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SETTLING FOR A DISCOUNT: A REVIEW OF THE PIONEER FOODS PRICE REDUCTION REMEDY

Liberty Mncube[1]

ABSTRACT

With Pioneer Foods admitting to its involvement in milled wheat and milled white maize cartels as well as engaging in general exclusionary conduct, there was little suspense over the existence of most egregious offenses in competition law and the subsequent harm to consumers and competition. For some, the competition law remedies and in particular the discount remedy that was adopted, following confirmation by the Competition Tribunal, constitutes a key measure of "success" for the case(s). This paper evaluates this claim by examining the design and effectiveness of the discount remedy, from a comparative perspective. We find that the period before, during and after the Pioneer Foods discount remedy, was characterised by increasing wheat prices. The discount remedy induced responses from Pioneer Foods' main competitors resulting in even wider gains for consumers than Pioneer Foods' own price reduction commitment.

JEL codes: L13 L40 L41 L66

Keywords: cartels, fines, discount remedies

1. INTRODUCTION

Competition policy remedies are interventions that aim to restore competition in the market place.[2] To achieve this, competition policy remedies bring to an end the anticompetitive conduct, disgorge illicit profits and/or compensate those who have suffered as a result of the anticompetitive conduct. In addition, competition policy remedies also place incentives to minimise the recurrence of the anticompetitive conduct. It is important to note, however, that restoring competition does not mean that competition policy remedies are aimed at achieving perfect competition in the market place (perfect competition only applies to a theoretical setting, where there are no barriers to entry, economic profits are competed away and are practically unattainable). Rather, competition policy remedies are aimed at restoring the

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1   Chief Economist, Competition Commission South Africa and Visiting Senior Lecturer, Centre for Competition Economics, University of Johannesburg.
2   See also Lianos and Economides (2010).

market to conditions that would have existed in the absence of the anticompetitive conduct (commonly known as the "but for" market conditions).

A discount remedy is an agreement between a competition authority and a firm. It is designed to ensure that the firm will sell to all buyers at a given discount whether or not they were harmed by the conduct of the firm. The discount can be specified as either a certain specified amount or a percentage. A coupon discount remedy, on the other hand, is an agreement between a competition authority and a firm – the firm will sell at a discount only to holders of coupons.

One important question on the use of a discount remedy by a competition authority is whether this is beneficial to consumers. The answer appears obvious: a discount price reduction would be beneficial to all consumers, both the rich and the poor. Yet the extent of such a benefit could vary depending on a number of factors including: (1) the shape of the demand curve; (2) the presence of other competitors; (3) the value of the discount recipients have for the product; (4) the size of the discount; (5) the amount of discount issued; (6) the ability of sellers to selectively adjust price or quality; (7) the shape of the seller's cost curve; and (8) the length of the discount period. Perhaps this is why discount remedies, while enormously powerful, are seldom used by competition authorities. To our knowledge, the Pioneer Foods discount remedy was the first of its kind in South Africa or elsewhere, although coupon discount remedies have been widely used in the US where many antitrust lawsuits involving price fixing have settled for coupon discount remedies and cash.[3]

Another reason could be the assumption that private actions provide adequate monetary relief, therefore discount remedies do not provide an additional benefit. For instance, when a cartel has harmed a customer, that customer may, under some circumstances, pursue a private damages claim for the purpose of litigation and/ or settlement. The adequacy of the private actions assumption seems dubious, especially in South Africa, where private enforcement of competition law is weak.[4]

Perhaps a more serious concern is that there is an open question as to whether the Competition Commission ("Commission") has authority to conclude discount

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3   In the USA, coupon discount remedies have been widely used in many antitrust lawsuits involving price fixing. For example, in 1994, passengers who had travelled on major US airlines between January 1988 and June 1992 received coupons with a total face value of approximately $400 million (see also Polinsky and Rubinfeld (2008)).

4   To the best of our knowledge, there has only been one private competition law damages claim in South Africa. Nationwide Airlines and Comair instituted civil claims in the High Court for damages arising out of the abuse of dominance by South African Airways.

remedies.[5] The Commission has discretion in crafting appropriate remedies for competition law contraventions, but this discretion has limits. During the Competition Tribunal ("Tribunal") process of confirming the Pioneer Foods settlement agreement, the National Treasury Department ("National Treasury") made an application to intervene.[6] According to the National Treasury, the only monetary sanction contemplated by the Competition Act is an administrative penalty or fine. The National Treasury's constitutional and statutory duty is to ensure that monies are properly transferred to and from the National Revenue Fund. Any fine imposed under the Competition Act is payable exclusively into the National Revenue Fund. The National Treasury argued during the confirmation proceedings that the Commission could not use its discretionary powers for a purpose not expressly authorised by the Competition Act, however laudable the intention. Furthermore, the National Treasury suggested that discount remedies are arguably an attempt in which funds are siphoned off from the National Revenue Fund.

This paper evaluates the effectiveness of the Pioneer Foods discount remedy. We begin by discussing as a matter of competition law, the foundations of imposing discount remedies in section 2. The Commission's discretion in crafting appropriate remedies is at the centre of the paper. We argue that discount remedies are part of the exercise of discretionary remedialism. In section 3, we provide a brief discussion of the cartel conduct and then provide an overview of the choice and design of the Pioneer Foods discount remedy. In section 4, we evaluate the effect of imposing a discount remedy on one firm in an oligopoly market. To this end, we focus on the strategic interactions between the firms before, during and after the discount remedy. We find that the period before, during and after was characterised by increasing wheat prices. However, increasing wheat prices did not translate into increased bread prices during the discount remedy period. After the discount remedy period, prices of bread increased sharply. This paper concludes in section 5.

