and zero profits by placing an order with the rival who will not achieve minimum scale, firm one will not choose to purchase from the rival. From our assumption of a sufficiently fine discrete price space there exists \( p > \bar{c} \) such that \( \pi(p, P_{N^*-1}) > \pi(\bar{c}, C_{N-1}) \) and such that the rival still much achieve \( R > N - N^* \) to be viable. Thus, we are guaranteed the existence of a strictly profitable \( p_I \) such that it is weakly dominant strategy to acquiesce to the incumbent’s scheme. It follows, in an equilibrium of the subgame beginning in period 3.1 the incumbent sets \( p_I \) to be the highest price such that when a firm is pivotal, it does not choose the rival, as the incumbent knows that for any higher price the downstream firms will coordinate on their preferred equilibrium. Thus, the rival does not enter and the incumbent sets \( p_I = p^m \). ■

---

for equilibrium in this manner. First, since neither equilibrium of the subgame beginning in period 3.1 is preferred when \( p_R = p_I = \bar{c} \), the equilibrium refinement allows for the rival to succeed off the equilibrium path. Second, this equilibrium selection mechanism isolates a unique equilibrium for the game as a whole as opposed to only fixing behavior along the equilibrium path.
The power of the refusal to deal in this model is that it allows the incumbent to turn the downstream firms against each other when they attempt to coordinate on their preferred equilibrium. In the simple case explored here, to prevent coordination on the downstream firms’ preferred equilibrium, the incumbent sets prices so that it is never worth it for a downstream firm to risk dealing with the rival. Although all of the downstream firms would be better off under the competitive outcome, when a downstream firm is pivotal, it is better off complying with scheme so that competition in the downstream market is reduced.

The model thus far omits two major elements from the Naked Exclusion literature that potentially limit both theoretical comparison of this model to Naked Exclusion models and practical application of this model to real antitrust cases. First, we assumed that the incumbent is able to make a very strong commitment not to deal with downstream firms who attempted to purchase from the incumbent without requiring explicit contracts. The omission of explicit contracts is also problematic in terms of real world antitrust cases as many, including Dentsply involve such contracts. Second, we have assumed that a downstream firm can simply switch to the rival in the last period of the game without any advanced preparation or forward agreement. However, the records in many major antitrust cases involving dealer or distributor markets indicate that forward purchase agreements are necessary for a nascent rival trying to gain traction in a market.

Section III: A Naked Exclusion Model with Seller Committing Exclusive Contracts

In this section, we consider how the simple Refusal to Deal Game can be adapted into a model with the Naked Exclusion structure. Specifically, we consider Simpson and Wickelgren’s structure as it has a number of appealing features. First, the Simpson and Wickelgren structure allows for downstream firms to switch from the incumbent to the rival in period 3.2. By setting
the penalty for breach by downstream buyers to zero we are able to emphasize the crucial contribution of seller commit contracts, while still indicating that the model can easily be adjusted to accommodate bilateral exclusive contracts (contracts involving both seller and buyer commitment). Second, the Simpson and Wickelgren model implicitly requires forward purchasing from the rival in period 3.2. This assumption is likely to be more realistic for many cases than the purchasing behavior in the previous section and forces us to consider how the model operates in a more rigid environment where the downstream firms who do not choose to purchase from the rival in period 3.2 now face some risk of paying a higher price for the input even if the rival achieves viability. Third, this structure allows us to consider the potential role of breach damages for seller commitment contracts and compare those to the results for buyer commitment contracts.

The key step in adapting the simple Refusal to Deal Game from the previous section to this setting is to define exclusive contracts in terms of a seller commitment to do business only with a downstream firm who has not contracted to purchase from the rival at any stage of the game. We will now use $I$ to denote the number of downstream firms who agree to the exclusive contract in period 1 and $R$ to represent all those who contract with the rival in period 1.

As a result of the refusal to deal, the downstream firms in $R$ cannot purchase from the incumbent in period 3. However, the $I$ firms choosing to sign the exclusive contracts in period 1 are able to switch to the rival in period 3.2 for free during the switching period as we set the penalty for buyer breach to zero. Any level of damages could be specified, creating exclusive contracts with bilateral commitment, but as we will see below, there is no need for bilateral

---

21. We thank Einer Elhauge for this observation.
22. Setting the level of breach damages to zero in the Simpson and Wickelgren setting is equivalent to exclusive contracts entailing no buyer commitment.
commitment contracts in this model, as the seller commitment contracts are sufficient to allow
the incumbent to enjoy the entire monopoly surplus. The number of downstream firms
choosing to switch to contracting with the rival at this stage of the game is denoted $C_R$. Thus, the
total number of firms purchasing from the rival in period 3.3 is now given by $R + C_R$.

