'Made in Dignity': the redistributive impact of Fair Trade*

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Abstract

In this paper, we develop a model of North-South trade to investigate the impact of Fair Trade. In the absence of a label, Southern producers are exploited by monopsonisitic traders who export to Northern markets. The Fair Trade label certifies the adoption of high labour standards and the payment of fair prices to producers in the South. We first show that the label is never Pareto-improving: the welfare of unlabeled producers in the South falls if and only if the welfare of Northern consumers increases. An expansion of Fair Trade tends to exacerbate those effects. We also show that the consequences of fair trade are systematically dampened in environments where traders enjoy more market power.

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1 Introduction

Over the recent decades, consumers in the North have expressed an increased concern about the working conditions prevailing in the production of what they import from less developed economies.[1][2] The sales of Fairtrade certified products have been growing rapidly over the last two decades. In 2021, there were 1930 Fairtrade certified producer organizations in 68 producing countries, representing more than 2 million farmers and workers. This same year, an estimated global amount of 200 million Euros of wage premium were paid to these producers.[3] Fairtrade products typically include coffee, cocoa, bananas, cane sugar, flowers, tea, cotton, fresh fruits, wine grapes, sports balls, etc. Besides their commercial success, most labeling programs are also actively supported by many international organizations such as ILO, UNICEF and major NGOs (Oxfam, Max Havelaar,...).

Fair trade labels can be seen as an effective way to solve informational asymmetries. In many instances consumers are not well informed on the social and economic conditions under which the good they consume has been produced. Labeling by an independent third party provides them with the appropriate information.[4] Labels are also particularly attractive as they do not rely on coercion but simply provide information to the consumers. The latter are then free to choose, by paying a higher price, to support better production conditions, giving rise to a form of 'democracy by the consumers'. One therefore expects labeling programs to improve consumer welfare and

[1]Various studies show that consumers have a preference for 'fair' products and are willing to pay a premium for fair trade products (e.g. Prasad et al., 2004, Hiscox and Smyth, 2005, De Pelsmacker et al, 2005; Loureiro and Lotade, 2005; Basu and Hicks, 2008, Poelman et al 2008, Tagbata and Sirieix, 2008, Cranfield et al., 2010, Elfenbein and McManus, 2010, Hainmuller et al, 2015, Hiscox and Smyth, 2011, Sirieix et al, 2013).

[2]While this movement probably reflects genuine concern about the welfare of poor producers, fair trade restrictions can also be partly motivated by protectionist motives against 'unfair' competition by countries applying low labour standards. Numerous proposals have been put forward to incorporate minimum labour standards into international trade rules. See Rodrik (1996), Freeman (1998) and Bhagwati (1995) for a discussion on the pertinence of imposing labour standards, in line with the debates on the WTO. See also Maskus (1997), Fisher and Serra (2000), Fung et al. (2001), and Brown (2001) for more details on labour standards and international trade.

[3]See www.fairtrade.net , Fair Trade International: "Annual report 2023" and "Monitoring the scope and benefits of fairtrade, Fourteenth edition, 2023".

[4]Since Akerlof (1970), market failures due to the lack of information on product quality are well known. Labour standards in the production process is a hidden characteristic of goods which is not revealed to consumers even after consumption, a 'credence' characteristic (Nelson, 1970, Darby and Karni, 1973).

wages to reward complying producers.[5][6] Labels can therefore be viewed as a tool in the hands of Southern producers to price discriminate between different types of consumers.[7] A priori, one would expect social labeling to improve the welfare of both Northern consumers and Southern producers.

This is precisely the question addressed in this paper. We set up a simple North-South trade model and analyze the impact of the introduction of a fair trade label in the South. In the absence of the label, producers in the South sell their output to competing monopsonist traders who have exclusive access to markets. Their market power is modeled as arising from market frictions: each producer has idiosyncratic preferences over the existing traders, who exploit these preferences by under-pricing the output they purchase. If labeled, a trader pays a higher price for the goods and guarantees improved production conditions. We assume that (a) all consumers in the North are willing to pay a price premium for labeled goods, and (b) the label is perfectly implemented and monitored. Taken together, these assumptions tend to bias the results of the model in favor of a positive impact of labeling. Given the relatively limited scope of fair trade in practice, we focus on situations under which the Northern market is not saturated by labeled goods, so that some Northern consumers also consume unlabeled goods.

We first show that fair trade cannot be Pareto-improving and always generates losers among producers or consumers. The welfare of unlabeled producers in the South increases if and only if the welfare of Northern consumers decreases. The intuition behind this result is as follows: if the equilibrium price of unlabeled goods rises, Southern producers in the unlabeled sector are better off but consumers in the North are worse off since, in equilibrium, they are indifferent between consuming the high price labeled good and the low price unlabeled good. (The reverse holds when the unlabeled price falls.) Unlabeled prices increase when the fair trade label certifies working conditions that reduce substantially labour productivity, labour hours or the effort levels of the labeled producers. Finally, we show that the effects of fair trade are systematically dampened in environments where traders enjoy more market power or when a smaller set of producers are labeled.

So far the literature has essentially proposed partial equilibrium analyses of fair trade, pointing to the beneficial implications for qualifying producers by reducing the traders' market power (Baumann (2012), Podhorsky (2015)).

[5]See e.g. Zago and Pick (2004), Baksi and Bose (2007), Roe and Sheldon (2007), and Bonroy and Constantatos (2008).

[6]Unlike green or eco-friendly labeling, social labels seek first to directly benefit producers instead of promoting a particular public good such as the environment.

[7]From the firm's point of view, a label raising the demand for labeled goods can be viewed as a form of informative advertising.