2. DISCOUNT REMEDIES AND COMPETITION LAW

The Commission has some discretion in crafting appropriate remedies for competition law contraventions. In the case of the Commission's settlement with

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5   See article by Michael Bleby titled "Treasury tussle for Pioneer Food fine" on 25 November 2010 in Business Day newspaper. Also available at http://www.bdlive.co.za/articles/2010/11/25/ treasury-tussle-for-pioneer-food-fine;jsessionid=72BEE8DDC7ABC7428A4B9A72A2EB38 9E.present1.bdfm (Accessed on 12 September 2013).

6   A party that has a direct and substantial interest in the confirmation proceedings of the Competition Tribunal can accordingly be joined as a party to the confirmation proceedings.

Pioneer Foods, one such remedy was the discount remedy imposed on Pioneer Foods. Discretionary remedialism is the "view that courts [but in our case we could add competition authorities] have a discretion to award the 'appropriate' remedy in the circumstances of each individual case rather than being limited to specific [perhaps historically determined] remedies for each category of causative events" (see Lianos, 2011). A deep-rooted concern is that discretionary remedialism could increase uncertainty and unpredictability as to the nature and form of the remedy. Uncertainty and unpredictability are certainly to be avoided with regard to the areas of law that rely on private governance (e.g. contracts, torts), where the aim is to facilitate the exercise of private choice in the most efficient way.

But more provocatively, is predictability and certainty necessary to the same extent within a regime of public governance, such as competition law? For example, it is possible to argue that greater predictability of the competition law remedy might make it possible for the firm to calculate precisely the costs and benefits of the violation and therefore to make sure that the breach of competition law is profitable (Lianos, 2011).

Section 49D(1) of the Competition Act, 1998, as amended, provides that, if the Commission and a respondent "agree on the terms of an appropriate order", the Tribunal may confirm the agreement as a consent order. An "appropriate" consent order is one that is "suitable", that is, "suitable in the sense that it is an agreement that suits the contending interests of the Commission, as the proxy of the public interest, and the respondent, and in that sense, can be appropriate as between themselves". However, section 58(1)(a) does not provide an exhaustive list of the kinds of orders that the Tribunal may make. Whatever remedy imposed must be "appropriate". The principle of appropriateness constitutes an important limit to the Commission's discretion in imposing remedies.

The Tribunal is required to be satisfied when confirming a consent and settlement agreement. This means that remedies agreed by the Commission and a respondent do not exceed the limits of what is appropriate and suitable. The Commission's discretion in crafting remedies is very broad, allowing it to address various objectives of the Competition Act subject to the appropriateness test.[7] Essentially, the appropriateness test is an objective test and is thus justifiable. Remedial discretion and the consequent unpredictability of the remedy are therefore tolerated, as long as it is within acceptable, from the point of view of appropriateness and suitability, limits.

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7 South African competition law has a number of objectives including goals based on both economic welfare (promoting economic efficiency and consumer welfare) and non-economic welfare (fairness and the protection of a group of market participants, for example, small and medium-sized enterprises).

Where conventional wisdom recognises that, because competition law cases involve market-wide harm, they are uniquely suitable for class action treatments, a court could accept narrow arguments that, in markets with product differentiation, buyer negotiation, or price discrimination, harm from anticompetitive conduct is individuated. By requiring precise calculations of the "but for" price for each consumer class member, this narrow view imposes a higher burden of proof than would be imposed in an individual case, where proof of harm can be uncertain and any reasonable approximation of the amount of damages suffices.

But the point for present purposes is not whether the narrow view on competition law class actions is right or wrong. The point is that the narrow view supports having competition authorities take up the slack left by the substantial barriers to competition law class actions by bringing out discount remedies from their remedial toolbox.

3. THE PIONEER FOODS DISCOUNT REMEDY

An important precondition for a robust review of the Pioneer Foods discount remedy is a profound understanding of both the cartel agreement in general and the design of the discount remedy in particular. As a consequence, this section concentrates first on providing an overview of the flour and bread cartels. Second, it gives a brief description of the design of the Pioneer Foods discount remedy.[8]

3.1. The flour and bread cartels

Section 4(1)(b) of the Competition Act, 1998, as amended, provides that an agreement between, or concerted practice by, firms or a decision by an association of firms, is prohibited if it involves directly or indirectly fixing a purchase or selling price or any other trading condition or dividing markets by allocating customers, suppliers, territories, or specific types of goods or services.

There are four major firms that operate in the wheat milling industry in South Africa. These firms are Premier Foods, Tiger Brands, Pioneer Foods and Foodcorp. They are all vertically integrated and account for more than 90% of the wheat milling market. They mill wheat into flour, which is then used to supply both their own bakeries and independent third parties such as the chain stores and other bakeries. Up until the 1990s, the marketing of agricultural products in South Africa, including grain products, was extensively regulated by the state. In 1996, the wheat industry was deregulated. In 2007, the Commission uncovered

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8   Media release, 02 November 2010, Competition Commission settles with Pioneer Foods. Also available at http://www.compcom.co.za/assets/Uploads/AttachedFiles/MyDocuments/Commission-settles-with-Pioneer-Foods2.pdf (Accessed on 5 October 2013).

that the four major wheat millers had continued, albeit privately, with regulating the industry. This conduct contravened Section 4 of the Competition Act, with respect to collusion involving flour and bread products.

