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The Effects of Mainstreaming Fairtrade on Product Fairness

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Abstract

The increased availability and sales of fairtrade products has resulted in an increased number of products with fairness content in the market place. While mainstreaming of fairtrade implies that overall fairness and wealth transfers to small producers goes up, it may also result in less welfare transfers due to possible dilution of fairtrade principles. This paper uses a Hotelling framework of competition to analyze firm behavior with respect to the entry of products with fairness content. We analyze how an incumbent supplier reacts on a fairtrade entrant and how a fairtrade supplier reacts on a conventional entrant that starts offering a product with fairness content with different cost structures. By doing so we are able to calculate the firms' optimal fairness locations and the total amount of fairness generated. The results can be used by managers and policy makers in determining the optimal strategy when it comes to the amount of fairness content in the market and/or the implementation of fairtrade products within development policies. We find that firms' optimal locations are mainly determined by the transfers to smallholders and the distance of consumers towards the location of the firm.

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1. Introduction

Fairtrade is an increasingly important phenomenon in global trade. The last two decades have shown a remarkable growth in sales of fairtrade products. This fits into the increasing societal interest in production methods and trade consequences of Western consumption patterns (Goodman 2004; 2010; Hertz 2002; Irving, Harrison & Rayner 2002; Klein 2004; Renard 1999). Fairtrade is a concept within international trade, envisaging economic exchanges based on fairness principles (FLO 2013). The fairtrade movement aims at increasing wealth transfers to small-scale producers in poor developing countries by organizing and empowering these “smallholders” in cooperatives. Smallholders are often in an unequal bargaining position when it comes to price determination and receive only a small fraction of the final product price (Becchetti & Huybrechts 2008; Hira & Ferrie 2006; Raynolds 2002; Valkila, Haaparanta & Niemi 2010). Within the fairtrade approach to trade smallholders are paid a stable and guaranteed minimum price allowing a decent coverage of production and living costs. The Fairtrade Organizations (FTOs) also provide development premiums for projects such as education systems and health care to improve local conditions. To facilitate these above market price payments, consumers in advanced –mainly Western– economies pay higher prices for comparable products in the market.

In the past decennia the fairtrade concept has seen a large sales growth as a consequence of the fairtrade movement going “mainstream” (FLO 2013). On the one hand fairtrade mainstreaming boosts the total number of products with fairness content on the market and raises awareness among both consumers and supply chain actors (Fridell, Hudson & Hudson 2008; Low & Davenport 2005, 2006; Raynolds 2009). Large manufacturers and corporations embracing fairtrade principles may make the trade process on the whole “fairer” by guaranteeing an increased amount of farmers a higher level of income. On the other hand, mainstreaming may also lead to dilution of the initial fairtrade concept in several aspects. Mainstreaming implies increased competition for FTOs in segments that were previously exclusive to them (Codron, Siriex & Reardon 2006; Davies 2007; Giovannucci & Ponte 2005; Max Havelaar 2013; Renard 1999; Smith 2010). This may be due to both an increasing number of firms that start to offer fairness in their product lines, and a growing number of fairtrade certification organizations (Codron et al. 2006; Giovannucci & Ponte 2005; Moore, Gibbon & Slack 2008). More and larger supply chain actors being involved in the fairtrade movement may put –due to competition– pressure on firms to lower their costs, and consequently decrease payments to the smallholders (Fridell et al. 2008). Another consequence may be that certain aspects of the original fairtrade concept like retaining long-term relationships may not be guaranteed (Davies 2007; Fridell et al. 2008; Howard & Jaffee 2013; Jaffee & Howard 2010). Thus, while the growth of fairtrade sales can potentially increase its scale and scope, at the same time the final impact of fairtrade may be lower due to competitive forces.

This paper contributes to further clarify the impact of competition on wealth transfers. Within the literature on fairtrade, insights on the impact of fairtrade mainstreaming on wealth transfers to smallholders are lacking. Also within the economic literature theoretical reflections upon the impact of wealth transfers that might induce actors in the market to start adding fairness content in products are missing. Exceptions so far are evaluations that also study different types of competition on fairness taking into account among others changing consumer attitudes and welfare effects (Becchetti & Solferino 2003, 2005; Becchetti, Giallonardo & Tessitore 2006; Becchetti & Solferino 2011; Becchetti, Palestini, Solferino & Tessitore 2013). We approach wealth transfer (fairness) costs as an explicit function within the profit function of the suppliers, and take as well a different perspective on consumer preferences. Specifically, first this paper investigates how and why a firm's location on fairness may change when being confronted with a fairtrade entrant in the market. Second, we observe the situation in which a fairtrade supplier is confronted with a conventional supplier starting supplying products with a certain (varying) fairness content. We use Hotelling's model on spatial competition to obtain insights in the interrelation between prices, cost structures and the amount of wealth transfers "produced" and will observe how firms' decisions influence the wealth transfers to the producers. We will end the analysis with suggestions on how these insights can be used by fairtrade movement actors, conventional firms' strategies and possible government policies. Finally, we will suggest issues for further investigation and reflect upon the ability of markets to produce transfers to smallholders without being inefficient. Note that the question whether these developments are positive or negative is beyond the scope of this paper. We focus on how the amount of wealth transfers may change, and offer a theoretical perspective on these developments in order to observe the effects of competition.

The structure of this paper is as follows. In Section 2 we introduce the basic model in which we model the situation of fairtrade before mainstreaming. Section 3 models the situation after the mainstreaming of fairtrade. Section 4 provides a deeper analysis in which two firms start competing and enter each other's markets, in which also different cost structures are taken into account. Section 5 provides (preliminary) conclusions and issues for discussion.

2. The basic model

Hotelling's model on spatial competition (1929) has been widely discussed and used within the field of marketing and industrial organization. The original model aims at demonstrating that when two rational (profit-maximizing) competing firms choose geographical locations in a market they will end up next to each other. The firms aim at serving the whole market, and grasping as much market share as possible. Prices will be decreased until the point is reached in which the consumer is indifferent in choosing from which firm to buy. Prices and locations are determined simultaneously. The firms will therefore be located next to each other – in the center of the market. In this scenario we take geographical space as "fairness space", as this competition model can be extended to a product characteristic space with non-profit maximizing firms as well (Gabszewicz 1999; Hotelling 1929; Moorthy 1985).

We will discuss the basic set-up of our model by determining how the market functioned before the mainstreaming of fairtrade. We assume that for a specific good (such as coffee or chocolate) two strictly separated, monopolistic market parts exist: one in which conventional products are exchanged, the other in which products containing fairness are exchanged. The conventional market is characterized by a profit-maximizing monopolist, whereas the other market part is supplied by a firm that also adheres to other principles than profit maximization. The supplier of fairtrade products offers its producers higher compensation because from a fairness perspective this firm believes that these producers should receive higher prices than in conventional business transactions. These principles result in a higher amount of payments –wealth transfers– to suppliers than in the conventional market. The two markets are separated by a "border" of awareness and information; consumers in the conventional market do not know or are not aware of the (existence) of (un)fair products, whereas consumers in the market for fairtrade products consciously purchase the products in that market, and know what fairtrade principles entail. In our model, "wealth transfers" is defined as the total amount of money transferred to the smallholders in producing countries. We will denote the total amount of transfers by S. We assume furthermore that a most fair position $(a = 1)$ and a least fair position $(a = 0)$ can be determined on a fairness continuum, related to the extra amount of s per product paid to the smallholders.

