Pareto-Improving International Labor Standards Agreements: A Simple Model

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Abstract:

It has been widely argued that international agreements over labor standards are undesirable because they are bound to "hurt those that they are meant to help". We develop a model in which an appropriately designed international labor standards agreement improves welfare for all persons in all countries.

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It has been widely suggested that international agreements over labor standards (especially those underpinned by trade or other incentives) are undesirable because they are bound to "hurt those that they are meant to help"[2]. It is thought that such agreements will entail the imposition of levels of labor standards that are inappropriately high in poorer countries, reducing their welfare by limiting their ability to realize those gains from trade which result from the presence of relatively low labor costs.

In this note, we contest this view by demonstrating that such agreements can benefit both richer and poorer countries.

The Model:

We remain within the framework of the standard 2-by-2-by-2 model of international trade for ease of exposition. We define a "world economy (with labor standards and international transfers)" as follows:

(A1) There are two countries, N and S, engaged in free trade.

(A2) The level of labor standards can be defined by a real-valued index *l*. Each country has some level of labor standards that prevails in the initial state

[2] For a characteristic example of this prevalent line of argument, see e.g. Basu (2003).

l_0^i (i=N,S). Each country has per capita disposable income (i.e. income available for domestic consumption or investment, after international transfers) of y_0^i (i=N,S) and $y_0^N > y_0^S$ (where y is defined in terms of the units of a numeraire good) in the initial state.

(A3) In each country, there are two sectors of production (1 and 2) and distinct homogeneous internationally tradable commodities (one of which is the numeraire) produced in each sector by profit-maximizing firms. There are two homogeneous factors of production, K and L, which are inelastically supplied in perfectly competitive factor markets. Each factor of production may be rented by firms at a uniform rental rate specific to that factor, respectively r^i and w^i (i=N,S). Each sector possesses a constant-returns-to-scale production technology $F^j(K, L)$ $(j = 1, 2)$ which is common to both countries and unaffected by the level of labor standards: the level of labor standards may affect the cost of employing labor or capital, but it does not affect the production technology itself. In particular, we assume that in each country the cost of a unit of labor is given by $w = w_0 + g(l)$, with $w_0 > 0$. For simplicity, it is assumed that g is a monotonically increasing function of l (the level of labor standards prevailing in the country) and $g(l) \geq 0$.

(A4) Each country possesses a community welfare function which, when prices are fixed, may be written in the reduced-form $W^i(y^i, l^N, l^S)$ with W^i continuous in all of its arguments and $W^i_{l_j} > 0, W^i_{y_i} > 0$ $(i, j = N, S)$. In other words, increases in

labor standards (whether at home or abroad) and in domestic disposable income contribute to welfare.

(A5) The consumption pattern in both N and S is determined by utility maximization by consumers. All disposable income is spent on consumption goods. Consumers in N and S possess common homothetic preferences $U_A(c_1, c_2)$ over consumption goods [where c_1 and c_2 represent consumption of each good] and these preferences are independent of the level of labor standards attained. We assume that we may write $W^i(y^i, l^N, l^S) = U_A(c_1^i, c_2^i) + U_B^i(l^N, l^S)$, where c_1^i, c_2^i represent levels of consumption of each good in country i which jointly exhaust the income y^i $(i, j = N, S)$. We assume that $U_A(c_1^i, c_2^i)$ is homothetic, an increasing function of its arguments, and common to consumers in both countries, and that $U_B^i(l^N, l^S)$ is also an increasing function of its arguments $(i, j = N, S)$. Consumers can purchase consumption goods in the market but cannot influence through their consumption choices the level of labor standards that prevails in either country. This level is determined by other factors (such as government policies). It may be noted that optimal consumption decisions of consumers are independent of the levels of labor standards that prevail in each country, although the final utility of consumers is dependent upon these levels.

(A6) Each country has available a complete range of efficient tax and transfer instruments. In particular it can undertake lump-sum taxation and transfer of

incomes and it can tax or subsidize the use of any factor of production in any sector and the consumption or production of any commodity to any extent.

It is straightforward to prove that diversified world trade equilibrium exists in such a world economy under appropriate assumptions. In particular, for any values of l^i (i=N,S), if it is assumed that relative factor endowments in N and S are sufficiently close that they lie within a "cone of diversification" and that w_0 falls within an appropriate interval then equilibrium exists. . To see why, it is sufficient to note that a world economy (with labor standards and international transfers) is dual to a textbook 2-by-2-by-2 economy in which there are neither labor standards nor international transfers and in which factor prices are determined by factor endowments alone. If w^* and r^* are the equilibrium factor prices in either N or S for such a textbook economy then $w^{**} = w_0 + g(l)$ and r^{**} are the corresponding equilibrium factor prices in the world economy (with labor standards and international transfers) when $w_0 = w^* - g(l)$ and $r^{**} = r^*$. It is obvious that if the level of labor standards and factor endowments in N and S have been specified then this duality gives rise to a one-to-one mapping from textbook economies in which diversified equilibrium exists and world economies (with labor standards and international transfers) in which diversified equilibrium exists.