These benefits may however get dissipated under free entry, as argued by de Janvry et al. (2015) in an interesting empirical illustration from coffee cooperatives in Central America. Some authors have also stressed that some producers in the South may directly suffer from the introduction of fair trade: "Ethical trading in Bangladesh has both positive and negative consequences, (...). Working conditions have improved in compliant factories, but workers in non-compliant firms are worse-off." (Murshid et al (2003), see also Valkila and Nigren (2009), Dragusanu and Nunn (2014) or Jaffee (2009)). In the present paper, we investigate the properties of fair trade as an instrument to reduce the traders' market power in the South and focus on its consequences in terms of welfare. The market equilibrium perspective allows us to also analyze more satisfactorily the demand for fair trade, as well as to identify among the different components of fair trade those that are more conducive to welfare gains for the producers in the South.[8]

The paper proceeds as follows. In Section 2 we present the model. In Section 3, we first characterize the welfare impacts of the label. We then investigate the consequences of an expansion of fair trade as well as of an increase in the monopsony power of traders in the South. Section 4 concludes.

2 The model

We consider an economy with two countries, North and South, denoted by N and S respectively. In each country, there is a continuum of measure 1 of identical individuals, who have one unit of time that they supply inelastically on the labour market. We assume complete specialization in production, with the North producing clothes and the South producing food. The production functions are linear, with labour as the only input. Productivity in the North is equal to γ, each worker producing γ units of clothes. We let clothing be the numeraire so that its price is normalized to 1. The income of a worker in the North is then equal to γ. Productivity in the South is equal to 1, with each producer producing one unit of food.

There are potentially two sectors in the South, the labeled and the unlabeled one, respectively denoted by ℓ and u. We let p_ℓ, p_u stand for the price of labeled and unlabeled food respectively. A label on a unit of food certifies that it has been produced under well defined labour standards and

[8]Some authors also raise doubts about the beneficial impact of a label 'child labor free' label (see e.g. Brown (1999), Davies (2005), Basu et al. (2006), Edmonds (2007), Doepke and Zilibotti (2010) and Baland and Duprez (2009).) In contrast to the present analysis which focuses on exploitative working conditions or pricing practices, being underage is a fixed characteristic of the worker which cannot be changed by the label.

fair wages. Monitoring is perfect so that there is no uncertainty associated with the quality of the label.[9]

2.1 The North

In the North, individuals consume food and clothing, but also care about the working conditions under which the Southern goods they consume has been produced.[10] The utility function of a Northern consumer is as follows:

$$U_N = (1 + \lambda\mu)\, c_N^{\alpha}\, (f_N^{\ell} + f_N^{u})^{1-\alpha} \tag{1}$$

where $0 \leq \alpha \leq 1$, c_N represents the amount of clothing, f_N^{ℓ}, the amount of labeled food and f_N^{u}, the amount of unlabeled food consumed. λ, is a dummy variable which takes the value 1 when consuming labeled food, and 0 otherwise.[11] He thus receives an extra utility benefit $\mu > 0$ when consuming labeled food instead of unlabeled food.

The budget constraint of a Northern household is given by:

$$c_N + f_N^{\ell} p_{\ell} + f_N^{u} p_u = \gamma > 1$$

2.2 The South

Southern producers care about the working conditions they face. As consumers, however, they are not concerned about the labour conditions involved in the food they consume.[12] Their utility from consuming and producing goods is as follows:

$$V_S = (1 + \delta\theta)\, c_S^{\alpha}\, (f_S^{\ell} + f_S^{u})^{1-\alpha} \tag{2}$$

where c_S and f_S^{k} represent respectively the amount of clothes and food of

[9]The introduction of uncertain quality, while making the analysis more complex, yields essentially similar results as the ones presented in the paper, as long as consumers are ready to pay a premium for labeled - of uncertain quality - over unlabeled food.

[10]Without loss of generality, we henceforth assume Cobb Douglass utility functions for all agents. Our main results do not depend on this particular assumption, as they can easily be generalized to all regular utility functions, at the cost of expositional simplicity.

[11]Without loss of generality, we implicitly consider that a particular Northern consumer consumes only one type of food so that either $f_N^{\ell} = 0$ or $f_N^{u} = 0$.

[12]This assumption is by no way necessary for the validity of the results. It simply allows us to distinguish between concerned and unconcerned consumers without additional notation. The model, and its results, can trivially be extended to the case where some Southern consumers also care about labour standards, while some Northern consumers are indifferent.

type $k = \ell, u$, consumed. When working under high labour standards, the dummy variable δ takes the value 1 and the worker receives a utility benefit of $\theta \geq 0$, δ is equal to 0 otherwise.[13] The two types of food are perfect substitutes, so that, as a consumer, he purchases the least costly variety.

Unlike Northern producers, Southern producers do not sell their production directly on the world markets. Instead, there is a large number N of traders to whom they sell their output. The producer trades with the trader he prefers and these traders differ across several dimensions. First, a trader can either be labeled or unlabeled. Producers can produce labeled food only if they trade with a labeled trader. Second, different traders can offer different wages. Let $V_{S,i}$ denote the utility derived from producing and consuming goods when trading through intermediary i.

When a Southern producer trades with a particular intermediary i, he also gets an idiosyncratic benefit ϵ_i. His full utility when trading with trader i is given by:

$$U_S = V_{S,i} + \epsilon_i \tag{3}$$

This idiosyncratic benefit ϵ_i is driven by factors such as the distance to the trader or the quality of their personalized relationship or other (unmodeled here) side benefits he draws from selling to this particular trader. The benefit ϵ_i varies across each possible pair of producer and trader, and is drawn from an i.i.d Gumbel distribution[14] with mean zero and standard deviation $d\,(\pi/\sqrt{6})$. Here, d is a measure of dispersion of the ϵ_i: the larger d, the larger the differences in idiosyncratic benefits and the stronger the preference of a producer for a particular intermediary: d is therefore a direct measure of market power (perfect competition corresponds to a value of $d = 0$). Because of these benefits, traders enjoy market power over a particular subset of producers.[15]

[13]The utility benefit θ enters the utility function of the Southern producers multiplicatively to mimic the utility benefit Northern consumers get when consuming fair trade. However, the results of this paper also hold with an additive utility benefit θ

[14]The Gumbel distribution is quite similar to the normal distribution, but unlike the normal it is skewed to the right. The choice for the Gumbel, as opposed to a normal or uniform distribution, is for reasons of tractability. It allows to derive a closed form solution for the proportion of producers who choose a given intermediary (see Equation 4), which is a non-trivial problem because it requires comparing the idiosyncratic benefit for this trader with the idiosyncratic benefits of all other traders.