When Premier Foods applied for and was granted corporate leniency in terms of the Commission's corporate leniency policy in the bread cartel case in March 2007, Premier Foods indicated that the cartel extended to the milling industry. Premier Foods' corporate leniency extended to its involvement in the milling cartels (milled white maize and milled flour products).[9] Tiger Brands corroborated Premier Foods' allegations and entered into a settlement agreement with the Commission on 9 November 2007.[10] In terms of the settlement agreement, the Tribunal imposed a fine of R98 million on Tiger Brands for its role in the bread cartel. Tiger Brands provided further evidence, not provided by Premier Foods on the operation of the milling cartels and applied for and got immunity from prosecution in terms of the corporate leniency policy for its involvement in the milling cartels.

On 6 January 2009, the Tribunal confirmed a settlement agreement between the Commission and Foodcorp regarding Foodcorp's involvement in the bread cartel and imposed a fine of R45 million on Foodcorp.[11] On 3 February 2010, after contested proceedings, the Tribunal found that Pioneer Foods had been involved in a conspiracy to fix the prices of bread as well as market allocation in the Western Cape province and nationally. For this conduct, the Tribunal imposed a fine of R196 million on Pioneer Foods.

On 30 November 2010, the Tribunal confirmed a settlement agreement between the Commission and Pioneer Foods regarding Pioneer Foods' involvement in the milling cartels. The remedies that were confirmed in this settlement agreement heightened the debate about appropriate remedies.[12] The remedies included, among others, (1) a fine of R500 million, part of which, and by agreement, was set aside for the creation of an Agro-processing Competitiveness Fund ("Agri-fund"), (2) a commitment not to reduce capital expenditure, as well as, (3) a commitment to reduce prices on the sale of selected flour and bread products over an agreed period.

9   Media Release, 14 February 2007, Competition commission prosecutes bread cartel. Available at: http://www.compcom.co.za/2007-media-releases/ (Accessed on 12 September 2013).

10 Press Statement, 12 November 2007, Tiger Brands admits to participation in bread and milling cartels and settles with Competition Commission. Available at: http://www.compcom.co.za/2007-media-releases/ (Accessed on 13 September 2013).

11 Press release, 5 January 2009, Competition Commission settles with Foodcorp. Available at: http://www.compcom.co.za/assets/Uploads/AttachedFiles/MyDocuments/5-Jan-09-CC-Settles-with-Foodcorp.pdf (Accessed on 12 September 2013).

12 See also Bonakele and Mncube (2012).

In sum, Premier Foods, Tiger Brands, Pioneer Foods and Foodcorp have all admitted that their conduct contravened section 4 (1) (b) of the Competition Act. They have admitted that during the period between 1999 and 2007, they were all part of a cartel that fixed selling prices as well as the implementation dates of such prices and allocated markets for flour and bread.

3.2.　The design of the discount remedy

The Pioneer Foods price reduction commitment was essentially a discount remedy. It forced Pioneer Foods to offer a discount off the competitive price for all consumers of the selected flour and bread products, unlike a coupon discount remedy, which awards only the harmed consumers with coupons that can be used to purchase the good at a price below that which would otherwise prevail. Put differently, Pioneer Foods agreed in November 2010 that it will, over a defined period, adjust its pricing in respect of certain flour products (white bread flour, brown bread flour and cake flour) and bread products (all standard 600g and 700g white and brown loaves accounting for around 85–90% of Pioneer Food's bread sales).

The discount remedy was designed in such a way that the average realized gross profit for the selected bread and flour products over the base period would be compared with the average realized profit over the comparative period.[13] The base period was defined as the six-month period from 1 October 2009 to 31 March 2010. The base period coincided with the period in which the Commission had initiated and was investigating a further complaint against the four major millers of wheat. The complaint alleged that members of the National Chamber of Milling had engaged in anti-competitive exchange of commercially sensitive information and that this behaviour resulted in continued anticompetitive outcomes in flour and bread markets. The comparative period was defined as the period under review during the implementation of the discount remedy. The discount remedy amounted to a total price reduction of R160 million.[14]

The extent of the price reduction was adjusted to take into account: (1) increases in costs such as electricity and labour; (2) any difference in the gross profit over the comparative and base periods in respect of flour sold internally between Pioneer Foods' flour and baking operations (the intention being to maintain gross profit at the calculated base so that the gross margin reduction on vertically integrated flour

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13　The Commission chose to call the discount remedy a "price reduction", while Pioneer Foods chose to call it a "margin reduction".

14　See Competition Commission and Pioneer (Consent Order), Case number: 15/CR/Mar10. Available at: http://www.comptrib.co.za/assets/Uploads/1015CRMar10-Pioneer.pdf (Accessed on 20 September 2013).

and baking operations would be calculated at the level of bread); (3) as well as any difference in gross profit on all bran products sold for the comparative and base periods (so that revenue from bran as a by-product was in fact taken into account as a reduction in costs of flour production).

On the one hand the price reduction was intended to benefit end consumers who had been subjected to anti-competitive prices over the years, and on the other hand, it was intended to increase price competition in the markets for flour and bread products. Given the sensitive, commercial nature of information relating to Pioneer Foods' pricing, the exact duration as well as the expected average price reductions for each of the selected products was confidential and was not known to the other market participants.[15] Minimum levels of price reductions for each product category and the time period over which they will be implemented were set at a level so as to have a meaningful effect.[16] Furthermore, prices on certain products, with existing gross profit below a confidential minimum, would not be further reduced to avoid predatory outcomes.