As discussed above, following Simpson and Wickelgren model we require that the
downstream firms contract with the rival in period 3.2 if they want to buy from the rival in
period 3.3. As a result, unlike the simple Refusal to Deal Game from Section II, if a downstream
firm chooses to stay with the incumbent in period 3.2 and the incumbent is charging a higher
price, the downstream firm does not get to purchase from the lower priced rival in period 3.3.
Lemma 4 presents an important consequence of this modification of the game.

Lemma 4: If the rival enters and $\bar{p} > p_I > \bar{c}$, then equilibrium in the subgame beginning in
period 3.2 can take only two forms. Either $R + C_R = N$ and all of the downstream firms
purchase from the rival at $p_R = \bar{c}$ or $C_R = 0$, the rival exits, and $N - R$ firms purchase from the
incumbent at $p_I$.

Proof:

First, note that Lemma 2 continues to hold so we have that in equilibrium $p_R = \bar{c}$. Since
$p_I > \bar{c}$, all of the firms in $J$ will either purchase entirely from the rival or will purchase entirely
from the incumbent. Furthermore, the latter case can only occur if there are not sufficient firms
in $R$ after period 1 to render the rival viable.

Next, we show that $R + C_R = N$ is an equilibrium. By assumption, the rival never has to
sell to the entire market to gain viability, so if $R + C_R = N$, after a single deviation by a

---
23. Even if exclusive contracts are technically bilateral, enforcing buyer commitment may be very costly. This may help to explain why we see many more examples of cases involving seller commitments to withhold sales from non-compliant buyers than cases involving lawsuits against buyers breaching contracts.
downstream firm to the incumbent, the rival remains viable and the downstream firm is strictly worse off as it must now purchase the input at \( p_I > \bar{c} \). Establishing the equilibrium where \( C_R = 0 \) and the rival exists depends on the price set by the incumbent and the number of firms in \( \mathcal{R} \).

For instance, if the incumbent sets \( p_I = p^* \) which we defined above as the price one increment below \( \bar{p} \) and if there are no firms in \( \mathcal{R} \), \( C_R = 0 \) represents an equilibrium as a single deviation will not render the rival viable.\(^{24}\) For any price less than \( p^* \) an equilibrium where \( C_R = 0 \) and the rival exists can be specified in a similar manner as we can always fix \( R \) so that two or more firms have a move in period 3.2. ■

From Lemma 4 it is clear that just as in the simple Refusal to Deal Game from the previous section, the game as a whole has equilibria where the rival successfully enters and equilibria where the incumbent is successful in excluding the rival. Thus, in the remainder of this section we focus on the mechanism that drives the exclusionary outcome and consider the robustness of this outcome.

Because a firm that purchases from the incumbent is now unable to switch to the rival in the final period of the game, the weak dominance result from Proposition 2 will no longer hold. However, we show in Lemma 5 that a weaker refinement requiring that equilibria be coalition-proof has a similar effect on the behavior of the downstream firms. The coalition-proof Nash equilibrium refinement requires that equilibria be immune to self-enforcing coalitional deviations (Segal and Whinston 2000). Although this refinement is weaker, it has a very similar effect as to the weak dominance refinement applied in section II, with the role of a pivotal firm being replaced with pivotal coalitions of firms.

\(^{24}\) As in Section II, we assume without loss of generality that rival only needs two downstream firms at \( p^* \).
Lemma 5: If $R \leq N - N^*$ and the rival enters then the unique coalition-proof equilibrium of the
subgame in period 3.1 is characterized by $C_R = 0$, the rival exits, and $N - R$ firms purchase
from the incumbent at $p_I > \bar{c}$.

Proof:

Define $p$ to be the smallest price increment such that $p > \bar{c}$. From our assumption of a
sufficiently fine discrete price space we have:

(i) $(N - N^*)q(\bar{c}_{N-N^*}, p_{N^*}) < Q^*$

(ii) $\pi(p, \bar{p}_{N^*}) > \pi(\bar{c}, \bar{p}_{N^*}) > \pi(\bar{c}, \bar{c}_{N-1})$

Condition (i) implies that even at a small price increment above $\bar{c}$ the rival must still receive
purchases from $N - N^* + 1$ downstream firms to reach the minimum efficient scale. Condition
(ii) indicates that the profit to a downstream firm of buying the input at $p$ and facing only $N^* - 1$
competitors is greater than the profit from purchasing the input at $\bar{c}$, but competing against the
entire downstream market when up to $N^* - 1$ purchase at $p$.

