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COUNTERPRODUCTIVENESS OF LABELING ON CHILD LABOR UNLIKELY

Duprez and Baland (2004) study some economic effects of labeling programs with respect to products certified with respect to the issue of child labor. Their analysis of social labeling in paragraph 2.2 is straightforward. Assumed is a situation in which a Southern country produces products that may only be distinguished by their use (or not) of child labor in manufacturing them. These products are then consumed by a Northern country and by the Southern country itself, according to price mechanisms combined with a parameter indicating disutility of unlabeled products. In the concerned model, consumed products are individually certified when manufactured without child labor, and applying the model this results in a shift of adult workers from the manufacture of unlabeled products to labeled ones. When the Northern demand for labeled products is not enough to exhaust the Southern production capacity, Southern demand will shift according to the established price mechanisms to unlabeled products and there will be no change in the incidence of Southern child labor. This might be an explanation why labeling seems to have little or no effect on child labor in empirical situations.

In paragraph 2.3 and 2.4 of their paper, Duprez and Baland also present a model of geographical labeling, in which two Southern countries *A* and *B* produce identical products. The products of either of the two countries (say *A*) are labeled when that country's incidence of child labor is smaller than that of the other (*B*) for identical prices of the produced goods. In fact, the two Southern countries are identical except for their child labor figures. As in the model of social labeling, price mechanisms (in combination with a disutility parameter) determine consumption and production. The authors then claim in proposition 3 (p. 12) that application of their model may actually result in an *increase* in total "worldwide" child labor when the label would be effective in lowering child labor incidence in country *A*. Because of the price mechanisms, the increase of child labor in country *B* would be larger than the decrease of child labor in country *A*. Since we have here a counterintuitive and, if true, unwanted result much stronger than the neutral result we had with social labeling, it is worthwhile to look at the arguments leading to proposition 3.

Child labor is considered to be linearly dependent on the quantity of goods produced (p. 5), where the production (like demand) in turn is dependent on prices through price equilibrium mechanisms. We may therefore establish functions of the incidence of child labor depending on prices, $l_A(p)$ and $l_B(p) > l_A(p)$ for any $p$, of which the derivatives $l'_A(p)$ and $l'_B(p)$ are identical and given as $l'(p)$ (p. 10). I will study here the situation $l'(p) < 0$ only (in the authors' argument, $l'(p) > 0$ would lead to a decrease in worldwide child labor, while increasing in country $A$, a situation we can safely put aside for the present discussion).

The starting point of the model with two Southern countries then is that there is only trade between the Northern country and the each of the Southern countries and no mutual trade between the Southern countries. Each Southern country, however, does consume its own products according to identical price mechanisms. Before introducing the geographical label, the price $p$ is set equal for countries $A$ and $B$ as deriving from the total supply and demand (in North and South) with respect to the Southern goods before introducing a label. Country $B$ will have a surplus supply relative to $A$ because $B$ is assumed to put more children to work and thus produces more goods. After introducing a label certifying country $A$ as a country that has less child labor than $B$, country $A$ sells more goods to the Northern country, while $B$ no longer sells goods to the North. The label helps to decrease child labor in $A$, but as the price for unlabeled goods decreases, child labor in $B$ increases (see p. 11; proposition 2). Proposition 3 now states that the decrease of child labor in country $A$ will be less than the increase in $B$, so that the end result would actually be a total increase in the incidence of child labor.

Precisely, proposition 3 states "If $l'(p) < 0$ […], the net effect of a marginal geographical label is a raise […] in worldwide child labor." This raise, however, is not supported by the argument following proposition 3. Such an adverse net effect of a "marginal" label can only be considered proved for all conceivable situations if the sum of all marginal changes can be straightforwardly determined. This is not possible with the general set-up the paper gives concerning the functions $l_A(p)$ and $l_B(p)$. Judging from figure 1 on p. 13 of the paper, it seems that these functions are perceived to be linear, but this is defined nowhere in the course running to proposition 3 (it is only defined that the quantity of goods produced is linearly dependent on labor input, but this in itself says nothing about price dependency). While $l'_A(p) = l'_B(p) = l'(p)$, $l'(p)$ does not have to be constant for all $p$, and $l_A(p)$ and $l_B(p)$ may be curved. If we then consider that $l_A(p)$ and $l_B(p)$ may be more elastic for higher $p$, it is not necessarily the case that the increase in $l_B(p)$ outweighs the decrease in $l_A(p)$.