[15]It is clear that Southern 'producers' can also be seen as workers employed by a particular employer (called here the 'trader'). The analysis of this situation is identical to the one developed here. To avoid confusion, we will stick in the following to the interpretation of the model in terms of producers and traders.

2.3 Traders in the South

All traders sell food competitively on the world market and southern producers freely choose which trader to sell their production to. Since ϵ_i are i.i.d. according to the Gumbel distribution, the proportion of producers P_i choosing to sell to traders i is given by the multinomial logit (McFadden (1976), Thisse and Toulemonde (2010)):

$$P_i = \frac{\exp\left(\frac{V_{S,i}}{d}\right)}{\sum_j \exp\left(\frac{V_{S,j}}{d}\right)} \tag{4}$$

Each unlabeled trader decides the price at which he purchases food to producers (which is the wage earned by the workers/producers he trades with) w_u in order to maximize his profits Π_i:

$$\Pi_i = P_i(p_u - w_u) \tag{5}$$

Profits depend on the number of producers the trader attracts when announcing a purchase price or wage w_u, and on the profit generated by each transaction $(p_u - w_u)$. Maximizing profits, the optimal purchase price w_u is given by[16]:

$$w_u = p_u - \frac{d}{V'_{S,u}(w)} = p_u - \frac{d}{\alpha^\alpha(1-\alpha)^{1-\alpha}}\, p_u^{1-\alpha} \tag{6}$$

As expected, traders in equilibrium make profits by offering producers a lower price than the market price of food. They are able to do this because producers have idiosyncratic preferences over traders: when an intermediary reduces the price he pays for food, he looses some, but not all, the producers he trades with. The size of this effect is captured by the dispersion of idiosyncratic preferences d. In equilibrium, more market power (a larger d) effectively leads to lower prices paid to producers.

Under a fair trade label, a proportion η of traders within the existing set of traders are chosen randomly and given a label.[17] The selected traders have

[16]Here, we assume that N is sufficiently large so that the intermediary does not take into account how changes in the price he offers affects the denominator in Equation 4.

[17]In other words, the introduction of a label implies that some of the existing traders become labeled. Alternatively, one could also consider a label that introduces *additional* labeled traders and where all unlabeled traders remain unlabeled. However, adding traders provides "free utility" to some labeled producers associated to them because of the idiosyncratic benefits they provide, making the analysis more cumbersome. Nonetheless, except

to comply with the fair trade standards.

When labeled, a trader can sell food on the world market at the price p_ℓ. Under the label, he has to follow a particular wage rule which requires that he offers a piece rate that is π times higher than the one unlabeled producers receive, w_u, so that the gross wage for labeled producers is $w_\ell = \pi w_u$ per unit of food produced.[18] The label also implies costly labour standards on producers: a producer incurs a productivity loss of $\sigma \geqslant 0$ units of labour per unit of food produced and a fixed cost of $\sigma_c \geqslant 0$ units of clothes.[19] The first type of cost captures the idea that improved labour standards imply higher production costs by resorting to less exploitative modes of production, reducing working hours or spending more resources on producers' health and education. The second type of cost, σ_c, occurs if Northern equipment, goods and expertise are involved in the adoption of improved labour standard (and must be paid for at the going wage rate in the North). As a result the net income earned by labeled producers is given by:

$$\tilde{w}_\ell = (1-\sigma)\pi w_u - \sigma_c$$

In the following, we restrict attention to labels that are beneficial to Southern producers, that is, where the utility of a labeled producer, $V_{S,\ell}$, is at least as large as that of an unlabeled producer, $V_{S,u}$.

Both unlabeled and labeled traders make profits, and have preferences that are identical to the preferences of Southern producers. Their utility function is therefore given by:

$$U_K = c_K^\alpha \left(f_K^\ell + f_K^u\right)^{1-\alpha} \tag{7}$$

where c_K and f_K^k represent respectively the amount of clothes and food of type $k = \ell, u$, consumed. Given the Cobb-Douglas nature of these preferences, the distribution of income between traders and producers does not affect the aggregate demand for each type of good.

for this effect on some labeled producers' welfare, this model is essentially identical to the one we consider: Effects on unlabeled producers and traders and on Northern consumers do not change.

[18]For example, FLO requires a price premium of around 15% of the commercial price, usually associated to a minimum price (1.8 dollar for a pound of coffee in 2023). In this paper, we model the fairtrade premium as a price premium, but the results are essentially unchanged when using a minimum price, with the exception of Proposition 6, which we discuss below.

[19]For the sake of generality, w assume costly labels as these costs are an important aspect of fairtrade schemes: all our results hold when the label involves a pure wage premium.

3 Equilibrium prices and welfare implications

We first describe the equilibrium that prevails before labels are introduced. In the pre-label situation, there are no labeled traders ($\eta = 0$) and no labeled food. The equilibrium price for unlabeled food, p^*, can easily be found by equalizing the supply and the demand for clothes:

$$p^* = (1-\alpha)\frac{\gamma}{\alpha} \tag{8}$$

In the labeling equilibrium, a fraction $\eta > 0$ of traders are labeled, meaning that the producers who choose to sell food to one of them is labeled. A trader may attract as many producers as they want, with η_S the proportion of labeled producer. We assume η_S is 'small' enough, so that the supply of labeled food does not cover the entire Northern market. As a result, some consumers in the North consume unlabeled food. This assumption reflects the fact that most labeling programs in the world are restricted, owing to the limited monitoring capacities of labeling agencies. Thus, FLO, the umbrella body for fair trade ensures compliance with fair trade standards through a long and strict certification process, which involves a lengthy initial inspection, followed by regular on-site visits. At the end of 2021 for instance, FLO had certified only 1930 producer organizations.

