Slavery, Causation, and Contribution

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There is a long-standing debate about whether slavery made America rich. In its most recent iteration, it is a debate between history departments and economics departments—between narrative historians and *cliometricians*, or economic historians who use the methods of econometrics. Over the last decade, in a body of work referred to as the "New History of Capitalism," the narrative historians have argued that slavery made an important contribution to America's economic growth.[1] In several recent reviews of this body of work, the cliometricians claim to have already shown, in the decades preceding the New History's emergence, that slavery if anything slowed growth, that it was an economic albatross as well as a moral catastrophe.[2]

In this paper I have two goals. The first is to show that the narrative historians (from now on just "historians") and cliometricians are partly talking past one another. I suggest that the historians are talking about *causation*: they claim that enslaved people were a partial cause of America's prosperity. The cliometricians take themselves to be talking about causation, too, but they are really talking about *counterfactual dependence*: they claim that America would have been just as rich, if not richer, had it abolished slavery upon its founding. These two claims are compatible. This is because, per the orthodoxy within philosophy, counterfactual dependence is not necessary for causation: a cause will make no difference to what it (nonetheless) causes when it *preempts* a would-be replacement. And this is what is going on in the case of American slavery: even if "free labor" would have produced cotton in slavery's absence, these would-be replacements were preempted; in fact cotton was produced by enslaved people. Thus we have causation without

[1] Beckert 2014; Baptist 2014; Schermerhorn 2015; and Beckert and Rockman 2016.

[2] Engerman 2017; Hilt 2017; Olmstead and Rhode 2018; and Wright 2020, 2022.

counterfactual dependence; thus we have one sense in which slavery "contributed" to America's economic growth and one sense in which, perhaps, it did not.

My second goal is to extract from this proposed resolution of the debate a more general lesson for contemporary political philosophy. The lesson is that the familiar principle of *reward according to productive contribution* can have dramatically more egalitarian implications than is usually assumed. This is true, I argue, when we understand productive contribution in causal terms, rather than in simple counterfactual ones.

I will move back and forth between these two goals. In Section 1, I make a simple observation about the contribution made by low-wage workers, taken together—an observation that seems to have a radically egalitarian implication. In Section 2, I temporarily set this observation to one side, turning to the debate about the contribution that slavery made to the American economy. I argue that the debate partly dissolves in the light cast by the distinction between causation and counterfactual dependence. (I make this same argument a little more precisely, using a structural equations model, in the Appendix.) In Section 3, I bring the two discussions together: I explain that this distinction, and in particular the irrelevance of replaceability to causation, underlies the simple observation from the first section. In Section 4, I complicate the simple observation in the face of an objection but argue that its egalitarian import survives the complications.

It might be helpful to provide some background for the argument that follows. In the real world, when low-wage workers object to their low wages, they often do so by appealing to something like the principle of reward according to contribution. That is, they assert that they contribute more than their pay reflects. A similar idea is invoked in many arguments for reparations for the descendants of enslaved people. Despite this, and despite the principle's left-wing (Marxist and trade unionist) credentials, it has almost no place in contemporary egalitarian political philosophy. This is presumably for the straightforward reason that egalitarians believe that the principle has inegalitarian implications—certainly if it presupposes the thesis of *self-ownership*, but even if it does not.[3] It is this belief that I want to challenge.

[3]Cohen (1995: ch. 6) argues that the Marxist conception of exploitation presupposes that workers own their labor power. In my view, the thesis of self-ownership is neither necessary nor sufficient for the principle of reward according to contribution. Not sufficient because to say that a worker is entitled to the pay promised them in a labor contract—entitled to the income that they can get from the labor that they are entitled to transfer—is

Thus I do not in this paper give any sustained argument for the principle of reward according to contribution; I mostly let it rest on its common sense bona fides. I argue only that the principle might have much less inegalitarian implications than it seems to. In this way I am trying to return egalitarian political philosophy to what was, I think regrettably, a road not taken.

1 A Simple Observation

Imagine that all the workers in the bottom half of the global income distribution—"low-wage workers"—stopped working. What would happen? Here is a plausible sounding answer: the global economy would grind to a halt; output would fall to zero, or near enough.

According to the most popular conception of *productive contribution*, a worker's contribution is the difference they make to the value of output, something in the neighborhood of what economists call their *marginal revenue product*.[4] Given this conception of contribution, the above answer implies that the contribution of low-wage workers taken together is roughly equal to all of global output.

But the same is presumably true of the other half of the global income distribution, the high-wage workers. Without them, output would likewise

not to say that this income is deserved on the basis of what they contribute. Self-ownership blesses a contract that pays a worker to sit around doing nothing; the principle of reward according to contribution does not. Nor is even a weak version of the thesis necessary: one can deny that workers have *rights* to transfer and to income while accepting the principle. If this combination seems bizarre, consider someone who: accepts the principle; and, because they accept the principle, thinks that a worker's monopoly rents should be taxed away; and, because they reject self-ownership, thinks there is no even pro tanto liberty-based reason not to do so. (The foregoing is distinct from the caveat that Cohen registers at *ibid*, n. 5 and Cohen 1979: n. 21.)

[4]The desert-based case for reward according to marginal product goes back to Clark 1899. For important contemporary defenses, see Miller 1999, ch. 6 and Mulligan 2018. For an overview, see Behrle forthcoming: secs. 1.3–1.4. Throughout the paper, even when I step away from marginal revenue product, I will always work with *output-based* conceptions of contribution—conceptions that can be thought of as trying to capture what we mean when we refer to the "fruits" of a worker's labor. This is both because these are the conceptions of contribution that seem to me distributively relevant and because they are the ones that pose an inegalitarian threat. It is trivial to show that reward according to an *input-based* conception of contribution—like effort—can generate relatively egalitarian verdicts. That is not my goal here.

fall to zero, or near enough. In this sense the two halves of the global economy contribute equally. This is what I will call, in what follows, "the simple observation": the observation that both halves of the global economy make a difference roughly equal to all of output, and in that sense contribute equally.

At this point philosophers may be wondering what interpretation of these counterfactuals is required to vindicate them. And economists may be wondering whether these are claims about the short term or the long term. Both groups may be wondering why we are drawing our line down the middle of the income distribution, as opposed to somewhere else. I will explain, later on, how I think the simple observation needs to be interpreted, and why the arbitrariness of its dividing line is not a problem. I will also explain the sense in which the simple observation is a ladder that we will, after climbing, kick away.