As mentioned before we take geographical space as fairness space, and assume a line of unit-length on which consumers are distributed uniformly according to their fairness content preferences. Consumers have inelastic unit demands and their position on the fairness line is denoted by $x \in [0,1]$. The total number of consumers is normalized to one. We assume that a share x^* are located in the conventional market so that $1 - x^*$ is the market share for the fair product firm. For now, we assume that the conventional firm's market share is larger than the fairtrade supplier's, $x^* > 0.5$ [2], that it is exogenously given, and fixed.

Firms differ in the fairness content they offer and their positions are denoted by $a_c \in [0, x^*]$ for the conventional firm and $a_{ft} \in [x^*, 1]$ for the fair firm. We furthermore assume the existence of perfect information; consumers have a correct perception regarding the amount of wealth transfers each firm offers.

Consumers will buy the product as long as their maximum willingness to pay (V) equals or exceeds the price of the product (p_i) and the psychological costs they incur if they do not get their preferred fairness level (t_i). The utility $U_i(i = c, ft)$ a consumer derives from buying a good is therefore:

$$U_i = V - p_i - t_i|(x^* - a_i)|$$

[2] This can be observed in reality as well, since World shops and other alternative shops have a smaller market share (as fairtrade still has) in comparison with other suppliers of fairtrade products such as supermarkets.

which must be positive for a consumer to buy the good.

In the conventional market we assume that consumers are completely inelastic with respect to the fairness amount delivered (they either do not face costs for buying below their fairness standard or they are unaware) and we set their t_c equal to zero: $t_c = 0$[3]. Hence, $U_c = V - p_c$.

Within the fairtrade product market we assume for now that consumers have a higher willingness to pay for fairtrade products than in the conventional markets. However consumers in this market have different willingness to pay for fairness, and face costs when buying a product above their fairness standard, hence in case $x^* > a_{ft}$. Fair product consumers prefer to buy from a nonprofit-maximizing firm that maximizes fairness transfers to its small producers, however their willingness to pay can vary, influenced by the factor t_{ft} and their distance towards the fairtrade product.

$$U_{ft} = V - p_{ft} - t_{ft}\left(x^* - a_{ft}\right) \qquad \text{for } x^* - a_{ft} > 0$$

$$U_{ft} = V - p_{ft} \qquad \text{for } x^* - a_{ft} < 0$$

We assume that in both markets one supplier of the good exists hence both markets are characterized by a monopolist supplier. Within a standard Hotelling setting (with positive and symmetric t) the conventional profit-maximizing monopolist would end up in the middle of the market in order to serve the whole market. All consumers between 0 and x^* have to be served, therefore the optimal location for the firm is $a_i = \frac{x^*}{2}$. The price charged depends on the consumers' maximum willingness to pay and the distance costs, hence $p_i = V - \frac{t}{2}$.

Our set-up will be different. Assume that the conventional firm faces variable costs denoted by c, reflecting the payments per product to the producers in the supply chain of the conventional firm. Besides these costs, the conventional firm has a fixed cost F which is determined exogenously and does not affect the outcomes of the model in this set-up. We set $t_c = 0$. The profits π of the monopolist are:

[3] For simplicity we have assumed that these consumers are also distributed uniformly along the line. It could be the case as well that these consumers are not uniformly distributed, but are all clustered in location $a = 0$. This could be due to the fact that these consumers require a fairness level of zero, or do not care about fairness. We assumed here that $t_c = 0$ in order not to complicate this issue further.

$$V = \pi(x^*, 1) = x^*(p - c) - F \qquad = \qquad (V - c)x^* - F$$

With consumer's utility function $U_c = V - p_c$, the highest price the profit maximizing firm can ask is $p_c = V$.

Furthermore, because $t_c = 0$ the conventional supplier can choose any position on the segment $a \in [0, x^*]$. Consumers are not aware or not interested in fairness and do not face (dis)utility when buying a good further away from their preferred variety. The firm's location does not affect prices and profits. However, by choosing a position of $a_c > 0$ the supplier runs the risk of raising consumer awareness and interest in fairness. This may influence its profits in the future, requiring the conventional firm to locate to the left. More fairness content implies more costs and fewer profits for the firm due to extra fairness transfers to its producers. Hence in the conventional market the firm optimally locates itself in $a_c = 0$ (Becchetti & Huybrechts 2008).

The profit function of the fairtrade firm is different. We assume that fairtrade firms find that the payments c to producers in the conventional market are not sufficient in guaranteeing a certain level of well-being. For that reason these firms either transfer all their profits to the producers, or add a surcharge $s > 0$ to their payments to local producers. In the latter situation, the profit function of the fairtrade firm becomes:

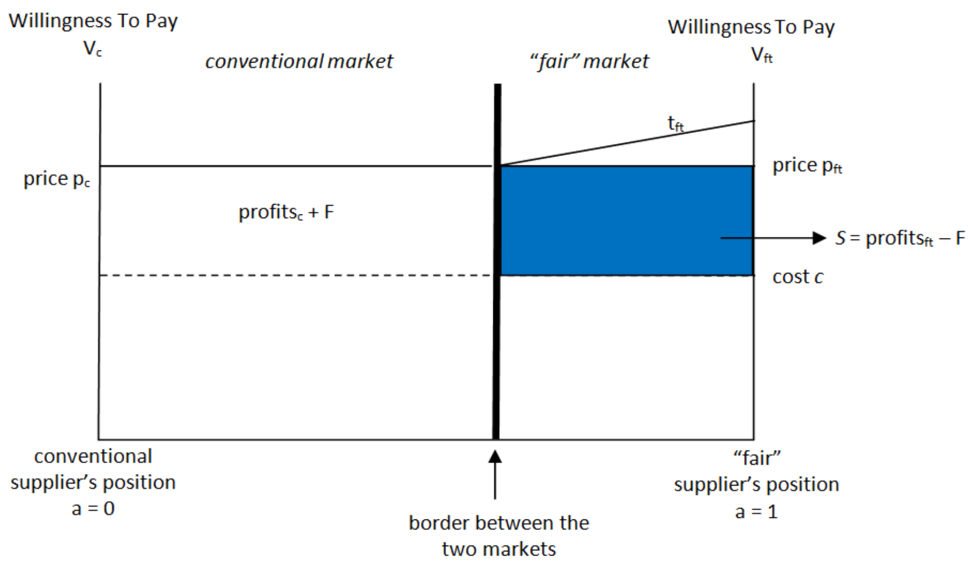
$$\pi_{ft}^* = (p_{ft} - c - s)\,(1 - x^*) - F$$

where we assume that the fixed and marginal costs (F and c) the fairtrade firm faces are the same as for the conventional firm. The height of the surcharge s can be seen to reflect the level of fairness of the firm. That is, more fairness implies a higher s. In fact, one could argue that the fairtrade firm's goal is to maximize s; for fairtrade firms other considerations than profit-maximization play a role as well. However, in the current set-up with a fairtrade monopoly and unit consumer demand the maximization of s leads to the same outcomes as profit maximization would.