Suppose that in period 3.1 the upstream firms set $p_I = p$ and $p_R = \bar{c}$. Note that all
downstream firms who elect for contracts with the rival in period 1 must purchase from the rival
or make no purchases as a result of the refusal to deal so only $N - R$ firms have a move in period
3.2.

We now apply the coalitional refinement to the equilibria of the subgame beginning in
period 3.2 noting that as a result of Lemma 4 we need only consider two possible equilibria.

In the first case where $R + C_R = N$, suppose now that a coalition of $N^*$ firms deviates to
the incumbent. Since $\pi(p, \bar{p}_{N^* - 1}) > \pi(\bar{c}, \bar{c}_{N-1})$ the initial deviation is optimal. Furthermore, as
the optimal sub-coalitional deviation is for one firm to leave the coalition and contract with the
rival the condition that \( \pi(p, P_{N^*-1}) > \pi(\bar{c}, P_{N^*-1}, \bar{c}_{N-N^*}) \) ensures that no sub-coalition will deviate and the initial deviation is self-enforcing. Consequently, this equilibrium does not survive the coalition refinement.

For the latter equilibrium, where \( C_R = 0 \), the rival exits, and \( N - R \) downstream firms have a move, consider a deviation by some subset of the \( N - R \) downstream firms so that the rival has sufficient purchases to achieve the minimum efficient scale. From condition (i) above, following a price of \( \bar{c} \), the rival must achieve \( R + C_R > N - N^* \) to be viable.

The most profitable initial coalitional deviation is one such that \( \pi(\bar{c}, P_{N^*-1}, \bar{c}_{N-N^*}) > \pi(p, P_{N-R-1}) \). While this initial deviation is not always optimal, for the history where \( R = 0 \) the initial is necessarily optimal. However, even when the initial deviation is optimal, a sub-coalitional deviation always exists as \( \pi(p, P_{N^*-1}) > \pi(\bar{c}, P_{N^*-1}, \bar{c}_{N-N^*}) \). Thus, no coalitional deviation from this equilibrium is self-enforcing and the equilibrium survives. Thus, following \( p_I = p \) the coalitional refinement selects the equilibrium where the rival fails.

However, as the incumbent’s price rises the benefit of excluding rivals will fall both because of the direct price effect and because fewer firms will be excluded. At some \( p \) such that \( \bar{p} > p > p^* \), the critical inequalities will reverse and the coalitional refinement will select the equilibrium where the rival succeeds in reaching the minimum efficient scale. As the incumbent makes no profits following a price at or above this level, the incumbent will simply select the maximum price such that the coalitional refinement selects the outcome where the rival fails which we have shown is guaranteed to be such that \( p_I > \bar{c} \).

With this Lemma we can now prove our final proposition.
Proposition 3: If \( \pi(p^m, P^m_{N^*-1}) > \pi(\overline{c}, \overline{C}_{N-1}) \), then the unique coalition-proof equilibrium of the game as a whole is \( I = N \), the rival does not enter, and the incumbent sets \( p_I = p^m \).

Proof:

Lemma 5 demonstrates that when when \( R \leq N - N^* \) the rival will fail. So equilibrium in period 1 must either be characterized by \( R > N - N^* \) the rival enters and all downstream firms purchase at \( \overline{c} \) or \( R = 0 \), the rival does not enter, and \( p_I = p^m \). In the former case, consider a coalitional deviation away from \( R > N - N^* \) so that \( R = N - N^* \). Since \( \pi(p^m, P^m_{N^*-1}) > \pi(\overline{c}, \overline{C}_{N-1}) \) the initial coalitional deviation is optimal and any deviation by a sub-coalition that restores the rival to viability will simply result in all of the downstream firms receiving payoffs of \( \pi(\overline{c}, \overline{C}_{N-1}) \). Thus the initial deviation is self-enforcing. In the latter case, while the initial deviation is optimal as it is better for all of the downstream firms to purchase the input at \( \overline{c} \) than at \( p^m \), by the same logic as in Lemma 5, a pivotal sub-coalition will deviate to back to the incumbent so that the downstream firms agreeing to purchase from the rival are exposed to the refusal to deal and excluded from the downstream market. Thus, the initial deviation is not self-enforcing and the exclusionary equilibrium survives the coalitional refinement.

