

GLOBALISATION AND THE EU

STEPHEN KINSELLA

NOVEMBER 24, 2009

The Stiglitz-Greenwald Model

Assume two countries¹, developed D and less developed, L . These countries face the same production technologies, with only labour as the input for both produced goods, agriculture, A and industry, I . Call C_I^D (C_A^D) the cost of labour per unit of agricultural or industrial output in the developed country, and vice versa in the less developed country. Assume

$$C_I^D < C_I^L \quad \text{and} \quad C_A^D < C_A^L, \quad \text{but} \quad (1)$$

$$\frac{C_A^D}{C_I^D} < \frac{C_A^L}{C_I^L}. \quad (2)$$

In equilibrium, the less developed nation will specialise in agricultural output while the rich country will produce both goods. Prices will be determined by a trade off between the cost of producing the industrial and the agricultural good, so

$$P_I^D = \frac{C_I^D}{C_A^D} \quad (3)$$

and wages in both countries will be given by

$$W^D = \frac{1}{C_A^D} \quad (4)$$

and

$$W^L = \frac{1}{C_A^L} \quad (5)$$

Allowing free trade between these countries means that L will devote all their energies to specialising in agriculture. Consumption in L will therefore be determined by P_I^D . All gains to trade flow to L in this example. Clearly this model is relevant to the process of EU integration².

Now adding a measure of technological progress by differentiating with respect to time yields:

$$\frac{-1}{C_I} \times \frac{\partial C_I}{\partial t} = \frac{-1}{C_A} \times \frac{\partial C_A}{\partial t}. \quad (6)$$

¹ Bruce Greenwald and Joseph E. Stiglitz. Helping infant economies grow: Foundations of trade policies for developing countries. *American Economic Review*, 96(2):141–146, May 2006. URL <http://ideas.repec.org/a/aea/aecrev/v96y2006i2p141-146.html>

² Joseph Stiglitz. The process of european integration and the future of europe. ECE Discussion Papers Series 2004, UNECE, December 2004. URL http://ideas.repec.org/p/ece/dispap/2004_1.html

So:

$$-\frac{\partial}{\partial t} \left(\frac{C_I}{C_A} \right) = \frac{-C_I}{C_A} \left(\frac{1}{C_I} \times \frac{\partial C_I}{\partial t} - \frac{1}{C_A} \times \frac{\partial C_A}{\partial t} \right) \quad (7)$$

Equation 7 says that increases in technological progress will spillover from the industrial sector to the agricultural one. Now let

$$g = \frac{-1}{C_I} \times \frac{C_I}{\partial t} = \frac{-1}{C_A} \times \frac{\partial C_A}{\partial t} = f \left(\frac{Q_I}{Q_I + Q_A} \right). \quad (8)$$

Here Q_A is the measure of output in the agriculture, Q_I is output in the industry. When $Q_I^L = 0$, industry stagnates in the less developed country.

Trade Policy

Now ban industrial exports from D . What will happen? First, there will be hardship, but at some point L will have to start producing its own industrial output to survive, thus $P_I^L = \frac{C_I^L}{C_A^L}$. If we wait long enough, eventually the benefits of this improvement will outweigh the short run costs. The country will become self sufficient because at some point

$$g^L = f \left(\frac{Q_I^L}{Q_I^L + Q_A^L} \right) > 0. \quad (9)$$

What's the point of the paper? Trade barriers might enhance rather than reduce welfare. What, in your opinion, is the major weakness of an argument like this?

References

- [1] Bruce Greenwald and Joseph E. Stiglitz. Helping infant economies grow: Foundations of trade policies for developing countries. *American Economic Review*, 96(2):141–146, May 2006. URL <http://ideas.repec.org/a/aea/aecrev/v96y2006i2p141-146.html>.
- [2] Joseph Stiglitz. The process of european integration and the future of europe. ECE Discussion Papers Series 2004, UNECE, December 2004. URL http://ideas.repec.org/p/ece/disppap/2004_1.html.