Table 1: Illustration of the calculation of the total price reduction

	Base period	Comparative period
	Rand per loaf	Rand per loaf
Total gross profit	2.56	2.1
Total damages and not assigned	-0.29	-0.24
Exclusion of overheads	1.03	1.03
Exclusion of overhead recovery	0.76	1.03
Increase 10% on fixed and variable cost	0.26	
Margin	3.3	2.89
Margin reduction ("comparative period" less "base period")		-0.41

To illustrate how the price reduction was calculated, suppose that the standard bread margin for the comparative period was R0.41 per loaf lower (R3.30 less R2.89) as shown in Table 1 (this equates to a 41 cents reduction in the price of

15   The duration was for 6 months.
16   The price of standard white and brown loaves of bread was to be reduced by an average minimum of 30 cents. This price reduction was to be in addition to any other promotional discount to retailers. The price of flour was to be reduced by an average minimum of R350 per tonne.

bread). Suppose further that 391 million loaves of bread had been sold in the comparative period. This would result in the total price reduction of R160 million.

Pioneer Foods accepted the risk of ensuring that the targeted price reduction was met over the comparative period. In the event that the price reductions exceeded the agreed target, Pioneer Foods accepted this risk and agreed that such a situation would not form a basis for any claim for a reduction in fine or other amounts payable in terms of the settlement agreement. Thus, the discount remedy was designed in such a way that it was flexible, it created uncertainty, and it was not transparent to rivals. Furthermore, the Commission committed to monitoring compliance on the part of Pioneer Foods as well as monitoring the pass through on the part of major retailers.

4. EVALUATING THE EFFECTIVENESS OF DISCOUNT REMEDY IN THE BREAD INDUSTRY

While limited, the literature on discount remedies tends to focus on analytical studies of coupon discount remedies, providing counter examples of the inefficiency of coupon discount remedies. Gramlich (1986) discusses several rationales for using coupon discounts rather than cash as a remedy. Gramlich (2003) evaluates how the form of the coupon discount remedy, whether it is a fixed discount, a percentage discount, or the right to buy at a fixed price affects the benefits to consumers, the profits lost by the respondent, and the efficiency (total surplus) of the market when firms have market power.[17] Many commentators are generally highly critical of coupon discount remedies. They argue that coupon discount remedies facilitate settlements, between the lawyers representing the class of consumers and the respondent, that are not in the interests of the consumers. The lawyers' compensation is usually based on the value of the remedy to the class. According to Gramlich (1986), the average coupon discount redemption rate for consumer and corporate plaintiffs combined is 26.3 per cent. For consumer plaintiffs alone, it is 13.1 per cent. When the lawyers succeed, they are well rewarded, while the effective cost to the respondent of the settlement will be relatively low and consumers obtain a remedy that is of relatively little value.

In addition to the agency problems[18], coupon discount remedies suffer from two additional flaws. First, as emphasized in Borenstein (1996) in a model with imperfect competition, the coupon settlement will typically affect the future

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17   Miller and Singer (1997), and Leslie (2002) discuss also coupon discount remedies.

18   Also known as principal-agent problems, agency problems arise in situations where interests diverge. In other words, whenever the welfare of one party, termed the "principal", depends upon actions taken by another party, termed the "agent". The problem lies in motivating the agent to act in the principal's interest rather than simply in the agent's own interest.

pricing behaviour of the respondents. Borenstein's main point can be illustrated in an example with undifferentiated Bertrand-style price competition. In the absence of coupons, the competitive price would settle at marginal cost and the defendants would make zero profits. If all consumers receive an abundant supply of coupons, the competitive price would be the marginal cost of production plus the face value of a coupon. At this price, firms earn zero profits. Note that the consumers are no better off with coupons than without: the competitive pricing has completely neutralized the effect of the coupons. With heterogeneous consumers, where some receive non-transferable coupons and others do not, consumers as a class do not benefit. The price of the product would rise to reflect that the coupon will be redeemed. Consumers who own the coupons will be better off than before while consumers who did not receive coupons will be worse off.

Polinsky and Rubinfeld (2008) focus on an important welfare distortion arising from coupon discount settlements. Consumers are heterogeneous in their model, with stochastic per period demand uncorrelated across periods. Through a coupon settlement, consumers receive coupons in proportion to their earlier purchases during the injury period. In this context, several situations can arise. Suppose a consumer who had low demand in the injury period (and hence a small number of coupons) ends up with high demand later. This consumer will use all of his or her coupons and will also purchase additional products at full price: the consumer's purchase level does not hinge on the coupon's value. Suppose instead that a consumer who had high demand in the injury period (and hence has many coupons) has low demand subsequently. For this consumer, the coupons will increase his purchase level since the marginal unit is now cheaper. A fundamental distortion can arise in this case, that is, the quantity that this consumer purchases may be inefficiently high in the sense that the marginal cost of the unit is higher than the intrinsic value that the consumer derives from its use.[19]

4.1. Discount remedies and competition

Suppose there are two classes of consumers. One class of consumers only buys standard bread and the other class of consumers only buys non-standard bread. Non-standard bread includes variety breads, generally perceived as higher in nutritional value than standard bread and is usually consumed by higher income or health-conscious individuals. Here, it is important to recall that the Pioneer Foods discount remedy specifically excluded consumers who bought non-standard bread. Pioneer Foods was free to charge these consumers any price. Ignoring first of all,

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19   Polinsky and Rubinfeld (2007) develop an argument for a hybrid remedy that includes the use of coupons giving consumers a choice between a cash amount and a certain number of coupons as a mechanism to facilitate the proper measurement of damages.