At the demand side, the highest price the fairtrade firm can reach is when it locates at position $a_{ft} = 1$, as it aims at serving all consumers in its market. In that case, $p_{ft}^* = V - (1 - x^*)t_{ft}$ and profits become $\pi_{ft}^{*} = (p_{ft} - c - s)\,(1 - x^{*}) - F$. We assume here, that consumers' willingness to pay V_{ft} increases according to their fairness preference. In other words, the higher a fairtrade consumers' fairness position x between $(1 - x^{*})$ and s, the more the person is willing to pay for fairness. To reach all the consumers in the market, the fairtrade firm sets the same price as the conventional firm. The maximum level of s –denoted by $\bar{s}$– the fairtrade firm can afford to pay is therefore $\bar{s} = V - c - \frac{F}{1-x^{*}}$. This makes overall profits zero and the operational profits just enough to cover fixed costs. The total amount of additional payments to local producers is $S = s(1 - x^{*})$. In comparison to the conventional firm, the fairtrade product firm asks the same price, but transfers all of its profits to its producers instead of keeping it for the own company and/or shareholders. Alternatively, the fairtrade firm could decide to retain some of the profits as well, setting s below $\bar{s}$. It is reasonable to assume however that the firm locating at the highest level of fairness also pays the highest amount of s. This also provides a natural benchmark for the analysis in later sections, where we will introduce an explicit functional form for the relation between a_i and s.

We illustrate the situation in the market before mainstreaming in Figure 1 below. In the next section we will point out that when the border blurs, the market situations results in duopolistic competition. This allows us to analyze the effects of mainstreaming for fairness in the market.

Figure 1. Situation in the market before mainstreaming of fairtrade – transfers as residual profits



3. Effects of Mainstreaming: two markets become one

The mainstreaming of fairtrade implies that the initial fairtrade companies are increasingly in conflict with retaining their original ideas about fairness transfers. Concessions might be in order, as a result of competition with conventional suppliers that also start supplying fairtrade products (Fridell et al. 2008; Jaffee & Howard 2010). Since mainstreaming implies that these products are available on a much wider scale, reflecting increased societal interest in these types of products, we assume that all consumers in the market currently know about fairness principles. The border between the two markets thus blurs. There is now one market in which all consumers have a certain fairness preference for the product they buy, and where all consumers face psychological costs when buying a product below or above one's preferred fairness location. This has consequences for the way suppliers compete in the market. For the conventional firm there might be a growing niche market in which additional profits can be grasped; for the fairtrade actors it might imply that extra fairness transfers may be the result due to market extension.

We approach the newly arisen market situation as a duopoly and develop a duopoly model to analyze how two product suppliers compete in prices, locations and fairness content. Hotelling's geographical space is (again) taken as fairness space and expressed in terms of a line a of unit-length. The conventional supplier initially offers a conventional good, whereas the fairtrade supplier supplies a product with fairness content s. Consumers can choose between two identical products, which are only differentiated from each other regarding their fairness content. For now we assume that both the conventional and the fairtrade supplier maximize their profits. The difference between the two firms lies in the assumption that the fairtrade supplier transfers all profits to its producers.

We assume that all consumers are distributed uniformly along the line a according to their fairness preference. The assumption of perfect information still applies; consumers have a correct perception on the amount of fairness content delivered by the firm. Total amount of consumers is normalized to one, and they have inelastic unit demands. Any time the consumers buy a product below or above their fairness standards, they incur costs proportional to the distance denoted by t, with coefficient $t \in$

]0,∞[. This factor denotes how consumers' fairness preference influences consumers' utility. We reasonably assume that t_{ft} differs from t_c as it may be highly likely that these costs will differ per product category or time path; in the further analyses we therefore include the possibility of different 'distance' costs. Consumer's utility depends on their maximum willingness to pay V, prices, p_c and p_{ft}, and the distance costs, t_c and t_{ft}. Consumers will buy the good that yields the highest utility. With $t_{c,} t_{ft} > 0$ the utility function is given by $U_i = V - p_i - t_i|(x^* - a_i)|$. In this situation, a consumer will buy the conventional (fairtrade) good if $U_c > (<) U_{ft}$ or, $p_c + t_c|(x^* - a_c)| < (>)\ p_{ft} - t_{ft}|(x^* - a_{ft})|$.

The conventional firm has two variables to maximize its profit: price $p_c$and position a_c on the fairness space $a \in [0,1]$. The conventional firm faces cost c, which are the production costs paid to its producers. Since the two markets are integrated now and all consumers are aware of fairness content, the conventional firm may have an incentive to change from location since adding fairness content may imply more market share. To fix ideas, however, we will first assume that it retains its original (monopolist) position of $a_c = 0$.

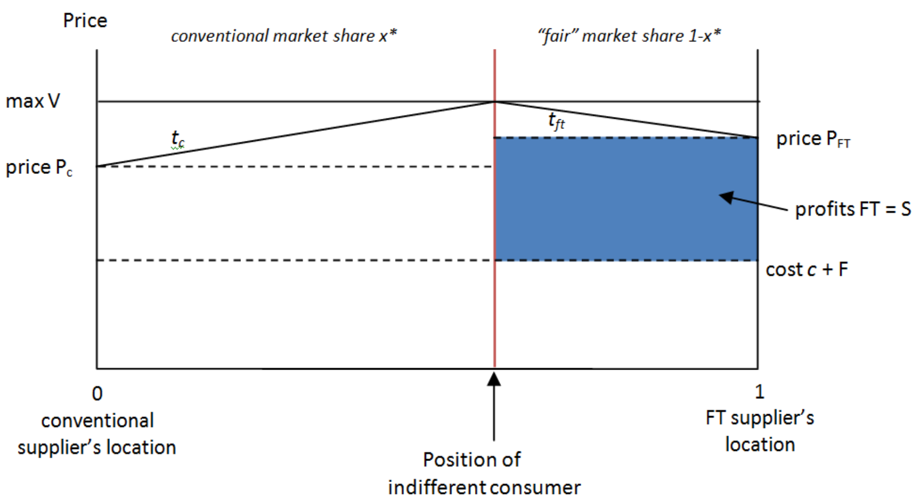
Furthermore, we assume that the fairtrade firm transfers its profits to the smallholders, whereas the conventional firm maximizes its profits. The fairtrade firm adheres to its "fair" principles, implying that it wants to transfer a positive amount of s to its producers and stays in $a_{ft} = 1$. It will have to see what it can transfer to the smallholders, depending on the number of products and price sold in that location. We illustrate the procedure to calculate the final wealth transfers in the following paragraph.

