

## Can we rank slavery against free labor in terms of economic efficiency?

Lawrence H. White\*

What does economics have to say about the allocative efficiency or inefficiency of slavery relative to free labor? Less than some economists suppose, I argue here. The scope of the standard Pareto and Kaldor-Hicks allocative efficiency criteria is limited to rankings of alternative allocations of goods *given* an assumed set of initial endowments of goods (a distribution of wealth). To attempt to rank slavery (defined abstractly as an endowment set or allocation in which some men own others) against free labor (universal self-ownership) is to attempt to rank different initial endowments themselves, or to rank allocations independent of initial endowments. The former is impossible; the latter cannot be done except under limiting-case assumptions. *Within* either property rights system the market can reach (or fail to reach) allocative efficiency, but there is no general meta-framework for cross-system efficiency ranking.

Allocative efficiency is distinct from the sort of “efficiency” that economic historians in the 1970s famously debated in connection with antebellum American slavery. The controversy centered on the estimates by Robert W. Fogel and Stanley L. Engerman (1974, 1977) that slave plantations in the American south were 21 to 36 percent “more efficient” in producing output than free labor farms in the region.<sup>1</sup> Critics of Fogel and Engerman argued *inter alia* that such estimates rested on failure to

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\*F. A. Hayek Professor of Economic History, University of Missouri – St. Louis. Preliminary draft prepared for the April 2004 meetings of the Association for Private Enterprise Education. Comments welcome.

<sup>1</sup>Fogel and Engerman (1974 v. 2, p. 139, Table B.24) report indexes of total factor productivity for all slave farms of 120.8 in the Old South and 135.8 in the New South, where the index for free farms in each region is normalized to 100. Disaggregated by farm size, the range runs from 105.0 (smallest farms in Old South) to 156.3 (midsized farms in New South). Fogel and Engerman (1977, p. 279) later reproduced the table and discussed the sensitivity of the estimates to various corrections and adjustments. Fogel and Engerman (e.g. 1977, p. 275) clearly specified the type of “efficiency” they were talking about, namely “relative total factor productivity”. But in summary statements (e.g. 1974, p. 5) they spoke of slave agriculture being simply “more efficient” than free agriculture. One may regret that they did not consistently refer to “productivity” rather than “efficiency”.

measure inputs (intensity of labor effort, land quality) or outputs consistently across farms.<sup>2</sup> As Jeffrey Rogers Hummel (1996, p. 65) has noted, the debate focused on physical productivity and not on the question of economic welfare or allocative efficiency in the broadest sense. Even if Fogel and Engerman were right that a typical Southern plantation could produce more cotton with slaves than with an equal number of free farmhands, it does not follow that slavery outranks free labor in allocative efficiency.

Fogel and Engerman (1977, p. 294) themselves contended, using different terminology, that the allocative efficiency ranking goes the other way from their productivity ranking:

It should, of course, be emphasized that greater efficiency does not mean greater good. As we attempted to demonstrate in *Time on the Cross*, freedom has value and the loss of freedom by slaves was greater than the gain in measured output to free persons.<sup>3</sup>

Hummel similarly contends that free labor outranks slavery on allocative efficiency grounds, as does Thomas Sowell (2004). I argue that these claims amount to less than has been supposed – i.e. that they can only be affirmed under restrictive assumptions – because there is no economic measure of freedom’s value that is close enough to invariant across the two systems. My point is not that slavery was worse or better than these economists have thought, but that *the scope of efficiency rankings is more limited* than they have thought.

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<sup>2</sup>See David, Temin, et al. (1976), David and Temin (1977), and Wright (1977).

<sup>3</sup>Here they refer to Fogel and Engerman (1974, v. 1 pp. 244-245; v. 2 pp. 160-62). Their Table 3 sets a dollar estimate of the “non-pecuniary loss” to slaves due to the gang labor system (the estimate being based on how much had to be paid to hire gang laborers after abolition of slavery) against the estimated “pecuniary gains” to slaves and cotton consumers.