the strategic relations between firms, and assume that the industry is characterised by monopolistic competition. Assume that the standard bread buyers' demand for bread is given by the proportion, $g(p)$ each period and is a given, $1 - \sigma$, of the total demand the firm faces, $f(p)$ per period,

$$g(p) = (1 - \sigma)f(p) \qquad (1)$$

In the absence of the discount remedy, the firm (assumed to be Pioneer Foods) would want to charge standard bread buyers (the discount group) a higher price, paid by the non-discount group buyers. For simplicity, assume further that marginal costs are constant, c. If standard bread buyers receive a discount off the price of standard bread for one period, s, less than the price, the firm faces the following maximisation problem:

$$Max\ \pi = (p - c)\sigma f(p) + p - c - s)(1 - \sigma)f(p - s)\ (2)$$

which implies the following first order conditions:

$$f(p) + f'(p)(p - c) = 0f(p) + f'(p)(p - c) = 0\ (3)$$

$$f(p - s) + f'(p - s)(p - c - s) = 0\ (4)$$

If the profit function is globally concave in price, then $p = P^*$, so profits are increased by raising price from P^*. The incentive for the firm is to increase the price for one group while reducing it for the other group. Note that the optimal price occurs where the weighted average of the first order condition for the non-discount buyers and the first order condition for the discount buyers is equal to zero. In the case of a linear demand function and constant marginal costs, the discount price would equal the price when there is no discount remedy in force.

The firm's incentive to change prices depends on a number of factors, including the relationship between the costs of changing prices and the comparative loss in profits of maintaining prices. For example, the costs of changing prices might be higher than the comparative loss in profits from maintaining prices. To be specific to the Pioneer Foods example, the discount remedy was used in a setting where it was difficult to forecast the bread price, particularly because wheat costs change frequently. In this setting, the costs of changing prices are unlikely to prevent re-optimisation because the firm has to adjust prices frequently for other reasons. In addition, Pioneer Foods could have perceived the discount to be not worth the concern of changing prices if, for example, the discount group was small or the discount itself is small. While this may generally be true, however, with regards

to Pioneer Foods and for bread alone the discount group accounted for between 85–90% of bread sales.

The optimisation problem discussed above demonstrates the conclusion that the firm has the incentive to raise prices for the non-discount group of buyers and that these buyers are likely to bear most of the cost of a discount remedy. This conclusion is built on the assumption that the firm is a monopolist facing a relatively inelastic firm level demand curve. But does the result hold in more competitive markets? In more competitive markets, the argument that competition will prevent the firm from offsetting the discount by raising prices seems more appealing. This argument relies on the fact that strategic interactions could affect a firm's response to a discount remedy ignored in the example above. Consider a symmetrically differentiated duopoly setting:

$$Q_{SB} = h(P_{SB}, P_{NSB}), \quad Q_{NSB} = h(P_{NSB}, P_{SB}), \quad c_{SB} = c_{NSB} = c \quad (5)$$

Where P_{SB} and P_{NSB} represent the prices of standard bread and non-standard bread, respectively. Reaction functions are upward sloping in price. The Nash equilibrium price is $\breve{P}$, in the absence of the discount remedy. Suppose first that the discount remedy is then imposed on both firms. The new symmetric equilibrium price (P) and the discount price $(p - s)$ will be such that $p - s < \breve{P} < P$. Now suppose the discount remedy is imposed on firm 1 (assumed to be Pioneer Foods) and not on firm 2. Further for simplicity, suppose that firm 2 can either charge a single price or it can match the terms of the discount remedy. If firm 2 chooses to match the terms of the discount remedy, then this situation corresponds to a situation in which the discount applies to both firms.

If firm 2 chooses to charge a single price to discount and non-discount buyers, firm 2's best response could be to increase or decrease that price from $\breve{P}$ or leave it unchanged, depending on the weighted average of the slopes of the profit functions $(\breve{P})$ it faces from the discount and non-discount buyers once firm 1 moves. On the other hand, if firm 2 chooses to price discriminate in favour of the discount buyers without matching the terms of the discount remedy, firm 1 prices are likely to be unaffected or only slightly affected by firm 2's response. In this situation, firm 2's would respond to firm 1's forced discount by lowering its own prices to the discount group and raising prices to the non-discount group. Firm 2's prices would still be lower than firm 1 and its discount would still be above that of firm 1. The above illustrations simply show that the direction of the net effect on price as a result of imposing a discount remedy on only one firm is at best ambiguous.

To illustrate the relevance of the issues discussed above, we compare the actual market situation during the period when the discount remedy was in place with the situation on the same market before and after. Using time series data on

actual prices of bread sold in South Africa from a selected national retailers means that market characteristics such as the degree of competition, market structure, costs and demand characteristics are more comparable. The data set contains information on monthly retail and wholesale bread prices from June 2010 to June 2013. The data set is constructed using private data. The private data set typically has the advantage of providing richer and more detailed information. The private data is collected from selected retailers. Recall that the Commission undertook to monitor prices as a result of the Pioneer Foods discount remedy.[20] Included in the data set is the cost of wheat, which is exogenous to the conduct of the firms.[21] The following major retailers provided the Commission their monthly retail prices and the whole sale price with which they had bought the bread: (1) Pick n Pay; (2) Woolworths; (3) Massmart; and (4) Shoprite.

During the discount remedy period, the Commission undertook a quasi-regulatory role by monitoring not only compliance on the part of Pioneer Foods, but also monitoring of pass on effect of retailers. Generally, bread prices are viewed historically as being sticky downwards. For instance, one manager of Pioneer Foods' subsidiary division, Sasko, indicated in testimony to the Tribunal as part of the bread cartel hearings that bread prices were never reduced when input costs declined because consumers apparently did not appreciate fluctuations in bread prices.