For now, note that we reach the same result as above even in an idealized version of the actual global economy, a perfect free market for labor in which each worker is paid according to their marginal revenue product, per the neoclassical theory of wages. In such an economy, the same claims hold: the economy would grind to a halt without either of its halves.

This second instance of the egalitarian result is in one way puzzling. If each worker is paid according to their marginal revenue product, then low-wage workers must by definition contribute—in just that sense—less than high-wage workers. How is it possible, then, that the low-wage workers as a group contribute just as much as the high-wage workers as a group? It is because in complex economies groups of workers often together contribute dramatically more than the sum of what they contribute as individuals.

But this response to the puzzle raises its own question. If collective and individual contributions come apart in this way—if the former often exceed the sum of the latter—with reference to which notion should we understand the principle of reward according to contribution? Do low-wage workers deserve reward on the basis of what they together contribute, or do they each deserve reward on the basis of what they individually contribute?

In Behrle forthcoming, I argue that reward according to individual contribution is implausible precisely because of this gap between individual contributions and collective ones. Briefly: the principle grants workers more credit for their individual contributions than they can plausibly claim, because it is blind to the dependence of these contributions on what other workers *only together* do, that is, on the latter's collective contributions. Put differently, reward according to individual contribution registers collective contributions,

but in the wrong way: it smuggles the achievements of large groups of (often low-wage) workers into the individual contributions of others—namely, those contributions that the groups' achievements make possible. Here is an illustration. If the individual contribution of some white-collar professional depends on, say, a single highway maintenance worker, then that dependence will typically show up in the latter's contribution: enabling the white-collar worker to make a big difference to output itself makes a big difference to output. But if that white-collar worker depends on what highway maintenance workers only together do, then that dependence will not show up in the latters' individual contributions. Given a scheme of reward according to individual contribution, their achievement enriches not them but those who depend on them.

The present paper is a sequel to this previous one. Thus I will assume that reward according to individual contribution has already been taken off the table. My aim here is to explore the distributive implications of the resulting shift from the level of the individual to the level of the collective.

2 Slavery and Causation

I now turn to the debate about the contribution that slavery made to the American economy. I am going to extract from this debate a lesson about the relationship between *replaceability* and causation, and thus causal productive contributions, and I will, in the next section, show that this lesson underlies the simple observation. To anticipate: a worker's causal contribution is given by the difference they make *barring their replacement*; and it is only with this condition that the low- and high-wage workers contribute equally.

2.1 Introducing the Debate

In 2011, there was a conference convened by Brown and Harvard that in some sense inaugurated the New History of Capitalism. The first sentence of Sven Beckert and Seth Rockman's introduction to the conference volume, *Slavery's Capitalism*, reads as follows: "During the eighty years between the American Revolution and the Civil War, slavery was *indispensable to the economic development of the United States*" (Beckert and Rockman 2016: 1, emphasis mine). Claims like this are central to the New History. They appear in many of its constituent texts. Here is Edward Baptist, for example, in his well-

publicized contribution to the New History, *The Half Has Never Been Told*: "... the commodification and suffering and forced labor of African Americans is what made the United States powerful and rich" (Baptist 2014: xxi). It is claims like these that the cliometricians take themselves to deny. That is our debate.

This debate is morally charged in a way that might seem surprising. It might seem surprising because it is not clear what normative issues turn on the question of slavery's economic consequences. The New Historians seem to have two issues in mind. The first is about capitalism: if slavery was important for capitalism's development, at least in the United States, then that might tell us something normatively important about capitalism, at least in the United States.[5] The second is about enslaved people themselves: if their labor made America rich, this would seem to count in favor of the claim that their descendants are owed reparations.[6] I set the first of these two ideas aside. But, as we will see, the way in which I think we should interpret away the debate between the New Historians and the cliometricians is one that leaves space for the second.

The New Historians identify several mechanisms by which slavery made the United States rich. Beckert and Rockman mention four in their summary:

> [1] Slave-grown cotton was the most valuable export of the United States and [2] one of the few American-made goods that attracted specie into the nation's financial system. [3] Cotton also offered a reason for entrepreneurs and inventors to build manufactories in such place as Lowell, Pawtucket, and Paterson, thereby connecting New England's Industrial Revolution to the advancing plantation frontier of the Deep South. [4] And financing cotton

[5]Thus the title of Matthew Desmond's (2019) New-History-inspired contribution to the *New York Times'* "1619 Project": "If you want to understand the brutality of American capitalism, you have to start on the plantation."

[6]Baptist (2014: xix): "If slavery was outside of US history...—if indeed it was a drag and not a rocket booster to American economic growth—then slavery was not implicated in US growth, success, power, and wealth. Therefore none of the of the massive quantities of wealth and treasure piled by that economic growth is owed to African Americans." To anticipate what I say in Section 3: I do not think that this inference survives reflection. It seems to imply that, if a lazy but talented capitalist hires a worker to produce something of value, and if in that worker's absence the capitalist would have produced it more efficiently, then the worker is owed no share of the value of what they produce. (Thanks to Daniel Viehoff for this example.) That is a bizarre view.

> growing, as well as marketing and transporting the crop, was a source of great wealth for the nation's merchants and bankers. (Beckert and Rockman 2016: 26)

For simplicity, I am going to focus on versions of the first and third claims, though what I say will apply to the others, not least because they are causally downstream of the first. In particular, I focus on these simple versions of the first and third claims:

COTTON Slavery was important for the production of cotton, which was very valuable.

INDUSTRY Slave-grown cotton was important for the production of cotton textiles in New England, which contributed to America's industrialization.

Let me say more about what I do not discuss. I confine myself to the United States. So I not discuss the claim, most associated with then-future Trinidadian leader Eric Williams' 1944 *Capitalism and Slavery*, that slavery was essential to the Industrial Revolution in England, to which contemporary cliometricians are somewhat more receptive.[7] Nor do I discuss the possible dependence of America's economic development on slavery in places outside of the United States (e.g., via New England's trade with the slave-based West Indian "sugar islands"[8]). In addition, the debate that I focus on—about whether enslaved labor made America rich—is distinct from the debate about whether slave-based cotton production was "efficient," the modern iteration of which was initiated by Robert Fogel and Stanley Engerman's controversial 1974 book *Time on the Cross*.[9] It is neither necessary nor sufficient for the

[7]There is a large literature about this, the first half of the "Williams thesis." For important examples, see Darity 1982; Solow and Engerman 1987; Findlay 1990; Findlay and O'Rourke 2007, ch. 6; Inikori 2002; Acemoglu et al. 2005; Blackburn 2011, ch. 4; and Hudson 2014. For a summary discussion that helpfully contrasts cliometricians' attitudes toward the Williams thesis with their attitudes toward the New Historians' analogous claim about American economic development, see Wright 2020.