Based on consumer utilities, we derive the market shares in this market situation which are $x^* = \frac{1}{3}\frac{(t_c+2t_{ft})}{(t_c + t_{ft})}$ and $1 - x^* = \frac{1}{3}\frac{(2t_c+ t_{ft})}{(t_c + t_{ft})}$. Accordingly, based on the profit functions $\pi_c = (p_c - c)(x^*) - F$ and $\pi_{ft} = \left(p_{ft} - c\right)(1 - x^*) - F$ we obtain best-response functions of $p_c = \frac{p_{ft}+t_{ft}+c}{2}$ and $p_{ft} = \frac{p_c+t_c+c}{2}$.

Based on these, we obtain the Nash prices which are given by $p_c^* = \frac{1}{3}(t_c + 2t_{ft}) + c$ and $p_{ft}^* = \frac{1}{3}(2t_c + t_{ft}) + c$. Nash profits are accordingly for the conventional firm $\pi_c^* = \frac{4}{9}(t_c + t_{ft}) - F$ and for the fairtrade firm $\pi_{ft}^* = \frac{1}{9}(t_c + t_{ft}) - F$. The total amount of wealth transfers S can then be derived, which is generated in this situation by the fairtrade firm: $S = s_{ft} = \frac{1}{9}(t_c + t_{ft}) - F$

Note that the wealth transfers (and profits) are positively related with consumer costs t_c and t_{ft}. The higher these costs are, the higher the amount of wealth transfers are. This is because t_c and t_{ft} are positively related with the costs consumers are maximum willing to pay, and we have so far assumed a flexible willingness to pay V. Higher t_c and t_{ft} imply that consumers are less willing to substitute the goods vis-à-vis prices. Since we assume a 'flexible' maximum willingness to pay V, prices can increase as long as V can increase as well. Figure 2 depicts the newly arisen market situation.

Figure 2. Situation in the market after the mainstreaming of fairtrade ~ with S = profits of a_{ft}



The fairtrade firm is a firm that also adheres to "fair" principles, which implies that it wants to transfer a positive amount s to its producers. We assume now that the fairtrade firm faces, besides the conventional costs of c and fixed costs F, an extra amount of "costs" s. These costs s are set as a goal to be attained by the fairtrade firm in order to transfer these to smallholders as an extra amount of money besides the conventional compensation, and are related to its position $a = 1$ as we assume that $s = \underline{s} + \beta a$. Since the fairtrade firm is the only one offering fairness content and since we assume that it is (according to its principles) fully complying to fairness criteria ($a_{ft} = 1$), we set s at the highest amount possible, $\overline{s}$, which is $\underline{s} + \beta$. Note that the lowest amount of wealth transfers is expressed as $\underline{s}$. Furthermore, we assume that also the fairtrade firm at first retains its original (monopolist) position: $a_{ft} = 1$. Given that $a_c = 0$ and $a_{ft} = 1$, the indifferent consumer is positioned at $x^* = \frac{1}{3}\frac{t_c+2t_{ft}+\beta}{t_c+t_{ft}}$ and $1 - x^* = \frac{1}{3}\frac{2t_c+t_{ft}-\beta}{t_c+t_{ft}}$. Nash prices follow with values of $p_c^* = \frac{1}{3}(t_c+2t_{ft} + \beta) + c + \underline{s}$ and $p_{ft}^* = \frac{1}{3}(2t_c + t_{ft} + 2\beta) + c + \underline{s}$. Note that the price of the conventional firm increases due to the amount of s that is transferred by the fairtrade firm. But since it increases prices of the fairtrade firm by more, the conventional firm's competitive position is enhanced. Increasing fairness content as expressed by β could thus be profitable for the conventional firm – as in this setting the firms compete in prices and given that their locations are fixed. For the fairtrade firm it implies that it could be sensible to lower the amount of β in order to gain markets share, an issue we will consider in the next section. Note as well that the competitive position of the fairtrade firm would not be affected had we taken transfers as a 'fixed cost' type of outlay. Then optimal prices are independent of s. In reality, we see of course that both aspects play a role. Seeing wealth transfers as a marginal cost is reminiscent of the price premium that fairtrade organisations pay, whereas seeing transfers as fixed costs reflect their development premium outlays. From a competitive perspective, the latter may be the better option.

Wealth transfers S in this market situation are then determined by the following: the amount of $\overline{s}$ times the market share $1 - x^*$of the fairtrade firm. Hence, $S = s_{ft} = \frac{1}{3}\beta\frac{2t_c+t_{ft}-\beta}{t_c+t_{ft}}$. When we compare those to the wealth transfers that were generated in the situation before fairtrade mainstreaming, we note that it ultimately depends on the market share of the fairtrade firm what effect will arise regarding the difference in total amount of wealth transfers. Specifically, $\hat{s} = S_{f,p} - S_{mon} = \frac{1}{3}\overline{s}\frac{t_{ft}+2t_c-\beta}{t_c+t_{ft}} - \overline{s}(1 - x^*)$ and since we know that $\frac{1}{3}\frac{t_{ft}+2t_c-\beta}{t_c+t_{ft}}$ is the market share in this market situation, we can conclude that when the market share is larger than the exogenously determined market share in the monopoly situation, the difference in wealth transfers will be positive.

4. Competition and the consequences for wealth transfers

Due to fairtrade mainstreaming it may be profitable for either of the two firms to give up their initial locations. We assume consumers' considerations to remain the same however we analyze firm behavior with respect to fairness locations. The fairtrade firm may lower its fairness transfers in order to gain more market share and thus increase total fairness transfers, whereas the conventional supplier may be induced to increase the amount of fairness content in order to increase market share and profits. A consequence might be that total wealth transfers change, depending on how the market situation evolves.