## Allocative efficiency

What does it mean to rank slavery “slavery” against “free labor” on allocative efficiency grounds? There are at least two criteria for comparison of allocative efficiency: the Pareto criterion and the Kaldor-Hicks criterion. A *Pareto efficient* allocation of goods obtains when *no mutually agreeable trade remains unmade*. A *Kaldor-Hicks efficient* allocation obtains when *no reallocation remains unmade in which the gainers could in principle fully compensate the losers*.<sup>4</sup> “Compensation” after a non-voluntary reallocation is a payment that an individual would have accepted *ex ante*; it returns him to a position he considers at least as good as his initial position.<sup>5</sup> The rankings offered by Fogel-Engerman, Hummel, and Sowell are based on the Kaldor-Hicks criterion. Where there is no divergence between the personal value (willingness of the owner to pay or be paid) and the market value (willingness of others to pay) for the reallocated property at issue, Kaldor-Hicks efficiency can be considered equivalent to maximization of total social wealth.

Another way of characterizing the distinction between Pareto and Kaldor-Hicks is as follows. A Pareto-inefficient allocation is one in which some bundles of property remain in the wrong hands from the perspective of the owners themselves. A Kaldor-Hicks-inefficient allocation is one in which some bundles of property remain in the wrong hands from the perspective of an aggregate wealth maximizer who is unconcerned about respecting the property claims of any particular owner.

There are also at least two ways to think about the objects of comparison. Under “slavery” some men own others. But this set of property titles may be thought of either as an *initial (pre-trade) endowment* of property titles, or as a *post-trade allocation*.

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<sup>4</sup>For a technical exposition and critique of the Kaldor-Hicks-Scitovsky approach from a Pareto-Robbins perspective see Chipman and Moore (1978).

<sup>5</sup>For the argument that judges cannot know willingness-to-pay under hypothetical circumstances, and thus cannot have all the information they would need to implement the Kaldor-Hicks criterion accurately, see Stringham (2001).

Correspondingly “free labor” may refer to universal self-ownership either as the *starting point* or as the *outcome* of trade.

The result is a two-by-two matrix of possible comparisons – but there is one more wrinkle to be added. The efficiency of a post-trade allocation of labor ownership must be evaluated relative to its pre-trade starting point (slavery or universal self-ownership), so there are two cases to consider for each post-trade allocation. The claim “Slavery is inefficient relative to free labor” thus has six distinct possible meanings (see figure 1). Let us consider them in turn.

### **Pareto ranking of initial assignments: impossible**

A Pareto ranking of initial assignments of ownership rights to humans is simply impossible. Pareto efficiency is a criterion that ranks alternative post-trade allocations given an initial starting point. It does not rank starting points. A choice between alternative initial assignments lies outside the realm where choice can be made on Pareto efficiency grounds. An attempt to evaluate which endowment of property rights in humans is Pareto-superior (A owns B vs. B owns B) violates the standard condition for making Pareto efficiency judgments, that the initial property assignment must be taken for granted. It is like asking whether it is Pareto-superior for Peter or Paul to be assigned the initial ownership of a plot of land or piece of ordinary chattel. “Who is initially to own the title to this resource?” is not a Pareto-efficiency question.

By denying initial self-ownership, slavery dehumanizes the slave. Under slavery, human slaves have the property status of horses. There are ample moral objections to be raised against such a system. Finding it *Pareto inefficient* is not one of them. That some men have no initial self-ownership rights, and are owned by other men as chattel, is no more a matter of *Pareto inefficiency* than that some men are better endowed than others with land or any resource.

## **Kaldor-Hicks ranking of initial assignments: also impossible in this case**

If a Pareto-ranking of initial assignments of ownership rights to humans is impossible, does not the same apply to a Kaldor-Hicks ranking? Not so immediately: there is a well-known argument for making a Kaldor-Hicks ranking of initial assignments under certain conditions.