As with the simple model from Section II, the exclusionary strategy turns the downstream firms against each other when they attempt to coordinate on their preferred equilibrium. Any pivotal coalition of firms will have the incentive to undermine the equilibrium where competition prevails to gain an advantage in the downstream market. However, because no firms will risk being shut out of the downstream market to enter into a purchase agreement with the rival, no coalition of downstream firms actually gets a competitive edge and all are strictly worse off.

An advantage of focusing on seller commitment as opposed to buyer commitment is that it is easy to see how commitment to the refusal to deal strategy could arise out of repeated
interaction without institutional enforcement. However, it is still interesting to consider the potential for the seller to uphold the refusal to deal in a one-shot game where breach damages are the only force pushing the incumbent to honor the exclusive contract. Let \( p^{ce} \) represent the price set by the incumbent in a coalition proof equilibrium in the subgame beginning in period 3 and suppose incumbent can breach its exclusive contracts by paying expectation damages. The case where it will be most tempting for the incumbent to breach is when only \( N^* \) firms purchase from the incumbent so \( N - N^* \) are left out of the market. Under this scenario, the payoffs to the incumbent at the end of period 3 are given by:

\[
N^\ast \pi(p^{ce}, P_{N^*}^{ce}).
\]

However, if the incumbent chooses to breach and pay expectation damages its payoffs are:

\[
N\pi(p^{ce}, P_{N-1}^{ce}) - N^\ast[\pi(p^{ce}, P_{N^*}^{ce}) - N^\ast\pi(p^{ce}, P_{N^*}^{ce})].
\]

Manipulating these equations indicates that the incumbent will not breach based on a one-shot interaction if and only if:

\[
\frac{\pi(p^{ce}, P_{N^*}^{ce})}{\pi(p^{ce}, P_{N-1}^{ce})} > \frac{N + N^\ast}{2N^\ast}.
\]

While this inequality can go either way, the important point is that unlike the Simpson and Wickelgren model, it is plausible that expectation damages alone can hold the exclusionary strategy in place. Thus, when factors like reputation or repeated interaction are considered as well, the seller commitment assumption employed in this section rests on a firm economic foundation.

**Section IV: Discussion and Conclusion**

Although the Naked Exclusion literature was the first to highlight the possibility that as a result of exclusive contracts downstream firms might fail to coordinate on their preferred equilibrium, the results of this literature fail to provide a strong foundation for why such
behavior occurs. Rather, in the most robust exclusionary cases, Naked Exclusion models rely on full compensation either of a pivotal segment of the downstream market or, when downstream competition is sufficiently strong, full compensation of all buyers. The refusal to deal models introduced above predict exclusion as the robust outcome while maintaining the existence of an alternative equilibrium that is clearly preferred by all downstream firms. Furthermore, the model does so in a way that is consistent with legal and institutional context of real-world antitrust cases while still maintaining the traditional focus on monopolization through rival foreclosure.

The model in Section II assumed immense flexibility of the rival to supply the market with little notice and the incumbent’s ability to commit to a refusal to deal without explicit contracts. Although these assumptions are admittedly quite strong, the result is one that turns the weak dominance result associated with the Naked Exclusion equilibria labeled as case (iii) in Section I on its head. In our simple model, when the firms calculate whether they should attempt to coordinate on their preferred equilibrium, they realize that if they are individually pivotal, it is better to let the rival fail and exclude other downstream firms from the market.

Once we assume the structure of the Simpson and Wickelgren’s Naked Exclusion model, we require a weaker equilibrium refinement to identify a unique equilibrium. Yet, the underlying mechanism maintains its essential strategic purpose. Applying the coalitional refinement, pivotal coalitions play the same role as a pivotal firm in the model from Section II. When the downstream firms attempt to coordinate on their preferred equilibrium, a coalition of firms will have the incentive to undermine this equilibrium just as a single firm does in the former case. What both refinements emphasize is that the strategic value of this scheme is that it turns the downstream firms against each other when they attempt to coordinate on their preferred equilibrium.
In providing an economic theory that is consistent with cases like Dentsply and Lorain Journal, we believe that our approach provides an economic interpretation of the idea of coercion in cases involving vertical restraints. Before the rise to prominence of the Chicago School of Economics, courts in the United States frequently expressed strong hostility towards vertical restraints like exclusive dealing. Courts evinced particular concern about situations where buyers were “coerced” or “forced” into vertical restraints.\(^\text{25}\) In the first written statement of the Chicago argument, Director and Levi (1956) took direct aim at the coercion doctrine, arguing that firms attempting coercion through vertical restraints would “lose revenue because they cannot both obtain the advantage of the original [monopoly] power and impose additional coercive restrictions so as to increase their monopoly power.” Over time, the scholars associated with the Chicago School expanded the argument to the formulation made famous by Bork (1978). Bork’s argument consisted of two prongs: first, if exclusive dealing cannot be imposed through coercion, then “exclusivity is not an imposition, it is a purchase.” Second, “a supplier cannot purchase its way to monopoly though exclusive dealing contracts.” These arguments became highly influential in law, dramatically affecting courts’ assessments of cases involving allegations of anticompetitive exclusive dealing. In addition, the Chicago School arguments effectively banished the notion of coercion from the economic discourse on exclusive dealing.