Initially, the fairtrade firm decides to stick to its principles and gives the maximum amount of profit residuals possible, hence settles in $a = 1$. The firm transfers $s_{ft} = \pi_{ft}$. We consider the situation in which the conventional firm enters the market, and decides which location would be optimal with respect to its profits and s_{ft}. An analysis of prices, market shares, and profits reveals that in this case it will be optimal for the conventional firm to move to location of $a_c = 1$ (see proof appendix). Both firms then settle in the same location and share the market, and minimum ethical differentiation is the outcome of this market situation. However, the market share of the conventional is twice that of the fair firm: respectively $x^* = \frac{2}{3}$ and $1 - x^* = \frac{1}{3}$. The wealth transfers are determined by both the transfers of the conventional and the fairtrade firm and become $S = s_{ft} + s_c = \frac{5}{9}\left(t_c + t_{ft}\right) - 2F$ which is more than in the initial market situation in which both firms retained their initial positions. The difference in wealth transfers, denoted by $\hat{s}$, is the following:

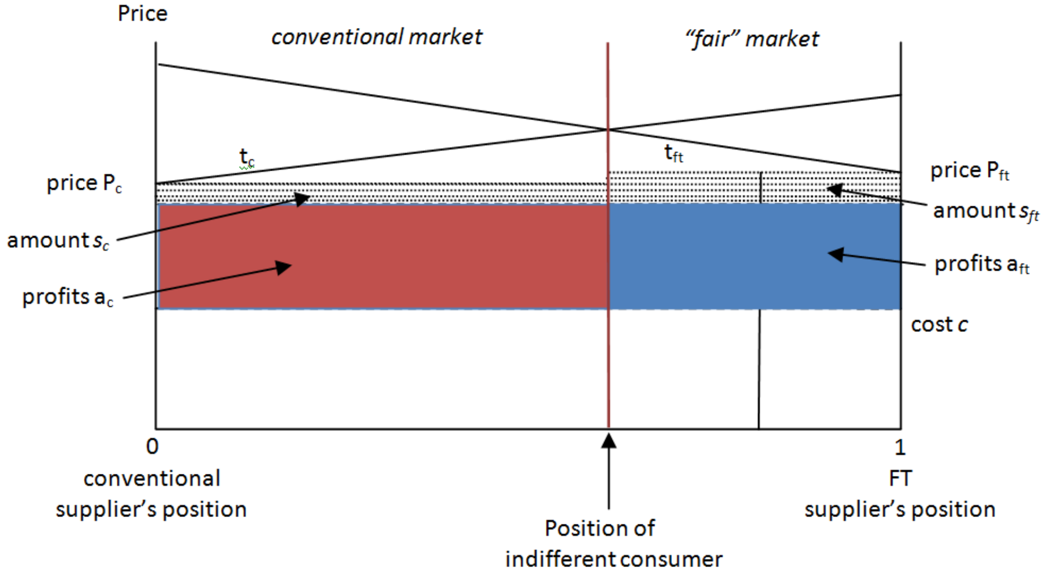
$$\hat{s} \quad = \quad \left[\frac{5}{9}\left(t_c + t_{ft}\right) - 2F\right] - \left[\frac{1}{9}\left(t_c + t_{ft}\right) - F\right] \quad = \quad \frac{4}{9}\left(t_c + t_{ft}\right) - F$$

Hence as long as $\hat{s} > 0$ wealth transfers will go up. In this market situation, in which the conventional firm starts to transfer its profits as well, wealth transfers will increase as long as $\frac{4}{9}\left(t_c + t_{ft}\right) - F > 0$ which essentially means that fixed costs $F < \frac{4}{9}\left(t_c + t_{ft}\right)$. However, when we compare the amount of wealth transfers with the initial situation before fairtrade mainstreaming – in which both markets were characterized by monopoly – then we observe that we need to make some extra assumptions in order to compare. So far, we have assumed the maximum willingness to pay *V* to be flexible, i.e. the prices can rise along with consumer preferences. The maximum wealth transfers that the fairtrade firm was able to transfer is determined by $\bar{s} = V - c - \frac{F}{1-x^*}$. Assuming here for simplicity reasons that prices equal maximum willingness to pay, $V = p$, $\bar{s}$ is determined by the factor $\frac{F}{1-x^*}$. It depends on the amount of fixed costs F and the market share $1 - x^*$ of the fairtrade firm whether there will be a positive or negative outcome for the amount of wealth transfers. Naturally, however, we can assume that within a monopoly situation, both firms ask a higher price than in a duopolistic situation due to competitive forces. For the fairtrade firm, we analyze that after mainstreaming its price need to be lower than the price of the conventional firm since when $p_c = p_{ft}$ its market share will be zero.

The same holds for the market situation in which the conventional firm decides not to move, due to for example cost motives. When assuming that the fairtrade firm enters the market, and starts to compete with the conventional firm we find that the fairtrade firm decides to move to the same position as the conventional: $a_c = a_{ft} = 0$. As profits increase when the fairtrade firm positions in $a_{ft} = 0$, also increases the wealth transfers. We observe here as well that in order to keep its market share, the conventional firm needs to have a lower price than the fairtrade firm. Final wealth transfers are then $S = \frac{4}{9}\left(t_c + t_{ft}\right) - F$, and are thus higher than the wealth transfers in the situation in which both firms remained in respectively $a_c = 0$ and $a_{ft} = 1$. Depending on the amount of fixed costs, prices and market shares, the amount of wealth transfers changes when compared with the monopoly situation in which both markets were before the process of mainstreaming.

Figure 2 shows how the market situation may look like after the firms start to compete in fairness.

Figure 2: Possible market situation in which the fairtrade firm incorporates fairness within a cost function. In the figure, both firms give transfers to the smallholders.



In case both firms are able to move we observe that both firms move to the same position as well, specifically both move to $a_c = a_{ft} = 1$. For the conventional, the condition holds that $t_{ft} > t_c$whereas for the fairtrade firm that the costs for buying the fairtrade product should be at least twice the costs for buying the conventional good, hence $2t_{ft} > t_c$. In that case, wealth transfers are determined by the amount of profits – which is indeed the higher when both firms decide to settle in $a = 1$, namely $S = \frac{5}{9}(t_c + t_{ft}) - 2F$.

Suppose now we consider that the firms do not opt to transfer their profits to the smallholders, but however opt to give an additional amount of s besides the conventional compensation of c. We assume that the fairness costs are linked to the location the firms take on the fairness continuum, and are determined by the explicit function of $f(a_i) = \underline{s} + \beta {a_i}^n$.

Again we first consider the market situation in which both firms locate themselves in respectively $a_c = 0$ and $a_{ft} = 0$, and calculate with the help of market shares, best-response curves, Nash prices and profits, and finally, the total amount of wealth transfers. We assume again that both firms attempt to maximize their profits: the conventional firm as usual, the fairtrade firm may use these profits for example to increase awareness among consumers or other purposes.

For now, we assume that the location of the firm has a quadratic relationship with fairness costs, hence we take the cost function of $f(a_i) = \underline{s} + \beta {a_i}^2$. Profit functions then turn into

$\pi_c^* = [p_c - c - f(a_c)](x^*) - F$ and

$\pi_{ft}^* = \left[p_{ft} - c - f\left(a_{ft}\right)\right](1 - x^*) - F.$

When both firms initially stick to their initial positions, only the fairtrade firm will transfer profits to the smallholders. The amount is determined by $S = \bar{s} = (1-x)\bar{s} = \frac{1}{3}\bar{s}\frac{t_{ft}+2t_c-\beta}{t_c+t_{ft}}$

Within the monopoly situation, the amount of s was mainly determined by the price and amount of fixed costs *F*, whereas here the amount of s is determined mainly by (independent) consumer preferences and the amount of fairness content per product β. Under which conditions the conventional and fairtrade firm will move when the costs are quadratic, is currently under investigation.