Ronald Coase (1960) and his followers have argued that, in cases where transaction costs are high enough to block transfer of resources to the highest-valuing user, the Kaldor-Hicks-efficient (or social-wealth-maximizing) policy is to assign ownership to the *would-be* highest-bidder (the party who would end up the owner if transactions costs were negligible). In cases of property dispute the courts should honor the claim of the party whose potential use has the highest market value. Coase provided the now-famous example where a spark-throwing locomotive conflicts with growing trackside crops. If the farmer and the railroader cannot cheaply negotiate a side payment that compels the decision-maker (whether farmer or railroader) to weigh the cost of foregone crops against the cost of installing a spark arrestor, then a judge should award the right of trackside land use to the party who *would* purchase it (were the transactions costs zero). By similar logic, the default liability for a traffic accident (where the parties cannot meet in advance to negotiate) should fall on the “least-cost avoider” of the accident, because that is who would end up with it if *ex ante* transactions were costless (Demsetz 1972). Where land uses conflict in ways covered by nuisance law, ownership of land should be assigned not to the first user but to the highest-valuing user (Wittman 1980).

Can a similar logic be applied to argue that an initial assignment of self-ownership rather than slavery is a gain in Kaldor-Hicks efficiency, because the worker himself is that party to whom ownership is clearly more valuable? No. The Coasean

prescription rests on the assumption that the highest-valued use can be identified *independent of the initial rights assignment*. Such is not the case for the use of an individual's time when the initial rights assignment could either be slavery or self-ownership.

The leisure (opportunity cost) value of the last hour of a worker's time is not independent of the initial ownership assignment. *A fortiori* the value of owning his entire life is not independent of the initial assignment. The reason is not transactions costs but the non-negligible effect of the assignment on wealth, and of wealth on willingness to pay. *Ceteris paribus*, an individual's leisure as a slave has less market value than his leisure as a free man, because in the former case he has virtually no wealth to "bid for leisure" with (as a self-owner does by withholding labor unless his reservation price is met). An individual's effective *willingness to pay* (to gain marginal leisure or complete freedom from his owner) when he is initially a penniless slave is far below his willingness to be paid (to give up leisure or freedom) when he is initially a self-owner. The party that "would" pay more is not (as in cases of prohibitive transaction costs but no wealth effects) independent of the assignment of initial property titles. We therefore cannot identify the higher-valuing party independent of the initial assignment and thereby decide which assignment results in higher social wealth. The Coasean logic for wealth-maximizing rights assignment applies only to "small" cases where the assignment itself has a negligible effect on the market values of alternative uses for the resource being assigned.

### **Pareto ranking of post-trade allocation: it depends on the initial assignment**

A Paretian ranking of the *post-trade* allocation of human ownership is possible *given* an assumed initial assignment. The Paretian welfare economist wants to know whether all potential *gains from trade* have been captured. A "trade" is a voluntary

move from the initial distribution of property titles among individuals to a new distribution. Talk of “trades” and “potential trades” thus logically requires an initial or baseline distribution of property titles to the goods potentially traded or transferred. We can evaluate whether potential gains from trade are “out there” uncaptured only once we know what each individual currently has and what (given his current wealth) he is willing to pay for various combinations of titles to property.

The claim that “ending up with slavery is Pareto inefficient” must be separately evaluated for two different initial assignments: first from the starting point of universal self-ownership and secondly from the starting point of slave-ownership.

Beginning from universal self-ownership, the Paretian cannot condemn *all* enslavement. Having some individuals end up in bondage *might* be Pareto-superior *if* self-ownership is an alienable property right and those individuals voluntarily wish to sell themselves into slavery. Where self-owning men have had their self-ownership *stolen* from them, via kidnapping or capture in warfare, there is of course no way to judge their enslavement a Pareto-improvement. But the Paretian generally has nothing to say about transfers that make one man better off at the expense of another. Hummel is certainly right that efforts to forcibly enslave unwilling free men imply rent-seeking wastes – unproductive battles merely to transfer rights – just like other forms of theft. But this is a Kaldor-Hicks or wealth-maximization argument, to be discussed below.