Figures 1, 2 and 3 provide a comparison of Pioneer Foods' wholesale pricing and the wholesale pricing of its main rivals on standard white bread, standard brown bread and non-standard bread before, during and after the discount remedy. As shown in Figure 1 and 2, Pioneer Foods reduced its prices on standard white bread and brown bread during the discount remedy period. Tiger Brands and Premier Foods followed by either maintaining prices for both standard white bread and brown bread or reducing them slightly during the discount remedy. Foodcorp, however, chose to increase its prices for standard brown bread while maintaining prices of standard white bread during the discount remedy period. After the discount remedy, Pioneer Foods and its rivals all increased their prices.

With regard to non-standard bread, Pioneer Foods increased the price faced by the non-standard bread customers during and after the discount remedy period (as shown in Figure 3). Tiger Brands and Premier Foods maintained prices during the remedy period while increasing them after the remedy period.

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20   Media Release, 14 December 2010, Pioneer implements agreement with Competition Commission to reduce the price of selected bread and flour products. Available at: http://www.compcom.co.za/assets/Uploads/AttachedFiles/MyDocuments/Pioneer-media-release-14Dec10.pdf (Accessed on 20 September 2013)..

21   The data set includes monthly consumer price index data from Statistics South Africa ("Stats SA"). This data captures monthly food prices and is provided by the South African Grain Information Service (SAGIS).
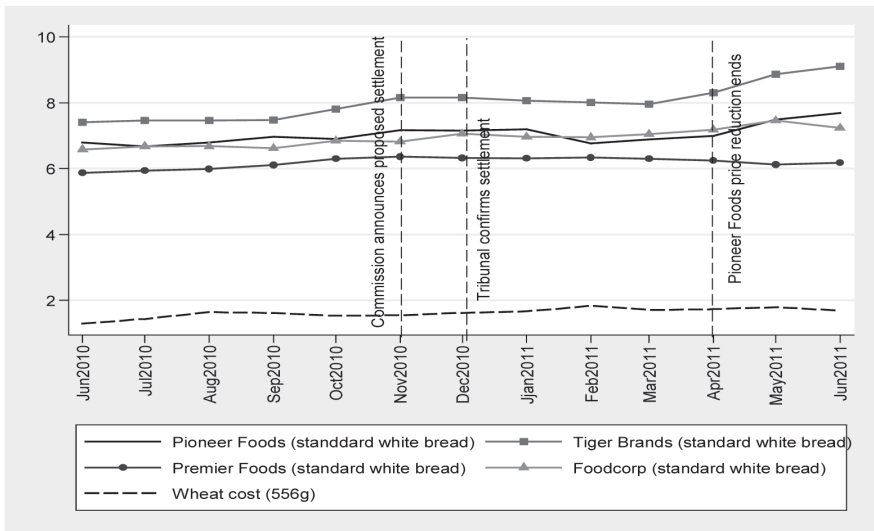
Figure 1: Average wholesale prices of standard white bread, 06/2010 -06/2011 (Rands)
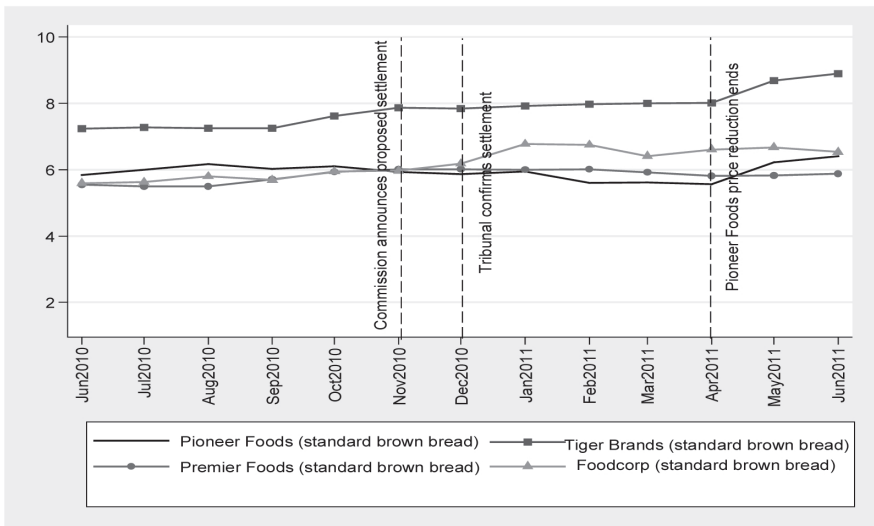
Source: Selected retail outlets

Figure 2: Average wholesale prices of standard brown bread, 06/2010 -06/2011 (Rands)
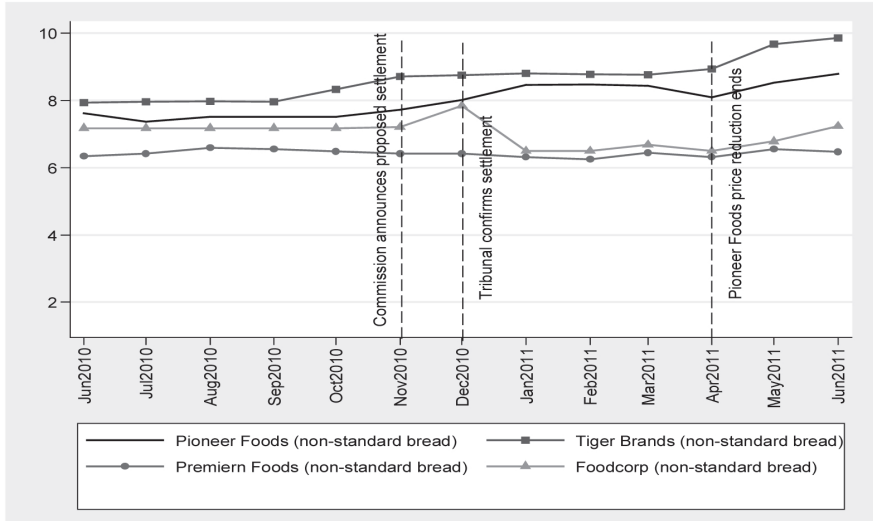
Source: Selected retail outlets