[8]Bailey 1986; Bailey 1990. If the first half of the Williams thesis is true, then American economic development also depended on slave labor in the West Indies to whatever extent it depended on the Industrial Revolution in England, as Wright (2006: 123) notes.

[9]There is also a large literature about this debate. To get a sense of why many of Fogel and Engerman's claims were rejected, see David 1976. For recent evidence, see Bleakley

claim that enslaved labor made America rich that slave-based cotton product was "efficient" in any of the senses at play in that debate.[10]

Back to the debate about slavery's economic consequences. The cliometricians seem to deny COTTON and INDUSTRY. Here is a summary statement from Gavin Wright:

> Did slavery play a primary and indispensable role in the rise of the US economy to world preeminence? This proposition has deep historical roots: Pro-slavery apologists argued that "slavery was the nursing mother of the prosperity of the North" (as quoted in Desmond 2019, an argument elaborated to great southern applause in Thomas Kettel's *Southern Wealth and Northern Profits* 1860). Karl Marx wrote in 1846 that "without slavery there would be no cotton, without cotton there would be no modern industry"... More recently, claims about the centrality of slavery to nineteenth-century US economic growth have featured in the national conversation on race, perhaps most notably in an intellectual insurgency known as the New History of Capitalism, some of which has filtered into the popular press through channels like the Pulitzer Prize-winning "1619 Project" published by the New York Times (2019). Yet this proposition has been rejected by virtually every economic historian [cliometrician] who has examined the issue. (Wright 2022: 123-4)

Why do the cliometricians deny that slavery was indispensable for the prouction of cotton? Because they believe that, in the absence of slavery, cotton would have been produced in the South by non-enslaved workers—"free labor"—*just like it was after the Civil War.*[11] Indeed Wright (2020: 370)

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and Rhode 2024a and 2024b.

[10]Suppose that (a) slave-based cotton production was less efficient than free-labor-based cotton production would have been, in the sense of raw material output per labor hour (or, really, in any other sense), but that (b) for whatever reason free labor could not have been induced to produce cotton in the United States before 1861. The latter might be enough for slavery to have been indispensable for America becoming rich despite the former. See generally Wright's distinction between slavery as a production process and as a system of property rights: Wright 2006: 20–7.

[11]See also Majewski 2019 and Olmstead and Rhode 2018: 6. Commenting on Beckert's acknowledgment that American cotton production rebounded after the Civil War, Wright writes, "He does not seem to notice that [this acknowledgment] undermine[s] the previous

argues that a counterfactual free-labor-based South would have produced *more* cotton, in part because the supply of enslaved labor was relatively inelastic after the closing of the Atlantic slave trade in 1807.[12]

Why do the cliometricians deny that slave-grown cotton was indispensable for cotton textile production? One reason follows from the previous: if enslaved labor was not necessary for domestic cotton production, then presumably it was not necesary for the cotton textiles that used domestic cotton. But Wright (2020: 375) suggests, in addition, that in the absence of domestic cotton New England's mills simply would have sourced it from elsewhere.[13]

The cliometricians also argue that slavery was in other ways actively bad

300 pages of his book" (Wright 2020: 372). At first glance this is a dramatic overstatement. The rebounding of cotton production after the Civil War is, by itself, not enough to show that production earlier in the century did not counterfactually depend on slavery, which is what Wright takes Beckert to be claiming in "the previous 300 pages of his book." Cotton was produced after the Civil War in part *by former slaves*. So it is open to Beckert to claim that the size of the free labor force produced in part by the emancipation of an enslaved labor force is not an indication of the size of the free labor force that could been assembled earlier via, say, immigration. Indeed this is one of the main ideas in Beckert's book—the idea that, before certain infrastructural, technological, and legal changes, slavery was the only mechanism for "the mobilization of very large numbers of workers on very short notice" (91; see also Findlay and O'Rourke 2007: 342 and Findlay 1990: 14). I find this idea somewhat difficult to evaluate, because we never get a canonical list of the relevant changes. But, in any case, we have to read Wright's criticism of Beckert in light of Wright's other work, and his other work suggests that he is skeptical of this claim; see his discussion of the North's superiority in attracting immigrants in Wright 1978: ch. 4 and Wright 2006: 32–4, 57–8 (and see the next sentence in the main text). For population data see Bleakley and Rhode 2024b: Figure 1.

[12]There are other reasons given. For example, slave-based Southern farms plausibly underspecialized in cotton, growing food alongisde cotton rather than purchasing it. This was because they were trying to expropriate the maximum value from enslaved laborers, who would have had had periods without agricultural work on a cotton-only farm. In the jargon, slavery made agriculture more of a *fixed-cost* enterprise. Wright 2020: 370; Gallman 1970; Anderson and Gallman 1977; Lindstrom 1970; cf. North 1961: 67–8; 101–2; 128–9; and 140–1.

[13]"As a bulky but lightweight commodity, raw cotton travels easily, and transportation costs play little if any role in textiles geography." Wright does not cite further evidence, nor do the other cliometric critics discuss the point, and one might worry that the counterfactual claim in the text is a little quick, at least when applied to period after the cotton tarriff was lowered in 1846. In that period, American prices for American and British cotton textiles were very similar (Harley 1992, table 1). It does not seem out of the question that international shipping costs, even if low, could have made American textiles more expensive than British. But I set this aside.

for the American economy, either because the economic inequality it generated led the South to develop various bad institutions[14] and/or because it reduced investment in physical capital—e.g., roads, schools, banks, factories, and so on.[15]

So, to restate, the cliometricians argue that slavery was not indispensable for cotton production and that in any case domestic cotton production was not indispensable for the production of cotton textiles. In this sense they seem to deny COTTON and INDUSTRY. And they argue that slavery otherwise held economic development back. From all of this the cliometricians conclude that, had the United States abolished slavery earlier, it would have become just as rich, if not richer.