For a quick understanding of this, consider that the production functions in the authors' figure 1 may run somewhat more horizontal above the "p" line than Duprez and Baland give them now, while beneath the "p" line these lines may run more vertically than given. The shift of "$x^A(p^A)$" relative to "$x^A(p)$" may be more than the shift of "$x^B(p^B)$" relative to "$x^B(p)$."[1] This means that proposition 3 not only is insufficiently proved, it is also

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[1] To be more precise concerning the construction of a counterexample, putting the slope of the two production curves in figure 1 more horizontal above the "p" line should not be done so drastically that the combined production curve would become lower than the combined demand curve leading to the

possible to actually construct counterexamples to it, so that labeling does decrease the worldwide incidence of child labor, even if it increases in country *B* due to price mechanisms.

It is not unreasonable to assume that the incidence of child labor is less elastic at lower prices. Because country *B* has already more child labor than *A* from the start, we can assume that country *B* experiences more disutility from putting children to work than *A*, as specified in the utility functions *V* on p. 5 (note the limit behavior of *V*). While country *B* would experience an increased demand for child labor as a result of an increased demand of the goods produced, the increased demand for child labor would increase disutility at the production side at an already relatively depressed utility function value.

On p. 10 Duprez and Baland indicate that labeling may result in very diverse outcomes: "If countries were distinct one from another in other respects [than child labor incidence] almost every result could be obtained." It is the question, then, why labeling itself would have such a straightforward effect as given in proposition 3. I have shown in this commentary that the application of Duprez and Baland's geographical model can just as well lead to ambiguous results. This puts into doubt the perceived role of price mechanisms as Duprez and Baland use them. The reader may recall that it was assumed that country *B* had already more child labor than *A* at the same price level, other things equal. So the assumption in fact denies the explanatory power that is indispensable in the sequel of the argument. This is not very convincing. In my view, a more promising way to investigate the incidence of child labor would be to focus on the utility functions in which the incidence of child labor is incorporated. Apparently the valuation as to the (dis)utility of child labor may differ from country to country and this could conceivably be a more important determinant of the incidence of child labor than price mechanisms. At least there is no reason at all to accept the statement that labeling would be capable of increasing child labor. Adding to that that labels fulfill a second-order role with respect to consumer awareness, i.e. not only in applying utility functions but also in influencing these, their usefulness, I think, still stands.

REFERENCE

DUPREZ, CÉDRIC, AND JEAN-MARIE BALAND 2004. "'Made in dignity". The effects of labelling on child labor."
http://www.eudnet.net/Member/afd_2004/Duprez_and_Baland.pdf

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equilibrium price "p." If readers now imagine, for the sake of easiness, straight curve segments starting slightly above and slightly below the "p" line, with slopes and positioning relative to "p" identical for both countries, they may further imagine that for a very small neighborhood around the "p" line, we can always find a second degree function connecting with the two straight segments for each production curve, so that the three parts of each curve together form a continuous and differentiable function on the total relevant *p* domain. The two resulting curves satisfy the constraints given by Duprez and Baland, including the requirement that $l'_A(p) = l'_B(p)$. There may be a slight change in the level of "p" relative to the Duprez and Baland value, but this change can be considered insignificant when put against a large change in specifically the "$x^B(p^B)$" shift. In fact, putting the bend under the "p" line and only making the lower segment more vertical may be enough to obtain the result that the change in country *B* is less than in *A*.