The equilibrium prices of labeled and unlabeled food must be such as to leave Northern consumers indifferent between the two types of food:

$$p_\ell = (1+\mu)^{\frac{1}{1-\alpha}}\, p_u \tag{9}$$

Again using the market clearing condition for clothing, the equilibrium price of unlabeled food is given by:

$$p_u = \frac{1-\alpha}{\alpha}\frac{\gamma - \eta_S \sigma_c}{1+\eta_S[(1+\mu)^{1/(1-\alpha)}(1-\sigma)-1]} \tag{10}$$

While the proportion of labeled traders η is exogenously given, the number of labeled producers is endogenous since each producer chooses which trader to trade with. This depends on the price of unlabeled food, p_u. Using Equation (4), we obtain the equilibrium proportion of labeled producers in the South:

$$\eta_S = \left[1 + \frac{1-\eta}{\eta}\Big/\exp\Big(\frac{V_{S,\ell} - V_{S,u}}{d}\Big)\right]^{-1} \text{, where} \tag{11}$$

$$V_{S,\ell} - V_{S,u} = [Ap_u^{\alpha} - d][(1+\theta)(1-\sigma)\pi - 1] - (1+\theta)A\frac{\sigma_C}{p_u^{1-\alpha}}$$

with $A = \alpha^{\alpha}(1-\alpha)^{1-\alpha}$.

[20]

3.1 The welfare implications of fair trade

The introduction of a label creates a price differential between labeled and unlabeled food. In equilibrium, consumers in the North must be indifferent between both kinds of food, which implies they are ready to pay a price premium for labeled food. The change of the prices compared to the initial equilibrium price p^* depends on the label and market characteristics. We have:

Proposition 1 *With the introduction of a label, the price of unlabeled food is smaller than in the pre-label equilibrium iff*

$$\frac{\sigma_c}{\gamma} + (1+\mu)^{1/(1-\alpha)}(1-\sigma) > 1. \tag{12}$$

A sufficient condition for the price of labeled food to be larger is given by:

$$\frac{\sigma_c}{\gamma} + (1-\sigma) < 1 \tag{13}$$

Proof: see Appendix.

Labeling involves some costs in terms of food or reduced productivity, σ, which lowers the total supply of food, generating an excess demand of labeled food when $\frac{\sigma_c}{\gamma} + (1-\sigma) < 1$. Since both types of food are substitutes, the higher the decrease in the supply of labeled food (or the higher the increase in its price), the more consumers will turn to unlabeled goods, generating an excess demand for unlabeled food if $\frac{\sigma_c}{\gamma} + (1+\mu)^{1/(1-\alpha)}(1-\sigma) < 1$. Under these conditions, both prices should be larger in equilibrium.

Proposition 1 also shows that prices are more likely to decrease when σ_c is high. This is due to the fact that costs in terms of clothes convert demand for labeled food into demand for clothes (Northern consumers, by consuming

[20] If we consider the limit case under which labeled producers are as well off as unlabeled ones ($V_{S,\ell} = V_{S,u}$), the proportion of labeled producers, η_S, is exactly equal to the proportion of labeled traders, η: every producer trades with the trader that gives him the highest idiosyncratic benefit ϵ_i, and for η producers this happens to be a labeled trader. As the gains from labeling increase, for instance with a larger wage premium π or higher utility gain θ, more producers choose to sell to a labeled trader and the share of labeled producers in the economy increases.

labeled food, indirectly 'consume' more clothing through these costs), making an excess supply of both labeled and unlabeled food more likely. Because we supposed that the supply of labeled food does not saturate the market, the quantity exchanged on the market of labeled food will exclusively depend on the supply. Nevertheless, the higher (lower) the price for labeled food, the higher (lower) the total expenditures on labeled food, and the lower (higher) the total amounts spent on unlabeled food. The term $(1+\mu)^{1/(1-\alpha)}$ therefore measures the fall (increase) in the quantity of unlabeled food demanded when prices go up (down). The higher the price premium that Northern consumers are ready to pay, the more likely an excess supply on the unlabeled market.

Compared to the pre-label market equilibrium, p^*, three situations can arise: (1) Both prices are lower. This happens when the productivity drop in the labeled sector is small, or when the cost in terms of clothing is large (as labeled producers in the South substitute consumption of food for clothes from the North). (2) Both prices are higher. The fall in supply is large enough to generate an excess demand for both labeled and unlabeled food. (3) p_u is lower and p_ℓ is higher. This happens when the fall in food supply is large but a significant part of the Northern consumers' budget is spent on labeled food (causing a sufficiently large drop in the demand for unlabeled food).

Condition (13) is only a sufficient condition: prices for labeled food can be larger even if σ_c is high (for instance when η_S is small, see proof of the proposition). By contrast, Condition (12), which is necessary and sufficient, is relatively restrictive. To see this, let us consider *effective transfer* from Northern consumers to Southern producers, so that the price premium paid by the North for the labelled good is larger than the costs involved to implement the label:

$$(p_\ell - p_u)(1-\sigma) \geq \sigma p_u + \sigma_C \tag{14}$$

From Conditions (9) and (14), it follows that a necessary condition for a label to involve effective transfers is that:

$$(1+\mu)^{1/(1-\alpha)}(1-\sigma) \geq 1 \tag{15}$$

Comparing this condition with Condition 12, we have:

Corollary 1 *Under effective transfers, the price of unlabeled food is always smaller than in the pre-label equilibrium.*

Clearly, most fair trade schemes do implement labels with effective transfers, which are therefore the focus of our next propositions. However, a label

does not necessarily involve effective transfers, while increasing producers' welfare. For instance, the price premium paid by Northern consumers may be fully spent on implementing better working conditions (reducing the labeled producers' wages), providing them with a net increase in utility θ.