I want to argue that the cliometricians and the New Historians are, despite appearances, to some extent talking past another. I do not deny the three cliometric claims just mentioned, nor the concluding inference, which I am in any case not qualified to do. I claim instead that these three claims are compatible with the following interpretation of COTTON and INDUSTRY: enslaved people were *causally responsible* for cotton production, and for cotton textile production. And so they were partly causally responsible for America's prosperity.

2.2 An Orthodoxy

This compatibility follows from an orthodoxy within philosophy, one with almost no dissenters:[16] counterfactual dependence is not necessary for causation; effects need not counterfactually depend on their causes.

This is the lesson of cases of *redundant* causation. Consider the following stock example.[17] Suzy and Billy are throwing rocks at a glass bottle. Eventually Suzy hits it; the bottle shatters. As it happens, though, had she not thrown her rock, Billy would have hit the bottle with his. Here we have causation without apparent counterfactual dependence of effect on cause: Suzy's throw caused the bottle to shatter, but Suzy does not seem to make a dif-

[14]This is the "Engerman-Sokoloff Hypothesis." See Engerman and Sokoloff 1997. Cf. Nunn 2008; Acemoglu et al. 2008.

[15]Ransom and Sutch 1988, esp. 139–40; Wright 2006: 61. For closely related points, see the second thesis of Wright 1978: ch. 4.

[16]But see Northcott 2021.

[17]Lewis 2000: 184. According to Hitchcock (2013: 131, n. 4), the example originated with a draft of Hall 2004 before it appeared in Lewis's paper.

ference to the bottle shattering; had she not thrown the rock, it still would have shattered.

The literature has dubbed the particular kind of redundant causation on display in this case *preemption*, because Suzy preempts Billy, her would-be replacement.[18] To emphasize: Suzy is, in the relevant respect, *replaceable*. But this does not undermine the intuitive judgment that she caused the bottle to shatter. I will return to this point.

Note that, in cases of preemption, we can still find a kind of counterfactual dependence: the shattering depends on Suzy *holding Billy's inaction fixed*. Most counterfactual theories of causation accommodate cases of preemption by making use of something like this fact.[19] As Weslake (forthcoming) puts it, the dependence of effect on redundant cause is thereby *unmasked*. This is the approach that I adopt below.

2.3 The Debate in Light of the Orthodoxy

The New Historians will sometimes present their claims like this:

> ... *in actual historical fact* there was no nineteenth-century capitalism without slavery. (Johnson 2013: 254, emphasis mine)

> ... the North's forms of entrepreneurship, innovation, and market competition [invite] the counterfactual claim that the American economic takeoff could have happened without slavery. *Perhaps it might have, but the fact remains that it didn't.* (Beckert and Rockman 2016: 3, emphasis mine)

Eric Hilt, a cliometrician, criticizes this focus on actuality:

> Many historians apparently have a strong distaste for counterfactual histories (see, e.g., Evans 2013 and Tucker 1999). Yet the reason economic historians think about counterfactuals is not due to an interest in specifying alternative histories. Rather, it is because all statements about causal relationships contain counterfactuals. To say that the gold standard caused the Great Depression is to

[18] It is *early*, as opposed to *late*, preemption. But this distinction does not matter here.

[19] E.g., Yablo 2002, 2004; Hitchcock 2001; Woodward 2003; Halpern and Pearl 2005; Weslake forthcoming. Cf. Lewis 1973a: 567; Gallow 2021: 68–70; and Lewis 1987: 203–7.

> say that absent the gold standard, the Great Depression would not have happened; these two statements are equivalent. (Hilt 2017: 529)

But, per the orthodoxy, Hilt's final claim is false. Counterfactual dependence is not necessary for causation, and so not necessary and sufficient, and so counterfactual dependence claims are not equivalent to causal claims, materially or otherwise. Thus the mooted truth of the cliometricians' counterfactual claims—that slavery was not indispensable for the production of cotton or cotton textiles—does not establish that enslaved people did not *cause* America to become rich, even though, as Hilt implies, it is with an eye to causal claims that the cliometricians advance their counterfactual ones.

To make this vivid, consider these two pairs of claims. The first pair:

(a) In the first half of the nineteenth century, almost all of the cotton in the United States was produced by enslaved people—people who were only in the United States because of the institution of slavery.[20]

(b) Had the United States never allowed chattel slavery, or had it abolished slavery earlier, (at least as much) cotton still would have been produced.

The second pair:

(c) The production of cotton textiles in New England, which helped industrialize the north, used slave-grown cotton.

(d) If these mills hadn't used slave-grown cotton, they would have gotten cotton from elsewhere.

(a) is one disambiguation—a causal disambiguation—of COTTON. And it is consistent with (b): (b) is the denial of a distinct, counterfactual disambiguation of COTTON. Likewise, (c) is a causal disambiguation of INDUSTRY, and it is consistent with (d), which is the denial of a distinct, counterfactual disambiguation of INDUSTRY. This consistency is the hallmark of cases of preemption.

[20]Why the last phrase? Because the fact that enslaved labor was causally important is not on its own enough to show that slavery was causally important. Consider: even if all of the wheat in the United States was produced by (say) fans of vaudeville music, this would not show that vaudeville music was causally important to wheat production. (Thanks to Cian Dorr for this example.) From now on, I leave this addendum implicit.

(a) and (c) are together sufficient for the conclusion that enslaved people were important for America's nineteenth-century prosperity in the sense that they were partly causally responsible for it. It is, to repeat, no objection to this conclusion that, per (b) and (d), this prosperity did not counterfactually depend on their labor.

Recall one of the claim's from Wright's summary, that "slavery was the nursing mother of the prosperity of the North." The cliometricians argue that slavery did not *have to be* the nursing mother of the prosperity of the North. But this is consistent with the observation that slavery *was* the nursing mother of the prosperity of the North. And that is the observation that I am interpreting the New Historians as making.

It is worth being explicit about how the standard treatment of preemption cases vindicates this causal claim. As I noted above, in these cases we do not evaluate candidate causes by seeing whether they make a difference. We (standardly) evaluate them by seeing whether they make a difference while—as a first pass—*holding fixed everything but the candidate cause and the effect*. Think of a controlled experiment, where we isolate and change only one factor at a time. It should be uncontroversial that, holding other workers' labor activity fixed, enslaved labor made a very large difference to economic output.[21]

I say more about the relationship between causation, difference-making, and productive contribution in the next section. And in the Appendix I say more about the italicized phrase in the previous paragraph. Different counterfactual theories of causation can be understood as offering different answers to the question of what exactly we hold fixed, and at what states, when evaluating candidate causes. I use a structural equations model to map the counterfactual dependence relations that the cliometricians argue for and then use this model to show that, on any of these counterfactual theories of causation, enslaved labor was a cause of America's prosperity.