Thus the strict Paretian cannot insist that *all* enslavement is inefficient, even starting from universal self-ownership, because some slavery might arise from voluntary self-sale, assuming that self-sale contracts are coherent.<sup>6</sup> On philosophical or jurisprudential grounds, some theorists have argued that self-sale contracts are incoherent, that self-ownership is an inalienable right. For an analyst who holds in this

manner that genuine self-sale is *impossible*, the question of whether self-sale is ever *efficient* becomes moot. It is pointless to evaluate the relative efficiency of a post-trade position that cannot conceivably be reached by trade.

Beginning from initial slave ownership, free labor does not clearly Pareto-dominate slavery as a final allocation. In a large slave-owning society (where millions of men and women are initially owned by others), it is exceedingly unlikely that manumission of every slave could be purchased from the initial slave-owners at mutually agreeable prices.<sup>7</sup> Even if we assume an ideally competitive and well-informed capital market, allowing slaves to borrow against their estimated future earnings, not *every* slave could afford to purchase himself at his market price.

The argument about self-purchase must be somewhat theoretical rather than simply an inference from the fact that universal self-purchase did not historically occur in the United States. Self-purchase was importantly restricted by anti-manumission laws in Southern states.<sup>8</sup> (Those laws can be considered barriers to Pareto efficiency.) My hypothesis is that *universal* self-purchase would not have occurred, eliminating slavery in Paretian fashion, even had it been fully allowed in antebellum America. Other historical experiences support the hypothesis. Under Roman slavery, particularly before Augustus, self-purchase was less restricted and more common than in the antebellum United States.<sup>9</sup> But it was still far from universal: self-purchase and other forms of

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<sup>6</sup>The view that no sane individual would ever sell himself into slavery begs the question of how we are to explain the historical cases, such as medieval Russia, where self-sales were apparently numerous (Patterson 1982, pp. 130-31).

<sup>7</sup>Northern states did abolish slavery peaceably through a democratic process. Slave-owners did not lose much wealth because the abolition legislation allowed them time to sell their slaves into remaining slave states. Even so we are entitled to doubt that slave-owners unanimously agreed to the abolition. And clearly the low cost to slaveowners would not apply to the last jurisdiction to abolish slavery.

<sup>8</sup>For example, the Louisiana Code Noir of 1685 (Engerman, Drescher, and Paquette 2001, p. 118) forbade slaveowners to set conditions for self-purchase “without having obtained consent of our Superior Council”, raising a barrier to mutually beneficial trade between slave-owner and slave.

<sup>9</sup>For a review of the fragmentary evidence on the extent of Roman manumission, see Gutin (2001). Self-purchase and other forms of manumission appear to have been far more common for urban than for agricultural Roman slaves.

manumission did not come close to eliminating slavery in Rome. Slaves comprised an estimated one-third of the Italian population at the time of Augustus (Madden 1996).

Self-purchase is feasible for a worker who has (or would have) valuable skills under freedom that go unused under slavery because the occupations that use those skills would make it easy for the slave to escape. Call these “freedom-specific skills”. For example, the probability of escape may be too high (the cost of preventing escape too great) to make it profitable for an owner to use a slave as a riverboat pilot. The slave-owner’s concern to avoid runaways helps to explain why most antebellum slaves worked on agricultural plantations where travel was not part of the job. A worker with freedom-specific skills can earn more as a free man than as a slave, and therefore his self-purchase is a mutually beneficial trade.