While the Naked Exclusion equilibria labeled (i) and (ii) in Section I belie the second prong of Bork’s argument, to date the Naked Exclusion literature does not provide any clear mechanism through which buyers can be said to have been forced or coerced into failing to coordinate on their preferred equilibrium. On the other hand, here the failure to coordinate on a preferred equilibrium is clearly driven by the incumbent’s ability to turn the downstream firms

\(^{25}\) A detailed history of the role of coercion in antitrust law can be found in Burns (1992).
against each while providing no compensation for exclusivity. In other words, *exclusivity is an imposition, not a purchase.*

Our model also provides some interesting intuition on the role of contracts in cases involving instances of coercive exclusive dealing. The model in Section II assumed that the incumbent could commit to the refusal to deal without explicit contracts. However, as a result of the explicit contracts in Section III, a much more restrictive condition applies to when the strategy will be feasible. The $\pi(p^m, P_{N-1}^m) > \pi(\bar{c}, \bar{C}_{N-1})$ from Proposition 3 arises because with explicit contracts the downstream firms gain an early mover advantage and now consider the tradeoff between the full exclusionary outcome and competition. The model thus suggests an interesting tradeoff: while explicit contracts may provide greater ability to commit, there is a cost in terms of the ability to implement the refusal to deal strategy.

In addition to these points of economic interest, we conclude by considering the potential of our models to clarify certain specific issues antitrust jurisprudence. For instance, some courts have argued that only long-term exclusive contracts have anticompetitive potential, and short-term contracts are generally permissible. In *Barry Wright Corp. v. ITT Grinnell Corp.* (1983), the First Circuit Court of Appeals cited the fact that the contracts at issue covered a “fairly short time period” in concluding that a series of exclusive arrangements did not represent anticompetitive exclusive dealing. In the Seventh Circuit the following year, Richard Posner one of the legal scholars most associated with the Chicago School of Economics, wrote in *Roland Machinery Co. v. Dresser Industries* that, “[e]xclusive-dealing contracts terminable in less than a year are presumptively lawful.” Cases (iii) and (iv) from the Naked Exclusion literature discussed above could be seen as providing an economic basis for this presumption. Under this logic, short-term contracts with many opportunities for renegotiation would help to promote buyer coordination on
a preferred equilibrium, undermining the potential for anticompetitive exclusion. However, in the refusal to deal model developed in this article, even when exclusive contracts are specified so that there are no breach damages and buyers are free to break the contracts, exclusion still succeeds. Thus, the presumption that short-term contracts are inherently procompetitive may not be warranted.

Another interesting application of this model is in the evaluation of class action cases involving direct purchasers. Antitrust class action cases seeking damages are often certified under Federal Rules of Civil Procedure Rule 23(b)3 which requires that courts find that “questions of law or fact common to class members predominate over any questions affecting only individual members.” Legal commentators have asserted that the inherent conflicts among direct purchaser class members in exclusive dealing cases may render direct purchaser class actions non-viable, and the Naked Exclusion literature may currently be seen as supporting this view of exclusive dealing cases.26 In the robust equilibria from the Naked Exclusion literature some subset of downstream firms act as participants rather than victims of the exclusionary scheme. On the other hand, our results suggest that is is possible for all direct purchaser class members to be harmed by an anticompetitive exclusive dealing scheme.

26. Weick (2014) makes this argument in the context of an article that explicitly cites the Naked Exclusion literature.
References


Zhijun Chen and Greg Shaffer, Naked Exclusion with Minimum-Share Requirements, 45 Rand Journal of Economics 1, 64 (2014).