[21] Olmstead and Rhode (2018: 13) take Baptist to task for making a classic double-counting error when calculating the value of cotton for the American economy. But note that the "value-added" framework within which double-counting is an error is not a causal one; the causal contribution of any necessary component of a supply chain is equal to the value of the final good or service, that is, the value of the entire supply chain. (Of course this means that the contributions will sum to more than this value, but that is not an objection. Cf. *ibid*. See the discussion of the "pie fallacy" in Section 4.1.1 below.) In that sense adding up the value of all the industries that relied on cotton might be more respectable than it seems.

But the important point is not that these theories generate this verdict. This is because we can see in the absence of any theory that the verdict is true. It is a constraint on a counterfactual theory of causation that it respect our intuitions about cases with this structure—that is, cases of preemption.

Enslaved people in the nineteenth-century United States produced cotton, and that cotton was valuable. This makes them a cause of this value. It is only in the grip of theory—a theory according to which counterfactual dependence is necessary for cauastion—that one could be led to deny this. If one does not deny this, and if one then reads the debate between the cliometricians and New Historians with this distinction between causation and counterfactual dependence in mind, much of the debate seems to dissolve.[22]

To end this section, let me note that the case of enslaved labor in the United States is not alone in displaying this structure. We find it across complex economies, and their histories. This makes it that much more important to distinguish between causation and counterfactual dependence when making normative claims, e.g., about who is owed what. Consider, as just one example, a country suffering from a so-called *resource curse*.[23] Even if it is true that the resource was a curse—that, in its absence, growth and thus output per capita would have been higher—the workers who pulled it out of the ground are partly causally responsible for something very valuable. We would not say to them that they are not owed a share of this value because it turned out to be a curse rather than a blessing. I come back to this normative point in the next section.

3 Back to the Simple Observation

I now want to bring the previous two sections together, and to say more about how I understand the simple observation from Section 1. In particular I will: (a) explain that the simple observation is only plausible if interpreted in causal, rather than simple counterfactual, terms; (b) argue that this not

[22]A puzzle remains. What are we to make of the New Historians' sometimes use of counterfactual language, like "indispensable"? Does this not contradict their focus on actuality, and does it not show that they and the cliometricians are in fact talking about the same thing? I do not think so. Given the historians' avowed focus on actuality, we should interpret claims like "slavery was indispensable to the economic development of the United States" as saying something like: given how the economy actually worked, enslaved labor was indispensable.

[23]See Sachs and Warner 2001 for an overview.

an objection to but rather the source of its normative significance, because it is causal contribution that we care about in this context; and (c) say what I take its normative significance to be—that is, how I understand the simple observation's egalitarian implication.

3.1 The Simple Observation Is an Observation about Causation

In the previous section I argued that the debate between the New Historians and the cliometricians partly dissolves in the light cast by the distinction between causation and counterfactual dependence. In characterizing this distinction, I noted that *replaceability* is relevant to the latter but not the former.

In Section 1, I claimed that, if the global economy's low-wage workers stopped working, output would fall to zero, and likewise for its high-wage workers. This is the simple observation. In making this observation I was relying on an unstated presupposition: that these workers are not replaced. Here it is made explicit: if low-wage workers or high-wage workers stopped working, *and if other workers' labor activity were held fixed*,[24] such that the workers in question were not replaced, then output would fall to zero; so each group is a *cause* of output taking its actual value, rather than a value of zero; and so, adopting the view that the magnitude of a partial cause's causal contribution to an outcome is just the difference that it makes to that outcome, the low-wage workers and high-wage workers make the same causal contribution, equal to all of output. (This last idea relies on one way—the simplest way—to assess the importance of partial causes; for discussion, see Section 4.1.)

It is the barring of replacement that drives the result that the low- and high-wage workers contribute equally. To see this, consider Robert Nozick's well-known suggestion (1974: 193–4) that low-wage workers in a market economy would do worse on their own than high-wage workers, and in that sense gain more from cooperation. (Nozick actually talks about the "better endowed" and "worse endowed," but the basic idea is the same when considering an idealized market economy; see the first footnote on p. 194.) Nozick's suggestion amounts to the claim that the low-wage workers contribute less

[24]Strictly speaking what I mean is: if other labor activity not on a causal path from candidate cause to effect were held fixed.

than the high-wage workers: if the high-wage workers do better in the absence of the low-wage workers than vice versa, then the high-wage workers make a bigger difference to output than the low-wage workers. (Assume that there are the same number of high- and low-wage workers.) In other words:

(actual output − counterfactual output without high-wage workers) >
(actual output − counterfactual output without low-wage workers)

Nozick is talking about what would happen if one of these groups left the cooperative venture. The simple observation, by contrast, is about what would happen if they left *and were not replaced*. It is this difference that explains why the latter, but not the former, is about causal contribution, and why the latter, but not the former, leads to an egalitarian result.[25]

3.2 Why Care about Causal Contribution?

Call the difference that a group makes to output their counterfactual contribution. Call the difference that they make to output holding other workers' labor activity fixed their causal contribution, as I did above.[26] The difference

[25]This is connected to the following. The simple observation is so simple that it is worth asking why nothing like it has, to my knowledge, received attention in discussions of economic contribution and distributive justice. Here is a speculative answer. Nozick's suggestion is offered specifically as a criticism of John Rawls's reciprocity-based defense of his *difference principle*. But the general framework of that suggestion is a familiar one. It is basically a bargaining framework. Beyond Rawls himself, where it makes a somewhat muted appearance, it shows up in many places: for example, in David Gauthier's Hobbesian contractualism (1986), in Thomas Nagel's contractualist account of political legitimacy (1991), and in John Roemer's game-theoretic conception of exploitation (1982, 1996, 2017). Political philosophers are for this reason primed to think about difference-making in the way that Nozick does, that is, in a way that does not hold fixed preempted replacements. It is thus easy to overlook the egalitarian implications of the more restricted use of counterfactuals in theories of causation. Note that, in saying that arguments like Nozick's prime political philosophers to think in simple counterfactual terms, that is all that I am saying. I am not making the stronger claim, which I do not accept, that arguments like Nozick's should not be couched in those terms. An argument about who benefits to what extent from a cooperative scheme *should* be conducted with reference to simple counterfactuals; but what this highlights is that the question of benefit is distinct from the question of contribution. Thanks to Daniel Viehoff for pressing me to clarify this.