The introduction of the label creates a welfare differential between unlabeled and labeled producers in the South. In the North, in equilibrium, consumers must be indifferent between labeled and unlabeled food. Compared to the pre-label situation, Northern consumers are therefore better off with the introduction of a label if and only if the price of unlabeled food, p_u, is smaller than the initial price, p^* (their budget set is strictly larger). However, this is exactly the condition under which the welfare of unlabeled producers in the South falls with the introduction of the label. We therefore have:

Proposition 2 *A label is never Pareto improving, nor Pareto deteriorating. With effective transfers, the North is better off and unlabeled producers in the South are worse off.*

Proof. We have already discussed the fact that the North is better off with the introduction of a label if and only if $p_u < p^*$. The second part of the proof requires that unlabeled producers are worse off if and only if $p_u < p^*$. When the price of unlabeled food falls, the price paid to unlabeled producers by their traders, w_u, also falls, but less than proportionately because the extractive power of traders is lower when p_u is lower. Moreover, unlabeled workers also consume unlabeled food, which becomes cheaper when p_u falls. In the appendix, we show formally that the net effect of a lower p_u on the welfare of unlabeled workers is negative.

■

It is worth noting that effective transfers do not guarantee that all labeled producers gain with the introduction of a label. In general, their gains in terms of welfare are lower when the costs of labeling (σ, σ_c) are high and when the price premium (π) or the gains from improved working conditions (θ) are low. Clearly, a well-designed labeling program should make sure that at least some of the labeled producers end up better off. This does not prevent the impact of the label to vary across labeled producers. This is due to the fact that there is a non-empty set of labeled producers who, in equilibrium, are just indifferent between selling to a labeled or an unlabeled trader: the utility they gain from being labeled just compensates the loss from trading with a less-preferred trader.[21] For these producers, the impact

[21]Because $V_{S,l} > V_{S,u}$ and because, in the pre-label situation producers choose their favorite traders, the producers switching traders must be those going from a trader who remained unlabeled to one who got the label.

of a label in terms of welfare is identical to that of unlabeled ones: some labeled producers are therefore necessarily worse off after the introduction of the label. By contrast, producers who were already selling to a trader who became labeled can only gain: they still sell to their preferred trader but enjoy the gains brought by the label. We thus have:

Proposition 3 *The introduction of a label generates winners and losers among labeled producers.*

The impact of the label on unlabeled traders is unambiguous:

Proposition 4 *With the introduction of a label with effective transfers, profits and welfare of unlabeled traders always decrease.*

Proof: see Appendix.

Profits of unlabeled traders decrease for two reasons. They first loose on the extensive margin as labeled traders offer better conditions and in this way attract more producers. They also loose on the intensive margin - profits per unit sold - since the price of unlabeled food falls. While, in reaction to this, they reduce the wages paid to the unlabeled producers, they cannot fully pass through the fall in prices (see Equation (6)).

Labeled traders must be strictly better off than unlabeled ones. Compared to the pre-label situation, labeled traders' profits can increase. First, by offering better conditions, they attract more producers and gain on the extensive margin. On the other hand, labeled products impose a price premium in the North, determined by the preferences over labeled goods μ, which allows them to gain or lose on the intensive margin. The higher the price premium received for their sales compared to the wage premium that must be paid to labeled producers, the higher this gain. Finally, even if their profits decrease, they could still be better off if the price of the unlabeled food they consume decreases enough.[22]

We now investigate the effects of expanding the fair trade sector by increasing the number of labeled traders, η. We have:

Proposition 5 *An expansion of a label with effective transfers (i) increases the welfare of Northern consumers, (ii) decreases the welfare of the unlabeled producers who remain ex post unlabeled, (iii) decreases the welfare of*

[22]There exists levels of prices such that $\Pi_{K,\ell} < \Pi_K$ and $U_{K,\ell} > U_K$. Formally this happens when $\frac{d}{A}\left(P_\ell \pi(1-\sigma) - \frac{1}{N}\left(\frac{p}{p_u}\right)^{1-\alpha}\right) < P_\ell(\pi - (1+\mu)^{\frac{1}{1-\alpha}})(1-\sigma)p_u^\alpha < \frac{d}{A}\left(P_\ell \pi(1-\sigma) - \frac{1}{N}\right)$, that is when $\frac{p}{p_u}$ is big enough.

producers who were already labeled before the expansion and (iv) increases the welfare of producers who were previously selling to a trader who become labeled.

Proof: see Appendix

An expansion of fair trade leads to an increase in the number of labeled producers, which magnifies the consequences in terms of welfare of the introduction of a label. Because overall demand for Southern products decreases, both unlabeled producers in the South and producers who were already labeled are worse off. This result however does not imply that expanding fair trade lowers the overall welfare of producers in the South. Indeed, producers who were selling to a trader who became labeled do gain by becoming labeled producers.

Finally, we consider the effects of introducing fair trade in economies with different degrees of competition. Recall that d, the dispersion in idiosyncratic benefits for the producers, directly measures trade frictions or the lack of competitiveness among traders in the South. When the same label is introduced in a less competitive environment, fewer producers become labeled because of those frictions, which reduce the mobility of producers across traders.[23] Since fewer producers become labeled in a less competitive environment, the labeled sector ex post is smaller, which weakens the effects of a label on the economy.

Proposition 6 *A label has weaker effects in less competitive environments.*

Proof: see Appendix

Corollary 2 *In particular, unlabeled producers lose less in less competitive environments.*

The welfare loss between the pre and post-label situation for unlabeled producer is given by:

$$U_{S,u} - U_S = A\Big(p_u^{\alpha} - \Big(\frac{1-\alpha}{\alpha}\gamma\Big)^{\alpha}\Big)$$

[23]Note also that, in our setting, the wage premium is proportional to the wage offered to unlabeled producers. In a less competitive environment, unlabeled food prices are lower, and so is the wage premium that producers obtain from the labeled trader. This would not be true under another type of wage premium, such as a minimum wage which is independent from the wage offered to unlabeled producers. The wage rule actually implemented by most fair trade programs is typically a combination of both systems, with a minimum wage when prices are too low and a wage premium when prices are high.