Finally, in case we assume $n = 1$, when fairness costs are linear with $f(a) = \underline{s} + \beta a$, different market situations arise. We analyze that when the fairtrade firm sticks to its principles and the conventional firm moves, a situation of ethical minimization will evolve: the conventional will move towards the same position in $a = 1$. This is however under the condition that as long as $\beta > t_c$, the conventional firm has an incentive to change towards a higher position than initially positioned: $a_c^* > 0$. The marginal costs of the company for adding fairness, expressed by β, must be larger than the psychological consumer costs of buying from a location below one's preference, expressed in monetary terms. This results, compared with the initial situation of fixed positions (as a comparison with the monopoly again depends on the amount of *F* and market shares), in a difference in wealth transfers of

$$\hat{s} = S_{flexC} - S_{fp} = \bar{s} - \frac{1}{3}\bar{s}\frac{2t_c + t_{ft} - \beta}{t_c + t_{ft}} = \frac{2}{3}\beta\frac{2t_c + t_{ft} - \beta}{t_c + t_{ft}}$$

In case the conventional firm remains in it is initial position, the fairtrade firm moves to position $a = 1$. Here, it follows that as long as $\beta > t_{ft}$ and $t_c > \frac{\beta - t_{ft}}{2}$ the fairtrade firm will optimally settle in $a_{ft}^* = 1$, and otherwise in $a_{ft}^* = 0$. At the same time, assuming that indeed the marginal costs for fairness β are larger than consumer costs to buy the fairtrade product t_{ft}, the consumer costs to buy the conventional product must be larger than half the difference between consumer costs for the fairtrade product t_{ft} and the marginal costs for fairness β, i.e. $\frac{\beta - t_{ft}}{2}$. This results in a difference in wealth transfers of zero, as this is the same result as in the initial state of mainstreaming. Furthermore, when we compare this with the monopoly situation we see that the difference essentially lies in the market share the firms end up with, as well as with the amount of fixed costs present in the monopoly situation. Proofs of these results can be found in the appendix.

A market situation can arise finally, in which both firms are able to move and have to find their optimal location. We find that in this market situation, for the linear case there are no solutions to be found, and hence this situation results in an unknown result with respect to wealth transfers (see appendix).

To summarise our results, it thus follows that consumer costs, perfect information and the amount of fairness per product determine the total amount of wealth transfers in each market situation. Different market situations result in different amounts of wealth transfers that can be given to smallholders. The way fairness is taken into account within the cost function of the firm will determine where the firm will optimally locate. So far, our calculations show that once both firms settle in position of a=1, the highest amount of wealth transfers will be transferred and that in this situation the total amount of wealth transfers is probably higher than before the process of mainstreaming. Note that the maximum willingness to pay *V* and the resulting prices plays an important role in here.

5. Conclusion and discussion

The mainstreaming of the fairtrade movement may on the one hand increase fairness in the market, but on the other hand it may result in a decrease of fairness content due to increased competition in the ethical dimensions of products. We modeled the situation before mainstreaming in which two monopolies exist in one market separated by a border of consumer awareness. We then use this framework to see what happens in the market when fairtrade becomes ‘mainstream’ and the border blurs. This could imply that a conventional supplier is confronted with a fairtrade entrant supplying ethical products, but also that a fairtrade supplier is confronted with a conventional entrant supplying products with certain fairness content. We analyze both scenarios, calculating optimal locations and how these depend on consumer preferences and cost differences. This helps indentify circumstances that would make it optimal for a firm (also for the fairtrade firm) to move to another location. Whether a firm moves towards another location on the fairness continuum depends on what cost perspective is taken on fairness, as well as the consumer costs involved. Furthermore, the final difference in wealth transfers between the situation before and after mainstreaming hence differs in what situation the market develops and the specific characteristics of that market. An important difference arises with respect to the way fairness costs are treated. We provided an analysis of the different considerations and characteristics of a market and how this influences the amount of wealth transfers, thus providing tools for the fairtrade actors how to possibly deal with competition going in within different markets, as well as inspiration for managers to see how willingness to pay of consumers and consumer costs with respect to fairness can possibly be influenced and/or which strategy the firm should choose with respect to fairness.

The model as developed in this paper suggests several extensions and/or improvements. First, one can wonder whether the situation is completely accurate, i.e. in reality the market may rather be characterized by monopolistic competition than a duopoly. In combination with other product features such as brand and quality, firms maximize their profits. The model might be extended to a three-layer model in which firms tradeoff price, quality, and fairness content in order to give a better representation of reality. Second, the discrepancy that can arise between the information that consumers possess and the "real" information about the actual fairness content can give rise to another discussion – so far we have considered only the case in which perfect information about the fairness features exists. The model could be extended to a situation in which consumers do not have full information. Third, the model could be extended by adding a different way of measuring costs t, since people in the extremes of the market might be more/less willing to give up certain utility in order to receive more/less fairness content (which might be proof of indeed minimal product differentiation). This could be done by making the costs of consumers quadratic. Then the entrant is confronted with different market features consequently possibly changing the optimal situation that has to be chosen. Fourth, we have taken into account only fairness transfers which are directly transferred to the small producers. We have not taken into account other (positive and negative) effects of fairtrade within this model, while this could be as well a factor to be taken into account when evaluating upon the effectiveness of the fairness transfers and the way in which actors are willing to move along the fairness space they are located on. Finally, one can take also fairness costs as percentage of the profits of the firms. Results of these calculations are currently under investigation.

This paper may further contribute to the discussion on whether firms will start with product differentiation (D'Aspremont et al. 1979; Moorthy 1985) or will apply minimal product differentiation as Hotelling suggests. We calculate to what degree firms will be ending up in the same ethical locations or whether they will differentiate. In addition, the model offers a further think-through of what fairness and fairtrade exactly entail. It may contribute to a clarification of what is actually happening in the fairtrade market, and what factors contribute to these developments. Especially since fairtrade is not present in a range of markets but might be in the future, it is necessary to evaluate upon these issues. Finally, how in reality these factors relate to each other and how this may influence fairness, can be further investigated via consumer studies which are increasingly being carried out in the field of ethical consumption (Examples are: Auger et al. 2003; Basu & Hicks 2008; Creyer & Ross 1997; De Pelsmacker, Driesen & Rayp 2005; Diaz Pedregal & Ozcaglar-Toulouse 2011; Loureiro & Lotade 2005; Paharia, Vohs & Deshpandé 2013).

Appendix

I. Overview of results when wealth transfers are treated as profits

Market situation before mainstreaming: two monopolies

In the situation before mainstreaming, both markets were characterized by monopolies, in which the market shares were determined exogenously, hence the market shares are respectively

$x_c^* = x^*$

$x_{ft}^* = (1 - x^*)$.