[26]Causal contribution can be positive along one pathway and negative along another: think of labor that produces both a valuable good and toxic pollution. Strictly speaking, then, by causal contribution I mean the net of a worker's causal contributions, where each

between the simple observation and Nozick's claim illustrates the fact, already operative in the discussion of the debate about slavery, that a group's counterfactual and causal contributions can differ dramatically, and indeed that two groups' causal contributions can be equal even when their counterfactual contributions are very different.

So: the simple observation is an observation about causal contributions; and it is because contribution is therein understood in causal terms that the simple observation has an egalitarian implication. I characterize this egalitarian implication more fully below. To know whether we should take any normative implication of the simple observation seriously, though, we need to know whether causal contribution is what we care about. That is, we need to know whether our intuitive attraction to the principle of reward according to contribution is an attraction to the principle of reward according to *causal* contribution.

An initial piece of evidence that it is comes from the above debate about slavery. Consider the familiar claim that that among slavery's many evils is the fact that enslaved people were denied the value of the fruits of their labor: "Great and significant as was the contribution of black labor to the seventeenth, eighteenth, and nineteenth centuries, its compensation approached zero" (Du Bois 2007 [1939]). As we have seen, the claim that enslaved people's contribution was "great" is, if the cliometricians are right, plausible only when contribution is understood in causal rather than in simple counterfactual terms. But this is itself evidence that this is how "contribution" ought to be understood in the context of a claim about what enslaved people deserved on the basis of what they contributed. The fact that enslaved people produced something very valuable but were paid nothing—beyond food and shelter required for their survival—seems *by itself* to show that they did not get what they deserved, a wrong distinct from their being held in bondage and subject to the threat of torture. We do not need to know whether cotton production counterfactually depended on their labor, that is, whether free labor would have produced cotton in their absence. In the same vein, to the extent that facts about economic contribution are marshalled to support reparations, it should be facts about causal contribution.[27] If

distinct contribution is identified by holding fixed the labor activity not on the causal path to that particular outcome—the good, the pollution, what have you.

[27]As the "to the extent that..." clause of this sentence is meant to suggest, an appeal to contribution is not necessary for a successful argument for reparations. Nor is it sufficient, since arguments for reparations of the relevant form need not only to identify the reparative

someone causally produces a product that is then stolen from them, we do not first need to figure out whether someone else would have produced that same product in their absence before deciding whether to accept a claim of restitution.

I said that the debate about slavery provides an "initial" piece of evidence. This is in part because some philosophers will worry that the real-world case of slavery is too complex to elicit an intuition about the principle of reward according to contribution. Here, then, is a simpler example. A worker in a self-sufficient agricultural community makes a tool, only one of which the community needs, using resources equally available to everyone else. In the first version of the case, the worker is the only one who can make this kind of tool. In the second version, that is not the case, and if this worker does not make the tool then someone else will. In other words, while in both versions of the case the worker causally produces the tool, its production counterfactually depends on that worker only in the first. What does the worker deserve for producing this tool? My own intuition is that the answer is the same in both versions of the case: the worker deserves reward commensurate with the value of the tool; a fair price is one that reflects its value, at least in comparison with the prices and values of other goods and services (which might be the only sense of "reflect" available). Note that we do not need to say how we should understand "value" here; the claim is that, however we understand the tool's value, it has the same value in both versions of the case, and so the worker is in both versions equally deserving.

Distinguish a weaker and stronger claim. The weaker claim is that counterfactual contribution is not, in cases like this one, all that matters—that we are not attracted to the principle of reward according to (only) counterfactual contribution. The stronger claim is that counterfactual contribution does not matter at all, because causal contribution is all that matters. The intuition that I registered—that the workers in both version of the case deserve the same—supports the weaker claim, but it does so by supporting the stronger claim, and one can accept the former without accepting the latter. Should we accept the latter—the stronger claim? Or should we accept a hybrid view according to which both causal and counterfactual contributions matter?

The hybrid view seems to gain support from examples like this one: As before, a single worker makes a tool, but they know that they will make a

entitlements of enslaved people, which the principle of reward according to contribution can help do, but also explain how those entitlements get passed to one's descendants.

worse tool than those they preempt, and in doing so will use up the resources necessary to make it—so that no superior replacement can be made. This worker is once again causally responsible for the tool, but their counterfactual contribution is negative, and this latter fact seems relevant to what they deserve.

But in fact we do not need to invoke counterfactual contribution to explain our intuitive reaction to this case. Here is an error theory. In cases of preemption, the preempting worker is causally responsible for at least two things: the outcome of interest (the bottle shattering, the tool coming into existence) and the preemption itself—the inactivity of the preempted backup worker. In some cases, this preemption is morally wrong, and renders the preempting worker blameworthy in a way that undercuts their claim to economic reward. It might be wrong, for example, to deprive an expert tool-maker of tool-making materials when your community is in need of a tool and would benefit from its being expertly made. In other kinds of cases, preemption might be wrong because it violates some kind of equality of opportunity principle and is thus unfair to the preempted. I suggest that, in any case in which counterfactual contribution seems to bear on a worker's contribution-based deservingness, what really matters to us is wrongful causal contribution.[28] Put positively: when the preemption in cases of preemption is not itself wrongful, I suggest that causal contribution is all that matters to us.

This suggestion is not meant to be revisionary. To the contrary: if we step back from the economic case, we see that this is the received view. It is the connection between causation and our backward-looking judgments about responsibility and deservingness that helps motivate our distinguishing causation from counterfactual dependence in the first place. In a forward-looking context, when deciding what to do, we tend to care about what will in fact result from our actions, which is to say that we tend care about counterfactual dependence. If we want the bottle in front of us shattered, then the knowledge that there is a backup rock-thrower waiting in the wings is not

[28]It is important that this claim is restricted to *contribution-based* desert of economic reward. I do not deny the possibility that a worker might deserve blame for the quality of will they display when acting in a way that they know will make a negative counterfactual contribution, when that negative contribution has serious consequences. But that is not contribution-based desert. In any case I do not think this is particularly relevant to the context of a complex economy, where we are rarely in a position to know our counterfactual contribution.

irrelevant.[29] But in a backward-looking context, when rendering judgments of responsibility and deservinginess, we care about who caused what.[30]

3.3 The Egalitarian Implication of the Simple Observation

Suppose that one accepts that causal contribution, as featured in the simple observation, is the kind of contribution that should form the basis of claims of economic desert. Still: what does it actually mean to say that the simple observation has an egalitarian implication?