Since this welfare loss positively depends on p_u, it directly follows from Proposition 6 that the loss is smaller when competitiveness is low. For labeled producers, the effect on welfare is ambiguous. On the one hand, just like unlabeled producers, they benefit from a smaller reduction in prices. However, we showed that, on the intensive margin, the share traders, via their market power, are able to extract is linear in d ($\pi \frac{d}{A} p_u^{1-\alpha}$). This amount increases proportionally with p_u (and all producers in the pre-label situation), but more than proportionally for labeled producers (through π).

4 Concluding comments

In this paper, we develop a model of North-South trade to investigate the impact of Fair Trade. In the absence of a label, Southern producers are exploited by monopsonisitic intermediaries who export to Northern markets. The Fair Trade label certifies the adoption of high labour standards and the payment of fair prices to producers in the South. We first show that the label is never Pareto-improving: the welfare of unlabeled producers in the South falls if and only if the welfare of Northern consumers increases. This is more likely to occur when the label only requires a price premium to be paid to producers or when it certifies improved production practices that do not entail too large productivity losses. In general, labelled producers benefit from the introduction of Fair Trade, but these gains are lower when Fair Trade includes a larger set of traders and producers, or in less competitive environments. Finally we show that the effects of Fair Trade on equilibrium prices are systematically dampened in environments where traders enjoy more market power, which is precisely where one would, a priori, preferentially target those labels.

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Appendix

4.1 Model resolution

4.1.1 Preliminary results

Let us first show

$$w_u = p_u - \frac{d}{\alpha^\alpha (1-\alpha)^{1-\alpha}} p_u^{1-\alpha}$$

$$\frac{\partial \Pi_i}{\partial w_u} = 0$$

$$\Leftrightarrow \frac{\partial P_i (p_u - w_u)}{\partial w_u} = \frac{\partial P_i p_u}{\partial w_u} + \frac{\partial P_i w_u}{\partial w_u} = \frac{V'_{S,u}}{d} P_i p_u - \left(\frac{V'_{S,u}}{d} P_i w_u + P_i \right) = 0$$

$$\Leftrightarrow w_u = p_u - \frac{d}{V'_{S,u}}$$

and since $V_{S,u} = \alpha^\alpha (1-\alpha)^{1-\alpha} \frac{w_u}{p_u^{1-\alpha}}$, we have $V'_{S,u} = \frac{\alpha^\alpha (1-\alpha)^{1-\alpha}}{p_u^{1-\alpha}}$. Hence the result.

4.1.2 Pre-label equilibrium

Demand for food from the North:

$$\frac{(1-\alpha)\gamma}{p}$$

Demand for food from Southern producers:

$$\frac{(1-\alpha)w}{p}$$

Demand for food from Traders:

$$\frac{(1-\alpha)(p-w)}{p}$$

with the supply of food normalized to 1.

Therefore, we have

$$\frac{(1-\alpha)\gamma}{p^*} + \frac{(1-\alpha)w}{p^*} + \frac{(1-\alpha)(p^*-w)}{p^*} = 1$$

$$\Leftrightarrow p^* = \frac{1-\alpha}{\alpha}\gamma$$

4.1.3 Post-label equilibrium

In equilibrium, prices of labeled and unlabeled food must be such as to leave Northern consumers indifferent between the two types of food so that

$$U_N^\ell = U_N^u$$

$$\Leftrightarrow (1+\mu)(\alpha\gamma)^\alpha \left(\frac{(1-\alpha)\gamma}{p_\ell}\right)^{1-\alpha} = (\alpha\gamma)^\alpha \left(\frac{(1-\alpha)\gamma}{p_u}\right)^{1-\alpha}$$

$$\Leftrightarrow p_\ell = (1+\mu)^{\frac{1}{1-\alpha}} p_u$$

The quantity of labeled food available on the market is $\eta_S(1-\sigma)$ and is fully consumed by Northern consumers (since $p_\ell > p_u$, traders and producers in the South only consume unlabeled food). The demand from the North for unlabeled food is therefore given by:

$$\frac{(1-\alpha)\gamma - \eta_S(1-\sigma)p_\ell}{p_u}$$

where $(1-\alpha)\gamma - \eta_S(1-\sigma)p_\ell$ is the residual budget not spent in labeled food.

Demand for unlabeled food from labeled producers in the South:

$$\eta_S \frac{(1-\alpha)(w_\ell - \sigma_C)}{p_u}$$

Demand for unlabeled food from labeled traders in the South:

$$\eta_S \frac{(1-\alpha)(p_\ell - w_\ell)}{p_u}$$

Demand for unlabeled food from unlabeled producers in the South:

$$(1-\eta_S)\frac{(1-\alpha)w_u}{p_u}$$

Demand for unlabeled food from unlabeled traders in the South:

$$(1-\eta_S)\frac{(1-\alpha)(p_u - w_u)}{p_u}$$

with $w_\ell = \pi w_u(1-\sigma)$ and $p_\ell = (1+\mu)^{\frac{1}{1-\alpha}} p_u$.