Sowell (2004, p. 65) considers such a case typical, but not all slaves would have fit this profile. Individuals born into slavery (the majority of slaves in the United States) were less likely to fit it, because a rational slave-owner had little or no incentive to provide a young slave with the time or training necessary to acquire such skills. (Individuals who unexpectedly became slaves later in life, such as the prisoners of Roman conquest, by contrast, might already have acquired freedom-specific skills for their own benefit.) Restrictions on manumission reduce the slave-owner’s potential payoff to allowing a slave to acquire freedom-specific skills, but there is no reason to presume that with unrestricted manumission the payoff would exceed the slave-owner’s cost for *all* slaves. In the antebellum South, it is doubtful that slave-owners would have allocated *all* slave labor to non-agricultural tasks even if the owners could have costlessly secured a zero chance of escape for every task. Therefore, accepting the Fogel-Engerman finding that output per farmworker was higher for slaves than for freemen (for reasons discussed below), self-purchase was not a plausible means to free *every* Southern slave.

Pushing the analysis one stage higher, Sowell argues that the very lack of investment in slaves' human capital is itself an example of uncaptured potential gains. The hypothetical trade to capture these gains is a newborn slave paying for self-purchase *and* for training out of the large stream of potential future earnings available by acquiring training early in life. No doubt such trades, financed by a *highly* idealized capital market, would enlarge the number of self-purchases. But such trades would *eliminate* slavery only if for *every* worker the present value of lifetime earnings, net of training costs, would exceed his productivity under slave agriculture. Many ex-slaves chose to remain in agriculture after emancipation, where their productivity was less (but leisure greater) than under the gang labor system previously imposed on slaves. Not all sought the training for non-agricultural jobs. Training for higher-paying non-agricultural jobs is an implausible path to *universal* self-purchase by antebellum slaves.

A plantation slave's marginal value productivity could easily exceed what he would earn as a free laborer because his owner could compel him to work more intensively than a free man would choose to work. If Fogel and Engerman's productivity estimates are correct, slaves on average produced more salable output than free farmworkers. In that case a slave who planned to remain in farming as a freeman could not self-purchase at a mutually beneficial price.

To be clear, my argument here is not a defense of slavery, or of the proposition that slaves *should* have to self-purchase, or of the view that it would be *wrong* to free slaves without compensating slave-owners. (From a moral standpoint I share the abolitionist view that slave-ownership is man-stealing. It was the slaves and not the slave-owners who deserved compensation.) It is only to point out that the Pareto criterion does not allow us to rule "clearly inefficient" an outcome with non-zero slavery, starting from initial slave-ownership. To do so we would have to show that side-

payments could have been arranged such that universal emancipation would have been in the interest even of the initial slave-owners.

**Kaldor-Hicks ranking of post-trade allocation: also depends on the initial assignment**

The claim that “ending up with slavery is Kaldor-Hicks inefficient” must likewise be separately evaluated for two different initial assignments: first from the starting point of universal self-ownership and secondly from the starting point of slave-ownership. As argued above (against the view that slavery can be deemed a KH-inefficient starting point because from either starting point zero slavery will be the highest-valued post-trade allocation), we will find that whether slavery is the highest-valued post-trade allocation depends critically on whether the starting point is self-ownership or slavery.

Any productivity advantage of the slave plantation was associated with its depriving enslaved blacks of potentially valuable liberty. Hummel (like Fogel and Engerman) maintains that in the transfer of property titles in black lives from self-owners to slave-owners, the enslaved lost more than the enslavers gained, as measured by potential willingness to pay. Thus slavery was Kaldor-Hicks inefficient.

Hummel offers three main reasons for judging slavery Kaldor-Hicks inefficient: (1) Slavery should be seen as a kind of theft or rent-seeking. It created the usual wastes – dissipation of resources in unproductive battles for ownership transfers – associated with theft or rent-seeking. (2) Southern slave-ownership was subsidized in the sense that taxpayers picked up much of the tab for the security expenses associated with keeping humans in bondage. Such subsidies created the usual deadweight losses. (3) Slaves worked longer or harder hours (consumed less leisure) than would have been efficient.