The low- and high-wage workers together contribute equally. I do not take this to show that: the low-wage workers as a collective deserve economic reward, and the high-wage workers as a collective deserve economic reward, and the two rewards are equal, because the collective contributions are equal. This is because these two collectives are not *group agents*, and so cannot, I am assuming, themselves deserve anything. Rather I take the simple observation to show—or, really, suggest—that: individual low-wage workers deserve

[29]Hitchcock 2015: 306–7, 2013. This is the basis of the recent debate about whether what has been called "causal" decision theory is really "counterfactual" decision theory. See ibid.; Hedden 2023; and Gallow forthcoming.

[30]Recent work in social psychology, from Sarah A. Wu and Tobias Gerstenberg (2024), might be thought to challenge this received view, or at least the orthodox distinction between causation and counterfactual dependence on which it reiles, where replaceability is irrelevant to the former. Wu and Gerstenberg present subjects with several different versions of a case like this: a carpenter, a blacksmith, and a tailor together build a ship; labor of each type is necessary for the construction; but there are different numbers of replacements available for each type of worker. They find that most subjects assign a worker's labor less causal responsibility for the building of the ship the greater the number of replacements available. Two comments. First, I am a unsure what to make of the intuitive judgments collected in these experiments. For example, in the final version, most subjects judge a worker more causally responsible for the outcome when they had "high prior availability" for the work than when they were busy (10–13). This suggests that subjects' responses are tracking some notion of "responsibility" other than mere causal responsibility. Second, these findings are not reason to abandon the distinction between causal and simple counterfactual contribution (nor do Wu and Gerstenberg claim otherwise). This is because what they find is that replaceability has only a small effect on subjects' causal judgments. Even in those versions of the case where it is very likely that the original worker would, if absent, be replaced—such that they very likely make no difference—subjects' attributions of causal responsibility are only modestly diminished. That said, any sensitivity to replaceability will, in the present context, narrow the gap between causal and counterfactual contribution.

economic reward on the basis of what they together do, and individual high-wage workers deserve economic reward on the basis of what they together do, and the rewards in question are equal, because the collective contributions are equal.

The next section considers several challenges to this picture. But its starting point, I want to emphasize, is what I take to be the mainstream approach to *unstructured collectives*. That mainstream approach says that members of an unstructured collective like *polluters* have reasons not to pollute, and can deserve blame for polluting, in ways that are directly connected to the harms that polluters only together generate. To be clear, this mainstream approach runs up against a serious problem, what Julia Nefsky (2019) calls *the inefficacy problem*. This is the problem of explaining how individuals can have reasons for action connected to, and be rendered deserving on the basis of, a collective outcome to which they make no significant difference. But there are good responses to the inefficacy problem.[31] And so I assume that the problem can be solved, such that the mainstream approach, and the features of common-sense morality that it aims to capture, can be vindicated. Let me flag that this is, for my purposes, a crucial assumption: if the problem cannot be solved, then I do not think that the simple observation has any clear implications for what workers deserve.

4 Complicating the Simple Observation

The simple observation faces what might seem like a devastating objection. In making the observation, I drew a line down the middle of the global income distribution: low-wage workers on one side, high-wage workers on the other. But there are many different ways to draw such a line. These define different collectives, and, it would seem, they thereby generate different conclusions about who deserves what. It is not clear that there is a non-arbitrary way to choose among these different conclusions. This is an objection, then, not to the claim that low- and high-wage workers together contribute equally, but to the idea that this fact is normatively significant—that it can tell us who deserves what. The fact is not normatively significant, per the objection, because we could have generated different facts about collective contributions by drawing the line in a different place, and we have no reason to prefer one exercise of line-drawing over another.

[31] E.g., Nefsky 2017 and Lee 2022.

I agree that we might rarely have a reason to prefer one exercise of line-drawing over another. But I want to argue that this does not cause the problem that it seems to. This is because the relevant delineations do not force different distributive conclusions. Instead we converge on the egalitarianism of the simple observation.

I will argue for this surprising claim in two parts. I first consider claims based on different ways of dividing the economy in two. I will then consider claims based on dividing the economy into more than two.

By "the economy," I continue to have in mind the actual global economy. But what I say applies, like the simple observation itself, to an idealized version of the global economy, or indeed any economy that is comparably complex.

4.1 Different Ways of Dividing the Economy in Two

Imagine a worker who believes that workers like them contribute more and so deserve more than other workers, and who is faced with the simple observation. What should they say in response? How should they press their inegalitarian claim as against these others?

4.1.1 A Tempting Answer

Here is a tempting answer. They should say that *workers like them* are one collective, with everyone else forming another. To make this concrete, suppose that the worker in question is a dockworker, and that *workers like them* includes everyone whose job involves the moving of goods. Call this the *shipping collective*; call everyone else in the economy the *everyone else collective*. (While dockworkers—at least in the United States—can make good money, they do not sit atop the actual economic hierarchy. So this inegalitarian claim would be a claim for change. If you prefer to think of an inegalitarian claim that is more like a defense of the status quo, replace these shipping workers with bankers.) I assume that the shipping collective makes a contribution equal to all of output: without the workers who move goods, the global economy would grind to a halt. As before, in evaluating this counterfactual claim we are imagining that no one replaces the shipping workers. Presumably the everyone else collective likewise makes a contribution equal to all of output: moving goods is only valuable if there are goods to move. But—and here is the point—the shipping collective is a much smaller group. This is the sense,

we can imagine, in which the dockworker in question thinks labor like theirs is more important than others' labor: while all of the non-shipping workers in the global economy together make a contribution equal to all of output, what shipping workers do is so important that the same is true of them, even though they are so few. And so we seem to have reached the worker's intended inegalitarian claim. If the shipping collective and the everyone else collective contribute equally, such that output should be distributed equally between them, then the individual shipping workers are going to come out with more: their half of the economic pie needs to be distributed among fewer people.