And since the supply of unlabeled food is $(1-\eta_S)$, we easily get:

$$p_u = \frac{1-\alpha}{\alpha}\frac{\gamma - \eta_S\sigma_c}{1+\eta_S[(1+\mu)^{1/(1-\alpha)}(1-\sigma)-1]}$$

Finally, Equation (4) suggests that

$$\eta_S = \frac{\eta \exp\left(\frac{V_{S,\ell}}{d}\right)}{\eta \exp\left(\frac{V_{S,\ell}}{d}\right) + (1-\eta)\exp\left(\frac{V_{S,u}}{d}\right)}$$

which can be rewritten as

$$\eta_S = \left[+\frac{1-\eta}{\eta}\Big/\exp\Big(\frac{V_{S,\ell} - V_{S,u}}{d}\Big)\right]^{-1}$$

4.2 Proofs

Proposition 1 *With the introduction of a label, the price of unlabeled food is smaller than in the pre-label equilibrium iff*

$$\frac{\sigma_c}{\gamma} + (1+\mu)^{1/(1-\alpha)}(1-\sigma) > 1. \tag{16}$$

A sufficient condition for the price of labeled food to be larger is given by:

$$\frac{\sigma_c}{\gamma} + (1-\sigma) < 1 \tag{17}$$

Proof. As for the first part of the proof, it suffices to show that $p_u > p^*$ iff Condition 12 in the proposition is satisfied.

To do so, consider the ratio of p_u over p^*:

$$\frac{p_u}{p^*} = \frac{1 - \frac{\eta_S \sigma_c}{\gamma}}{1 + \eta_S[(1+\mu)^{1/(1-\alpha)}(1-\sigma) - 1]}$$

It follows immediately that

$$p_u < p^* \iff \frac{\sigma_c}{\gamma} + (1+\mu)^{1/(1-\alpha)}(1-\sigma) > 1$$

In order to show that Condition 13 is sufficient for $p_\ell < p^*$ we consider the ratio

$$\frac{p_\ell}{p^*} = (1+\mu)^{1/(1-\alpha)} \frac{1 - \frac{\eta_S \sigma_c}{\gamma}}{1 + \eta_S[(1+\mu)^{1/(1-\alpha)}(1-\sigma) - 1]}$$

from which it follows that

$$p_\ell > p^* \iff (1+\mu)^{1/(1-\alpha)} - 1 > \eta_S \left[(1+\mu)^{1/(1-\alpha)} \Big((1-\sigma) + \frac{\sigma_c}{\gamma} \Big) - 1 \right]$$

So that $(1-\sigma) + \frac{\sigma_c}{\gamma} < 1$ guarantees the result. It is only a sufficient condition since $p_\ell > p^*$ may hold without the latter condition: when η_S is small enough (due to a small value of π or θ for instance).

■

Proposition 2 *A label is never Pareto improving, nor Pareto deteriorating. With effective transfers, the North is better off and unlabeled producers in the South are worse off.*

Proof (Continued).

It remains to be shown that unlabeled producers are worse off if and only if $p_u < p^*$.

To this end, consider the utility of unlabeled workers:

$$U_{S,u} = A \frac{w_u}{p_u^{1-\alpha}} + \epsilon_i = A p_u^\alpha - d + \epsilon_i$$

A decrease in p_u leads to a decrease in w_u as well as a decrease of the denominator, and has no other effects. Note that ϵ_i does not change as unlabeled workers do not change traders when the label is introduced. Hence,

a decrease in p_u leads to a decrease in welfare for unlabeled workers, and vice versa. ■

Proposition 4 *With the introduction of a label with effective transfers, profits and welfare of unlabeled traders always decrease.*

Proof. It suffices to show that, with the introduction of the label, the profits and utility of unlabeled traders fall.

In equilibrium, the utility function of any trader i is given by:

$$U_{K,i} = A\frac{\Pi_i}{p^{1-\alpha}}$$

where Π_i is its profits, and p is the price of the food they consume.

From Equation (5), we know that Π_i is a function of two components: 1) The number of producers P_i that choose trader i (the extensive margin) and 2) the profits made on every unit sold, $p - w$ (the intensive margin). We easily derive from Equation (6) that the intensive margin is given by

$$\frac{d}{A}p^{1-\alpha}$$

which increasing with prices. Therefore with the introduction of a label with effective transfers, unlabeled producers loose at the intensive margin. And since both pre-label traders and unlabeled traders consume the food they trade, the value of the intensive margin is exactly proportional to the denominator of the utility function at equilibrium. Their utility can therefore be simplified into:

$$U_{K,i} = P_i\ d$$

For the extensive margin, note that prior to the introduction of the label all traders offer the same conditions and attract the same proportion of producers ($1/N$). When the label is introduced, the share of producers choosing a given intermediary i is given by Equation (4). As one would expect, the share of producers P_i is increasing in $V_{S,i}$, the utility of producing and consuming when trading with trader i. Since this utility is higher when trading with labeled than with unlabeled traders ($V_{S,\ell} \geq V_{S,u}$), labeled traders attract more producers than unlabeled traders ($P_\ell \geq P_u$). Since prior to the label they attracted the same number of producers, and since the total number of producers N is fixed, this implies that the share of producers attracted by

an unlabeled trader, P_u, decreases.

■

Proposition 5 *An expansion of a label with effective transfers (i) increases the welfare of Northern consumers, (ii) decreases the welfare of the unlabeled producers who remain ex post unlabeled, (iii) decreases the welfare of producers who were already labeled before the expansion and (iv) increases the welfare of producers who were previously selling to a trader who become labeled.*

Proof. Since the discussion in the paper following this proposition goes beyond the proposition, we prove a somewhat more general lemma below. However, Lemma 1 immediately implies the proposition. Indeed, by Condition (15) any label with effective transfers satisfies the condition $\frac{\sigma_c}{\gamma} + (1 + \mu)^{1/(1-\alpha)}(1 - \sigma) > 1$ in the lemma. ■

Lemma 1 *If* $\frac{\sigma_c}{\gamma} + (1 + \mu)^{1/(1-\alpha)}(1 - \sigma) > 1$*, an expansion of a label (i) increases the welfare of Northern consumers, (ii) decreases the welfare of the unlabeled producers who remain ex post unlabeled, (iii) decreases the welfare of producers who were already labeled before the expansion and (iv) increases the welfare of producers who were previously selling to a trader who become labeled.*

Proof. We will show that an increase in the number of traders η leads to a decrease in unlabeled food prices when $\frac{\sigma_c}{\gamma} + (1 + \mu)^{1/(1-\alpha)}(1 - \sigma) > 1$. This implies the lemma. Indeed, in the proof of Proposition 1 we have shown that a decrease in unlabeled food prices (1) increases the welfare of Northern consumers and (2) decreases the welfare of Southern producers, provided that they do not switch trader.[24] Since the proposition involves unlabeled producers who remain ex post unlabeled (case (ii)) and producers who were already labeled (case (iii)), this suffices.