Prices are determined by

$p_c^* = V$

$p_{ft}^* = V - (1 - x^*)t_{ft}$

Consequently profits functions become

$$\pi_{ft} = (p_c^* - c)(x^*) - F$$

$$\pi_{ft} = (p_{ft}^* - c)(1 - x^*) - F.$$

Wealth transfers are determined by the amount of S that the fairtrade firm transfers:

$$S = s_{ft} = (V - (1 - x^*)t_{ft} - c)(1 - x^*) - F$$

Market situation during mainstreaming: duopoly in which firms retain their positions $a_c = 0$ *and* $a_{ft} = 1$

Market shares are determined with the help of consumer utilities:

$$x^* = \frac{1}{3}\frac{\left(t_c + 2t_{ft}\right)}{\left(t_c + t_{ft}\right)}$$

$$1 - x^* = \frac{1}{3}\frac{\left(2t_c + t_{ft}\right)}{\left(t_c + t_{ft}\right)}$$

From which Nash prices follow

$$p_c^* = \frac{1}{3}(t_c + 2t_{ft}) + c$$

$$p_{ft}^* = \frac{1}{3}(2t_c + t_{ft}) + c$$

And from which we accordingly derive Nash profits:

$$\pi_c^* = \frac{4}{9}\left(t_c + t_{ft}\right) - F$$

$$\pi_{ft}^* = \frac{1}{9}\left(t_c + t_{ft}\right) - F$$

Consequently

$$S = s_{ft} = \tfrac{1}{9}\left(t_c + t_{ft}\right) - F$$

Due to the process of mainstreaming firms start competing – in one situation the conventional enters a market in which a fixed fairtrade firm operates in $\mathrm{a_{ft}} = 0$. In the other situation the fairtrade firm enters a market in which a conventional firm is fixed in $\mathrm{a_c} = 0$. Below the outcomes of competition are shown in the table. Note the symmetry in the two scenarios. Proofs of the locations can be found below the table.

<u>Profits as linear costs</u>	**<u>Flexible location of conventional firm</u>** *$a_c$becomes 1; a_{ft} remains* ***1***	**<u>Flexible location of FT firm</u>** *$a_c$remains 0; a_{ft} becomes* 0
Market shares	$x^* = \frac{2}{3}$ $1 - x^* = \frac{1}{3}$	$x^* = \frac{1}{3}$ $1 - x^* = \frac{2}{3}$
Nash prices	$p_c^* = \frac{2}{3}\left(t_c + t_{ft}\right) + c$ $p_{ft}^* = \frac{1}{3}(t_c + t_{ft}) + c$	$p_c^* = \frac{1}{3}\left(t_c + t_{ft}\right) + c$ $p_{ft}^* = \frac{2}{3}(t_c + t_{ft}) + c$
Nash profits	$\pi_c^* = \frac{4}{9}\left(t_c + t_{ft}\right) - F$ $\pi_{ft}^* = \frac{1}{9}\left(t_c + t_{ft}\right) - F$	$\pi_c^* = \frac{1}{9}\left(t_c + t_{ft}\right) - F$ $\pi_{ft}^* = \frac{4}{9}\left(t_c + t_{ft}\right) - F$
Wealth transfers	$S = s_{ft} + s_c =$ $\frac{5}{9}\left(t_c + t_{ft}\right) - 2F$	$S = s_{ft} =$ $\frac{4}{9}\ (t_c + t_{ft}) - F$

Proof that a_c *becomes* a_c*=1*

With the help of the profit formula of the firm we can derive the optimal location of the firm:

$$\frac{\partial \pi_c}{\partial a_c} = \frac{1}{9}\frac{2{t_c}^2 + 4t_{ft}t_c + 2a_c{t_c}^2}{t_c + t_{ft}} > 0$$

This formula increases in a_c, indicating that whenever $a_c$goes up, the marginal profits of the firm will also increase. Therefore, the optimal location is $a_c = 1$. Note this is a corner solution and this results in ethical minimal differentiation.

Proof that a_{ft} *becomes* $a_{ft} = 0$

With the help of the profit formula of the firm, we derive the optimal location of the firm

$$\frac{\partial \pi_{ft}}{\partial a_{ft}} = -\frac{1}{9}\frac{2t_{ft}(2t_c + 2t_{ft} - a_{ft}t_{ft})}{t_c + t_{ft}} > 0$$

This solution increases in a_{ft}, indicating that whenever a_{ft}goes up, the marginal profits of the firm will also increase. Therefore, the optimal location is $a_{ft} = 1$ which is also a corner solution, resulting in ethical minimal differentiation.

Mainstreaming can also result in a market situation in which both firms are able to move, ending up in a situation of minimum ethical differentiation. Results are shown in the table below.

Both firms move	$a_c, a_{ft} = 1$
Market shares	$x^* = \frac{2}{3}$ $1 - x^* = \frac{1}{3}$
Nash prices	$p_c^* = \frac{2}{3}(t_c + t_{ft}) + c$ $p_{ft}^* = \frac{1}{3}(t_c + t_{ft}) + c$
Nash profits	$\pi_c^* = \frac{4}{9}(t_c + t_{ft}) - F$ $\pi_{ft}^* = \frac{1}{9}(t_c + t_{ft}) - F$
Wealth transfers	$S = s_{ft} + s_c =$ $\frac{5}{9}(t_c + t_{ft}) - 2F$
Locations	$a_c = -\frac{t_c + t_{ft} + 2t_c t_{ft} + {t_{ft}}^2}{1 - t_c t_{ft}}$ $a_{ft} = \frac{2t_c + 2t_{ft} + t_c t_{ft} + {t_{ft}}^2}{1 + t_c t_{ft}}$

Proof that both firms will settle in a=1 when locations are non-fixed

We derived with the help of the profit functions, the optimal locations of the firms, from which we derive

$$a_c = -\frac{t_c + t_{ft} + 2t_c t_{ft} + {t_{ft}}^2}{1 - t_c t_{ft}} \qquad a_{ft} = \frac{2t_c + 2t_{ft} + t_c t_{ft} + {t_{ft}}^2}{1 + t_c t_{ft}}$$

In both cases it holds that $a_c, a_{ft} = 1$ as the nominator is in both cases larger than the denominator.

For a_c the condition holds that $t_c t_{ft} > 1$.

II. Results of mainstreaming taking wealth transfers as an explicit profit function of the firm

The general formula for taking fairness costs as an explicit formula is the following:

$$f(a_i) = \underline{s} + \beta a_i{}^n.$$

Below we treat the situation in which n=1

The linear cost function case, n=1

Monopoly situation

The market shares in monopoly are exogenously determined,

$x_c^* = x^*$

$x_{ft}^* = (1 - x^*)$.

Prices in that situation are determined by maximum willingness to pay,

$p_c^* = V$

$p_{ft}^* = V - (1 - x^*)t_{ft}$.