Figure 3: Average wholesale prices of non-standard bread, 06/2010–06/2011 (Rands)

Source: Selected retail outlets

While the economic model presented above applies to individual firm decisions, we do not estimate firm-level models. For estimation purposes aggregate data is used. The approach adopted is the before-and-after method. Retail prices of standard white and brown bread before and after the end of the Pioneer Foods' discount remedy period are used to establish the appropriate benchmark retail prices within the discount remedy period had the discount remedy not been effected. The discount remedy operated from December 2010 to April 2011. This method is based on the idea that to the extent that discount remedy prices differ in a statistically significant way from the prices prior to the implementation of the discount remedy period and the prices once the discount remedy period ended, the difference could be attributed to the discount remedy.

In our model, the equilibrium price is a function of a supply-side factor (flour price) and a demand-side factor (price of substitute); both are expected to be positively related to equilibrium price. We implement the before-and-after approach within a multiple regression framework and we include a dummy variable equal to 1 when the discount remedy was in effect and 0 otherwise. The coefficient on the dummy variable indicates whether the average price during the discount remedy period was significantly different and, in particular, lower than the average price during the discount remedy period. The model is expressed in its implicit form as:

$$\ln(\text{ Retail bread price}) = \beta_0 + \beta_1 \ln(\text{flour price}) + \beta_2 \ln(\text{maize meal price}) +$$
$$\beta_3(\text{discount remedy dummy}) + \varepsilon \tag{6}$$

We do not include the quantity variable itself as an independent variable but instrument quantity by using the price of substitutes (maize meal prices). This is done to avoid the inter-dependence of price and demand.[22] The cost and demand-shifters included are assumed to be exogenous, since they are presumed to be determined independently of price and therefore unaffected by price. The error term reflects random shifts in demand, cost, or conduct by the market participants. In addition, there are demand and cost shifters, which are only observable to the firms. These unobservable characteristics will be captured by the error term in the empirical model.

Table 2: Regression analysis

	(1)	(2)
VARIABLES	ln (std brown bread)	ln (std white bread)
ln (flour)	0.499***	0.529***
	(0.126)	(0.142)
ln (maize meal)	0.0812	0.0494
	(0.284)	(0.311)
dummy remedy	-0.0164*	-0.00592
	(0.00895)	(0.0104)
Constant	0.825***	0.929***
	(0.243)	(0.255)
Observations	13	13
F	60.7***	61.26***
R-squared	0.919	0.892
Robust standard errors in parentheses		
*** p<0.01, ** p<0.05, * p<0.1		

Table 2 illustrates the estimation of the model for both the retail prices of standard white and brown bread. The table shows the estimation results for the case of the logarithm of the respective variables. It is revealed that the retail price difference

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22 From an econometric perspective, ignoring the interdependence can cause serious consequences in the form of biased coefficients.

between the discount remedy period and the non-discount remedy period for standard brown bread is exp(-0.0164)-1 = -1.63 per cent and is statistically significant. If we assume the average retail price of standard brown bread during the discount remedy period was R7.3 per loaf, the price reduction benefit is R0.12 per loaf. With respect to the relationship between the retail bread price and the flour price, the regression results reveal that a 1 per cent increase in the price of flour leads to a 0.499 per cent increase in the retail price of standard brown bread. For maize meal, we find that a price increase of 1 per cent leads to an increase in the retail price of standard brown bread of 0.081 per cent. Interestingly, while positive, the effect of maize meal price on bread price is not statistically significant. For standard white bread, while the discount remedy dummy variable is negative, it is not statistically significant.

Figures 4 and 5 show average wholesale and retail price for Pioneer Foods' standard white bread and brown bread before, during and after the discount remedy. As shown, the retailers passed on the price reduction benefits from the Pioneer Foods discount remedy during the remedy period and increased the prices substantially after, following an increase in the wholesale price of standard bread.

The Pioneer Foods discount remedy was aimed not at achieving price reduction benefits for the direct purchasers (retail outlets) of bread from the bread producers but rather at achieving price reduction benefits for indirect purchasers, that is, general consumers who buy bread from the retail outlets. For indirect purchasers, the price reduction benefit depends on the amount of price reduction retail outlets higher up in the distribution chain "pass on" to them. The analysis of the price reduction benefits from Pioneer Foods' discount remedy is especially difficult because the customer group targeted to recover these benefits consists of indirect purchasers. For example, while a lower price at the Pioneer Foods bread baking level may be expected to lead to lower prices at the retail level and ultimately lower prices to consumers, the extent to which a particular indirect purchaser benefits from the price reduction requires an analysis of the pass-on effect of the lower costs at each level in the supply chain.