Hummel's argument that slavery is like theft clearly assumes that all individuals are initially self-owners. *Given* zero slavery as the starting point, i.e. *if* each and every individual is taken to be an initial self-owner, then it follows that it is Kaldor-Hicks inefficient for any party to expend resources to grab and maintain ownership of another (rent-seeking is wasteful) unless, implausibly, both (a) the apparent victim would voluntarily have chosen enslavement, and (b) the transactions costs of voluntary transfer into slavery are higher than those of grabbing. That slave-owners had to expend resources to prevent runaways underlines the obvious fact that many slaves, perhaps all, did not choose and would not have chosen to be enslaved.

From the alternative starting point, taking a slave system's (unjust) initial allocation of property titles as given, slave-ownership is not theft. Rather, the runaway slave would be the thief. Hummel cites as waste *caused by slavery* the expenditures of plantation-owners on preventing escape and coercing work effort. On a slave-owning system's *own* terms, these are wastes only by the "nirvana" standard of a world in which property titles are costlessly enforced. The resource expenditure caused by the conflict between slave-owners and would-be self-owners would be eliminated if slaves stopped trying to run away just as much as it would be eliminated if slave-owners stopped trying to enforce their legal titles. From the perspective of a legal code that treats the would-be runaways as chattel, the owners' security measures against runaways are no more wasteful with respect to human slaves than with respect to horses.

The argument from subsidy waste warrants the conclusion that the number of slaves in the antebellum South was inefficiently high, not the conclusion that slavery *per se* was inefficient. Eliminating the subsidy would have eliminated the marginal (least remunerative) uses of slaves. It is doubtful that it would have eliminated the profitability of all Southern slavery.

Critics of Fogel and Engerman offered evidence that plantation slaves worked more hours per week, and worked more intensively under the gang-labor system, than free farmworkers. After emancipation, freedmen could not be enticed back into gang labor at any wage rate that plantation-owners could profitably pay. Hummel (1996, p. 46) concludes from this evidence that slaves worked longer or harder hours (consumed less leisure) than would have been efficient. That is, the last hour of the workday went to a use (cotton cultivation) other than its highest-valued use (leisure). Inefficiency resulted because the value of leisure time to the slave did not figure in the slave-owners decision. Again Hummel is assuming initial self-ownership. His argument assumes that the value of leisure time for an enslaved worker is equivalent to that for a free laborer. *Absent* self-ownership, leisure time for a slave is lower in market value than leisure for a free laborer, because the slave has far less wherewithal to “bid” for leisure (is not entitled to withhold the last hour of labor). *Within* the property system of slavery, longer hours for slaves are consistent with efficient allocation of labor: slave time went to its highest-valued use, given that slaves themselves were not effective bidders.

The same point applies to Hummel’s contention (1996, p. 47) that slaves were punished more than was efficient. Deprived of self-ownership, the slave was not legally entitled to freedom from the lash and could not bid for it as effectively as a free laborer. Pain to destitute slaves does not register in a calculus strictly based on willingness to pay, taking slave-ownership as given.

As noted above, a system in which the worker has to “buy his way out” of longer hours or punishment results in a different allocation of labor than a free wage system. Each result can be judged “efficient” *given* its starting point (slavery or self-ownership).

**Figure 1: Six possible meanings to the claim that slavery is allocatively inefficient relative to free labor.**

		Object of comparison:	
		pre-trade assignment	post-trade allocation
Criterion:	Pareto	Self-ownership is the Pareto-superior initial assignment of rights.	<ul style="list-style-type: none"> <li>a) Starting from self-ownership, enslavement is never a Pareto-improvement.</li> <li>b) Starting from slavery, universal manumission is a Pareto-improvement.</li> </ul>
	Kaldor-Hicks	Self-ownership is the KH-superior assignment of rights.	<ul style="list-style-type: none"> <li>a) Starting from self-ownership, any enslavement is net-welfare-reducing.</li> <li>b) Starting from slavery, universal manumission is wealth-increasing.</li> </ul>

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