Economics 113: Fall 2007: Problem Set 2

"Without firing a gun, without drawing a sword, should they make war on us we could bring the whole world to our feet. The South is perfectly competent to go on, one, two, or three years without planting a seed of cotton…. What would happen if no cotton was furnished for three years? I will not stop to depict what every one can imagine, but this is certain: England would topple headlong and carry the whole civilized world with her, save the South. No, you dare not make war on cotton. No power on earth dares to make war upon it. Cotton is king."

--James Henry Hammond, 1858

U.S. cotton production grew from 800 tons (3,100 bales) in 1790 to 950,000 tons (3.8 million bales) in 1860. In the 1850s American slave plantations typically sold cotton for roughly $250 a ton—this in an age where $150 a year, seven cents an hour, was a very good wage for a (white) worker.

1. There were roughly four million slaves in the United States in 1860. Assume that half the slaves were in the agricultural labor force. What was the value of cotton output per year per slave worker?

2. Slaves working in agriculture did a lot of things other than grow cotton, and a few slaves worked outside of agriculture. Assume that cotton production was 2/3 of total value added by slaves. What was the value added per year by an average slave?

3. Suppose that the present value of the future work that slaveholders could get out of a typical slave was equal to ten years' value added. Suppose hat the average price of a adult slave in the 1850s was about $1,000. Estimate the fraction of the average slave's work that was received as income by the average slaveowner.

4. Estimate the total annual surplus received as income by slaveowners from all American slaves.

5. Read the handout at http://www.j-bradford-delong.net/movable_type/2005-3_archives/000377.html setting out and going over the arguments on who gained the most from the fact that American cotton was grown by slaves.

6. Suppose that the parameter P_0 in the "Who Profited?" handout—the value of machine-made cotton textiles to the most eager buyers—was $1,000 per ton of raw cotton. Suppose also that the parameters w_A and w_B—the fully-accounted costs of growing and shipping cotton in America and of turning cotton into cloth in Britain—were each $250 per ton of raw cotton, respectively. We know that the quantity of cotton produced at the end of the 1850s was 950,000 tons per year. How much consumer surplus per year did buyers of cotton textiles receive per year?

7. Compare your answer to (6) to your answer to (4). What conclusions do you draw?