Accordingly, profit functions are

$\pi_c^* = [p_c - c](x^*) - F$

$\pi_{ft}^* = \left[p_{ft} - c - f(1)\right](1 - x^*) - F$

From which we can derive the final amount of wealth transfers S generated in this market situation:

$S = s_{ft} = \bar{s}(1 - x^*)$

Market situation during mainstreaming: duopoly in which firms retain their positions $a_c = 0$ and $a_{ft} = 1$. The table below shows the results.

<u>**Profits as linear costs**</u>	a_c=0 and $a_{ft} = 1$
	$x^* = \frac{1}{3}\frac{t_c + 2t_{ft} + \beta}{t_c + t_{ft}}$

Market shares	$1-x^*=\frac{1}{3}\frac{2t_c+t_{ft}-\beta}{t_c+t_{ft}}$
Nash prices	$p_c^*=\frac{1}{3}(t_c+2t_{ft}+\beta)+c+\underline{s}$ $p_{ft}^*=\frac{1}{3}(2t_c+t_{ft}+2\beta)+c+\underline{s}$
Nash profits	$\pi_c^*=\frac{1}{9}\frac{(t_c+2t_{ft}+\beta)^2}{t_c+t_{ft}}-F$ $\pi_{ft}^*=\frac{1}{9}\frac{(2t_c+t_{ft}-\beta)^2}{t_c+t_{ft}}-F$
Wealth transfers	$S=s_{ft}=\bar{s}(1-x^*)$ $=\frac{1}{3}\bar{s}\frac{2t_c+\ t_{ft}-\beta}{t_c+t_{ft}}$

Due to the process of fairtrade mainstreaming, firms start competing – in one situation the conventional enters a market in which a fixed fairtrade firm operates in $a_{ft}=0$. In the other situation the fairtrade firm enters a market in which a conventional firm is fixed in $a_c=0$. Below the outcomes of competition are shown.

Fairness as linear cost	**Flexible location of conventional firm** *a_c becomes 1; a_{ft} remains 1*	**Flexible location of FT firm** *a_c remains 0; a_{ft} becomes 1*
Market shares	$x^*=\frac{2}{3}$ $1-x^*=\frac{1}{3}$	$x^*=\frac{1}{3}\frac{t_c+2t_{ft}+\beta}{t_c+t_{ft}}$ $1-x^*=\frac{1}{3}\frac{2t_c+t_{ft}-\beta}{t_c+t_{ft}}$
Nash prices	$p_c^*=\frac{2}{3}(t_c+t_{ft})+c+\bar{s}$ $p_{ft}^*=\frac{1}{3}(t_c+t_{ft})+c+\bar{s}$	$p_c^*=\frac{1}{3}(t_c+2t_{ft}+\beta)+c+\underline{s}$ $p_{ft}^*=\frac{1}{3}(2t_c+t_{ft}+2\beta)+c+\underline{s}$

Nash profits	$\pi_c^* = \frac{4}{9}\left(t_c + t_{ft}\right) - F$ $\pi_{ft}^* = \frac{1}{9}\left(t_c + t_{ft}\right) - F$	$\pi_c^* = \frac{1}{9}\frac{\left(t_c + 2t_{ft} + \beta\right)^2}{t_c + t_{ft}} - F$ $\pi_{ft}^* = \frac{1}{9}\frac{\left(2t_c + t_{ft} - \beta\right)^2}{t_c + t_{ft}} - F$
Wealth transfers	$S = s_c + s_{ft} = \bar{s}(1 - x^* + x^*)$ $= \bar{s}$	$S = s_{ft} = \bar{s}(1 - x^*)$ $= \frac{1}{3}\bar{s}\,\frac{2t_c + t_{ft} - \beta}{t_c + t_{ft}}$

a_c becomes $a_c = 1$

By differentiating the profit function of the conventional firm with respect to a_c, after having inserted optimal prices and the cost function $f(a_c) = \underline{s} + \beta a_c$, the optimal location of the conventional firm is:

$$a_c^* = \frac{t_c\,(5t_{ft} + t_c + 3\beta) + \beta(t_{ft} + 2\beta)}{2(\beta - t_c)(\beta + 2t_c)}$$

As long as $\beta > t_c$ the nominator is always larger than the denominator, hence the solution will always be larger than 1. Therefore, as long as the costs of fairness exceed consumers' cost for buying the conventional product, the conventional optimally settles in $a_c = 1$

a_{ft} becomes $a_{ft} = 1$

By differentiating the profit function of the fairtrade firm with respect to the location of the fairtrade firm, we fund the following optimal position:

$$a_{ft}^* = \frac{2t_{ft}{}^2 + 2\beta t_{ft} + 2t_c(\beta + t_{ft})}{2t_{ft}{}^2 + 2\beta t_{ft} + \left(\beta + t_{ft}\right)(\beta - t_{ft})}$$

The fairtrade firm decides to settle in $a_{ft} = 1$, as long as $\beta > t_{ft}$ and $t_c > \frac{\beta - t_{ft}}{2}$

Mainstreaming: a duopoly in which both firms are able to move, facing cost function m(a)=s+βa

Fairness as linear costs	**<u>Duopoly, both are free to move</u>**

Market shares	$x^* = [\begin{pmatrix}(1-a_c)t_c + (1-a_{ft})t_{ft} \\ +m(a_{ft})\end{pmatrix} + \frac{2}{3}m(a_c) + c]\frac{1}{t_c + t_{ft}}$ $1 - x^* = [\frac{1}{3}(m(a_c) - a_c t_c - a_{ft}t_{ft}) + \frac{2}{3}(t_c + t_{ft} + m(a_{ft})) + c]\frac{1}{t_c + t_{ft}}$
Nash prices	$p_c^* = \frac{1}{3}\begin{pmatrix}(1-a_c)t_c + (1-a_{ft})t_{ft} \\ +m(a_{ft})\end{pmatrix} + \frac{2}{3}m(a_c) + c$ $p_{ft}^* = \frac{1}{3}(m(a_c) - a_c t_c - a_{ft}t_{ft}) + \frac{2}{3}(t_c + t_{ft} + m(a_{ft})) + c$
Nash profits	$\pi_c^* = [p_c - c - m(a_c)](x^*) - F$ $= \frac{1}{9(t_c+t_{ft})}[(t_c - \beta_c)a_c + (t_{ft} - \beta_{ft})a_{ft} + t_{ft} + t_c]^2$ $\pi_{ft}^* = [p_{ft} - c - m(a_{ft})]\,(1 - x^*) - F$ $= \frac{1}{9(t_c+t_{ft})}[(t_c - \beta_c)a_c - (t_{ft} + \beta_{ft})a_{ft} + 2t_{ft} + 2t_c]^2$
Wealth transfers	*Undetermined*
Locations	$a_c^* = a_c + \frac{3t_c + 3t_{ft}}{\beta_c - t_c}$ $a_{ft}^* = a_{ft} + \frac{3t_c + 3t_{ft}}{\beta_{ft} + t_{ft}}$ $Condition$: a_c^* is undetermined as long as $\beta_c > t_c$.

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