Adding to the complexity of the indirect purchaser analysis is the fact that there may be multiple supply chains. To illustrate, Pioneer Foods might sell directly to some retailers and indirectly to others. Alternatively, an analysis of pass-on effect along the supply chain will depend at each step on the extent to which the relevant market or markets are or are not competitive, and if not competitive, the nature of the strategic interaction among the competitors. These complicating factors increase the likelihood that the price reduction benefits to be recovered by downstream customers will vary from individual to individual.
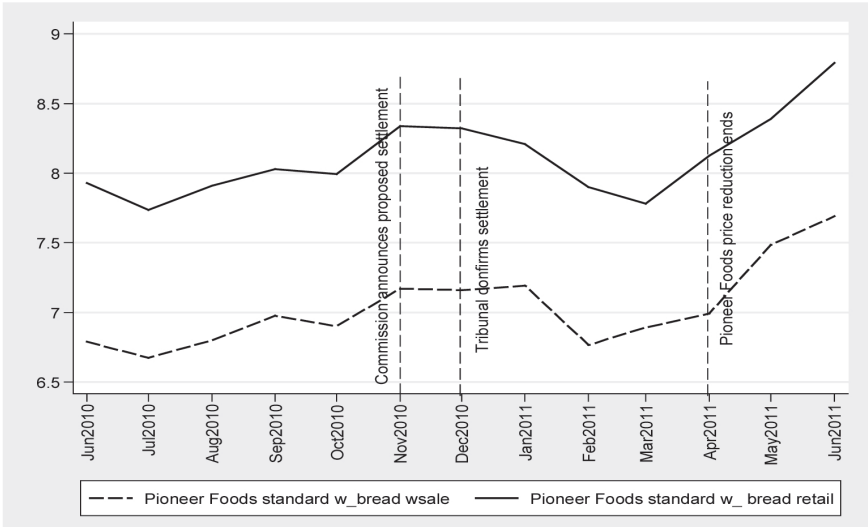
Figure 4: Average wholesale and retail prices for Pioneer Foods' standard white bread, 06/2010 -06/2011

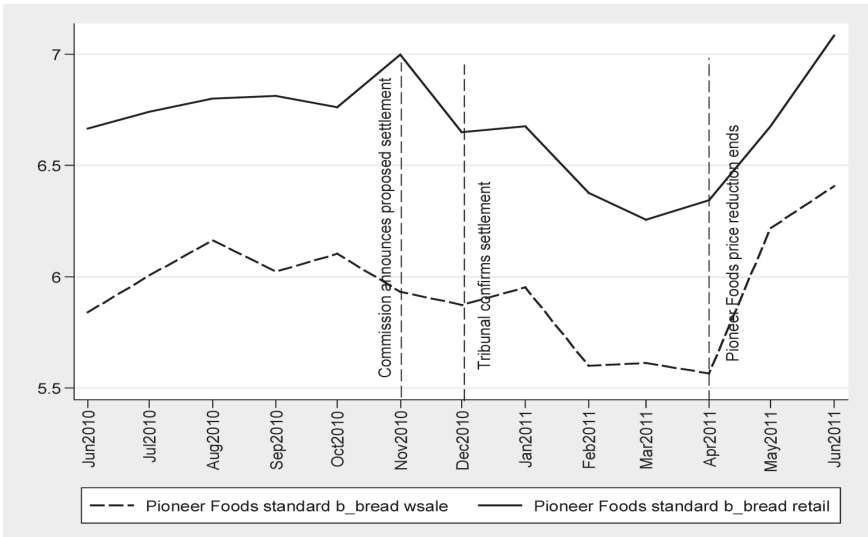Source: Selected retail outlets

Figure 5: Average wholesale and retail prices for Pioneer Foods' standard brown bread, 06/2010 -06/2011

Source: Selected retail outlets

5. CONCLUSION

Discount remedies are especially appropriate in developing countries such as South Africa. The Pioneer Foods discount remedy was designed to address the negative impact of anticompetitive conduct:

• The discount remedy was amounted to a total price reduction of R160 million;

• It was applied to selected flour and bread products;

• Certain products with existing low margins were excluded; and

• The discount remedy only applied to one firm.

The discount remedy provided an opportunity to redress the anticompetitive environment created by long-running bread, and flour cartels that may not be addressed solely by administrative penalties (see Bonakele and Mncube, 2012). The discount remedy sought to constrain Pioneer Foods, compensate and disgorge some of its profits to the benefit of affected consumers and improve the competitive dynamics of the relevant markets. The Pioneer Foods discount remedy constitutes a key measure of "success" for the cartel case(s).

South Africa is a net importer of wheat. Prior to the implementation of the Pioneer Foods discount remedy, the wheat price had been increasing steadily, impacting on the price of flour and bread. During the discount remedy period, wheat prices continued to show an upward trajectory. This, however, was not translated into increased bread prices. South Africa was shielded from higher bread prices, in part because of the Pioneer Foods discount remedy, albeit temporarily during the discount remedy period. After the discount remedy period, prices of bread increased sharply.

Still, for many, qualms will remain about allowing competition authorities to use discount remedies for competition law violations. But the deeper source of those qualms is not really that alternative remedies are better placed. Instead, the qualms are more about whether competition authorities and firms might abuse discount remedies rather than employ them optimally. Furthermore, the qualms represent some underlying insecurity about whether discount remedies are really permissible in competition law. Indeed, the National Treasury made an application to intervene in the Tribunal questioning the Pioneer Foods settlement agreement's validity and the Commission's authority to conclude it. Be that as it may, there are, of course, different choices that can be made and combined in order to affect

the incentives of firms and restore the best possible outcome for competition in specific relevant markets.[23]

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23   For example, one could develop remedies that affect the discretion of firms to run their business. In other words, develop remedies that affect their autonomy as market participants and consequently their incentives. This could be conceived as a continuum ranging from preserving some degree of discretion for the firms (in the case of contractual remedies, such as price reduction commitments) to purely non-voluntary schemes, unilaterally imposed by the Competition authorities.