We now define an "International Labor Standards Agreement" (or ILSA) as an agreement between countries which brings about the following outcomes:

(i) A specified increase in labor standards in S to $l_*^S > l_0^S$.

(ii) A specified transfer of resources from S to N, resulting in an increase in per capita disposable income in S to $y_*^S > y_0^S$ and a decrease in per capita disposable income in N to $y_*^N < y_0^N$.

(iii) The implementation of specified new taxes, transfers or subsidies in S.

We now prove our main result.

Proposition: For any world economy (with labor standards and international transfers) at equilibrium, there is an International Labor Standards Agreement which increases welfare in both North and South.

Proof:

Pick some $l_*^S > l_0^S$. Since $W^N(y^N, l^N, l^S)$ is continuous, there exists a level of international income transfer $\tau = y_0^N - y_*^N$ such that, when world prices are unchanged, $W^N(y_*^N, l_0^N, l_*^S) > W^N(y_0^N, l_0^N, l_0^S)$. In other words, when world prices are unchanged there is a level of income transfer from N to S that is sufficiently small that the combination of the income transfer and the labor standards improvement in S that takes place under the ILSA suffices to cause an increase in welfare in N. Assume that this international transfer is financed through lump-sum taxes. Then the financing of the transfer does not have a direct impact on commodities prices or factor prices in N.

We now show that S can implement a countervailing wage subsidy such that the post-wage-subsidy cost of employing labor in the presence of the ILSA is identical to that which prevailed in the absence of the ILSA. In particular, we assume that a subsidy of $s_L = g(l_*^S) - g(l_0^S)$ is given to employers for each unit of labor employed. The subsidy may be financed by the international transfer received from N and, if that does not suffice, by domestic lump-sum taxation.

Since preferences over consumption goods are common in N and S and homothetic, the international transfer of resources has no impact in itself on the worldwide demand for each commodity, which is purely affected by consumer prices, i.e. the world demand curve for each commodity is unchanged by the introduction of the ILSA. Moreover, the factor prices faced by employers and the production technology are both unchanged by the introduction of the ILSA. Therefore, the world supply curve for each commodity is unchanged. Since both the world supply curve for each commodity and the world demand curve for each commodity are unchanged, it follows that the commodities prices which gave rise to world market-clearing before the introduction of the ILSA continue to do so after the introduction of the ILSA. Since world commodities prices are unchanged and each country's production of each good is unchanged, each country's pre-international-transfer national income is unchanged. However, since S is the beneficiary of an international transfer, since its labor standards have increased, and since labor standards in N remain unchanged, welfare increases in S, i.e. $W^s(y_*^S, l_0^N, l_*^S) > W^s(y_0^S, l_0^N, l_0^S)$. QED.

In this model, we have demonstrated the possibility of pareto-improving labor standards agreements in which a central reason that the pareto-improvement arises is that the agents possess other-regarding preferences in which labor standards improvements abroad as well as at home are valued. It is possible to imagine other reasons that labor-standards agreements may bring about pareto-improvements (resulting, for example from the positive effects of labor standards improvements on productivity). These possibilities are not explored further here, as our purpose was a modest one: to demonstrate that there are assumptions (not greatly at variance with those used widely in standard international trade theory) that suffice for international labor standards agreements to advance the interests of both richer and poorer countries.

The concept of welfare we have adopted was deliberately simple-minded, as for purposes of exposition we wished to remain close to standard assumptions. In fact, the normative rationale for improvements in labor standards may go beyond its impact on "utility". We have assumed that there is a single community welfare function in each country but, given the assumptions concerning the availability of efficient tax and transfer instruments, this assumption can readily be relaxed to accommodate the case of individual welfare functions.

Our assumptions were stronger than necessary in that international transfers are not required for the pareto-improvement to arise. It is obvious that the result is not dependent on this assumption: if S were to unilaterally improve labor standards, while neutralizing the labor cost raising effects of the labor standards increase through the application of

countervailing wage subsidies (of the kind described in the course of the proof) this would cause the pattern of production and trade (and of aggregate income) in N and S to be unchanged while bringing about increases in welfare in both N and S. However, we have proved above a strong version of the theorem in order to demonstrate that even if international transfers should be required (for instance, to provide incentives to S to improve labor standards or because taxes are more distorting in S than in N) an international labor standards agreement may in principle bring about increases in welfare in N as well as S.

We have not directly addressed the question of whether particular kinds of incentives or disincentives (e.g. those connecting preferential access to foreign markets to efforts to promote labor standards) can play a useful role in providing incentives to improve labor standards. Such incentives and disincentives may in principle play a role in making adherence to such agreements more attractive than it would otherwise be. As voluntary international agreements must ultimately be self-enforcing such incentives may take on some importance. The possibility that international labor standards agreements can be pareto improving – demonstrated here - provides a necessary but not sufficient condition for such agreements to emerge on the basis of voluntary agreement.

The view that international agreements over labor standards are undesirable because they are bound to "hurt those that they are meant to help" is not straightforwardly supported by economic theory.

REFERENCES

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