It thus remains to be shown that increasing η leads to a decrease in unlabeled food prices when

$$\frac{\sigma_c}{\gamma} + (1 + \mu)^{1/(1-\alpha)}(1 - \sigma) > 1$$

[24]In fact, we have only shown that welfare of unlabeled producers falls iff p_u falls. However, the same proof applies for labeled producers substituting the utility function of unlabeled producers for the one of labeled workers.

is satisfied and leads to an increase in p_u when it is not satisfied. Let us first prove the first part, that an expansion of fairtrade leads to a decrease in p_u when the condition is satisfied.

To this end, recall that apart from p_u, also the share of labeled producers in the South, η_S, is endogenous. To understand how prices change, we thus also need to consider changes in η_S. A change in η has no immediate effect on p_u (Equation (10)), and we know that $\frac{\partial \eta_S}{\partial \eta} > 0$ (Equation 11). Moreover, equation 10 and 11 show that, under Condition (12), the immediate effect of an increase in η_S is a decrease in p_u, while an increase in p_u leads to an increase in η_S, so that:

$$\frac{\partial p_u}{\partial \eta_S} < 0 \text{ and } \frac{\partial \eta_S}{\partial p_u} > 0 \tag{18}$$

The total effect of an increase in η is the following: It increases η_S, which has a negative effect p_u. The latter has a negative effect on η_S, thus attenuating the original change. Despite this attenuation we show below that the overall effect of an increase in η is an increase in η_S and a decrease in p_u. Indeed, taking into account these attenuation effects one can write the overall effect of η on η_S and p_u as follow:[25]

$$\frac{dp_u}{d\eta} = \frac{\partial \eta_S}{\partial \eta} \frac{\partial p_u}{\partial \eta_S} \left[\frac{1}{1 - \frac{\partial p_u}{\partial \eta_S} \frac{\partial \eta_S}{\partial p_u}} \right] \tag{19}$$

and

$$\frac{d\eta_S}{d\eta} = \frac{\partial \eta_S}{\partial \eta} \left[\frac{1}{1 - \frac{\partial p_u}{\partial \eta_S} \frac{\partial \eta_S}{\partial p_u}} \right] \tag{20}$$

Under conditions 18 it directly follows that $\frac{dp_u}{d\eta} < 0$ and $\frac{d\eta_S}{d\eta} < 0$.

Left to show that an increase in η leads to a increase in p_u when Condition (12) is not satisfied. This is easier. Indeed, when Condition (12) is not satisfied, changes in p_u and η_S go in the same direction:

$$\frac{\partial p_u}{\partial \eta_S} > 0 \text{ and } \frac{\partial \eta_S}{\partial p_u} > 0$$

From Equation 19 it is thus immediate that an increase in η, whose immediate effect is to increase η_S, leads to an increase in both η_S and p_u.

[25] We need to suppose $\frac{\partial p_u}{\partial \eta_S} \frac{\partial \eta_S}{\partial p_u} < 1$ otherwise the overall effect diverges, and so do prices.

The proof of case (iv) is trivial.

■

Proposition 6 *A label has weaker effects in less competitive environments.*

Proof.

in particular, we show that, in a less competitive environment (higher d), the introduction of a label with effective transfers leads to a smaller reduction in (1) equilibrium prices, p_u, and (2) unlabeled workers' wages, w_u.

The proof for point (1) is almost identical to the one of Proposition (5) where we looked at the comparative statics of η. The direct effect of a change in d on p_u and η_S is:

$$\frac{\partial p_u}{\partial d} = 0 \text{ and } \frac{\partial \eta_S}{\partial d} < 0 \tag{21}$$

Just like for η, a change in d only has a direct effect on η_S and not on p_u. However, the direct effect of d on η_S is negative, while it was positive for η.

Under a label with effective transfers, the price for unlabeled food, p_u, falls following the introduction of the label. Using the same argument as in the proof of Proposition (5), we can show that an increase in d leads to a decrease in η_S and an increase in p_u. Since the original effect of the label was a decrease in p_u, the reduction in p_u is indeed smaller in a less competitive environment.

Next, we need to show that also the reduction in wages is smaller in a less competitive environment. To this end, consider the effect of a change in p_u on unlabeled workers' wages:

$$\frac{\partial w_u}{\partial p_u} = 1 - \frac{(1-\alpha)d}{\alpha^\alpha (1-\alpha)^{1-\alpha}} p_u^{-\alpha} \tag{22}$$

Assuming an equilibrium exists, $w_u \geq 0$ must hold and, so, $dp_u^{-\alpha}/\alpha^\alpha(1-\alpha)^{1-\alpha} \leq 1$. As a consequence, $\frac{\partial w_u}{\partial p_u} > 0$ and a decrease in p_u always leads to a decrease in wages for unlabeled producers.

$$\frac{\partial w_u}{\partial p_u} = 1 - \frac{(1-\alpha)d}{\alpha^\alpha (1-\alpha)^{1-\alpha}} p_u^{-\alpha}$$

This expression is decreasing in d. Hence, under an introduction of fairtrade, a given reduction in p_u has a smaller effect on w_u when competitiveness is low. Moreover, we have just shown that in this setting, the reduction in p_u is smaller. Both effects together thus imply that the reduction in wages is

smaller when competitiveness is lower.

■