This tempting answer rests on a mistake. What an individual deserves on the basis of being part of a collective that generates some outcome is not directly sensitive to how many other people are members of that collective. To think otherwise is to commit what Alex Kaiserman (2021: 3598) calls the pie fallacy, "the fallacy of thinking that there is a fixed amount of responsibility for every outcome, to be distributed among all those, if any, who are responsible for it."[32] To get a sense of this fallacy, consider Derek Parfit's

> *The Harmless Torturers.* In the Bad Old Days, each torturer inflicted severe pain on one victim. Things have changed. Each of the thousand torturers presses a button, thereby turning the switch once on each of the thousand instruments. The victims suffer the same severe pain. But none of the torturers makes any victims pain perceptibly worse. (Parfit 1984: 80)

They together do something terrible, but, apparently, no one of them makes a difference.[33] Despite making no difference, each is, intuitively, blameworthy. Now imagine that we change this case in the following way: we double the number of torturers. This doubling does not change how intuitively blameworthy each torturer is. There is not a fixed amount of blameworthiness that needs to be distributed among them, such that doubling their number means spreading that blameworthiness thinner. The blameworthiness of each is tied up with what they together do in a way that is not directly mediated by their number.

[32]See also Parfit 1988: 31 and Northcott 2013: 3101.

[33]I take it this is the standard pre-theoretical reaction. It assumes that, *contra* Parfit, one can only make pain worse by making it perceptibly worse. Thanks to Cian Dorr for pressing me to be explicit about this.

Or consider Kaiserman's version of a familiar example: two assassins each shoot a victim, who dies; neither shot makes a difference—it is a case of *symmetric overdetermination*—but each was sufficient to kill the victim. Because each shot was sufficient, each assassin may well be wholly responsible for the outcome, and so deserve blame commensurate with its badness. This is to say that they may each deserve what they would have deserved had they been the only one to act. The presence of the other does not *eo ipso* diminish their responsibility.

The pie fallacy is easiest to see in the case of desert of reactive attitudes because those attitudes are neither rivalrous nor scarce. But its scope is not limited to such cases. In tort law, *joint tortfeasors*—roughly, individuals who together harm another—are each wholly liable for the harm they cause: if there are two, and one cannot pay, the whole burden falls to the other. This example is also an indication of why it can be hard to recognize the pie fallacy. In the normal case, where both tortfeasors can pay, each pays half. But we cannot infer from this that each is only liable for half the injury, as the treatment of cases in which one cannot pay makes clear.

Now return to the shipping collective. The members of that collective each deserve economic reward commensurate with, and on the basis of, their degree of responsibility for what they together do; and likewise for each member of the everyone else collective. We cannot conclude from the mere fact that there are fewer shipping workers that each is more responsible for what they together do. That would be true if there were a fixed amount of responsibility to go around, but there is not. Of course there is a fixed amount of *output* to be distributed on the basis of this responsibility, but that does not show that the members of the shipping collective are each more responsible for output than the others.

Here it might be helpful to register that things would perhaps work differently if these two collectives were group agents. Each of these two group agents would plausibly deserve the same share—half—of output. That would indeed mean more for each member of the shipping collective, since there are fewer of them. But recall that these collectives are not group agents. Our question is about what individuals deserve on the basis of what they together do, not what they together deserve.

Let me review the dialectic thus far. The objection under consideration says that different ways of dividing the economy into two generate different distributive verdicts. Since the distributive verdict I started with—from the simple observation—was egalitarian, we are thus considering the prospects

of an inegalitarian verdict. That is, we want to see if some members of a collective that makes all the difference to output might be more responsible for that difference than members of another collective that does the same. The lesson of the pie fallacy is that the that the size of a collective does not determine in any direct way its members' degree of responsibility for the collective's contribution. Thus we should not be tempted by the"tempting answer."

4.1.2 Better Answers That Still Do Not Work

What we need to consider instead are ways to assess degrees of responsibility directly, that is, rather than using group size as a proxy. Philosophers have in recent years proposed several of these: they have offered different measures of degrees of causal responsibility, or, as I will also put it, measures of the importance of partial causes for what they partly cause. In his survey of this literature, Kaiserman (2018) divides these measures into those that descend from the tradition of thinking of causation in terms of necessity and difference-making and those that descend from the tradition of thinking of causation in terms of sufficiency. Following Hall's (2004) influential discussion, he terms these "dependence" and "production" measures, respectively.[34]

There is one difficulty that needs to be addressed at the outset. These measures are measures of *causal* responsibility. As I have made clear, I think that economic contributions can sometimes be understood in causal terms. A worker's labor can be a partial cause of output, and a collective's labor can be a partial cause of output, too. But in looking at whether some members of different collectives are more important than others, we are looking at the contribution that a worker makes *to their own collective's contribution.* And here the causal framework breaks down. It is not plausible that a worker's labor is a partial *cause* of their own collective's partly causing output—not if we assume, as is common, that causes need to be distinct from their effects. It thus makes more sense to think of the worker's labor as a partial *ground*

[34]These labels can mislead. Hall's distinction between dependence and production is the same as the distinction that I drew, above, between counterfactual dependence and causation. But both the dependence and production measures, as applied below, are measures of the importance of workers for the *causing* of output—for its production, in the everyday and in Hall's sense. To avoid confusion, then, it is best not to read anything into these labels.

of their collective's contribution. But I do not want to make anything of this difficulty. I am happy to grant for the sake of argument that some partial grounds are more important than others, and that we can measure the importance of partial grounds is the same way that we measure the importance of partial causes. So in what follows I will, where appropriate, translate talk of causation into talk of grounding, without comment. And sometimes I will talk simply of "importance" or "contribution," letting context disambiguate these into causal or ground-theoretic terms.

Now, Kaiserman (2018: 6) suggests that, "[c]onsidered apart from their potential applications, none of these measures is any 'better' than the others—they are simply measuring different things." Even when considering the particular application of attributing moral responsibility, it may well be that "there are *two* incommensurable causal dimensions to moral responsibility, the production dimension and the dependence dimension." Though I am not concerned with moral repsonsibility in particular, I will assume a version of Kaiserman's suggestion. That is, I do not argue that one of these measures is uniquely relevant for the determination of the kind of responsibility at play in the case of economic deservingness. I rather want to argue that *none* of the dependence or production measures can vindicate

> Unequal Responsibility In some cases where two collectives make the same contribution, some members of those collectives are more important partial grounds of their collective's contribution than others.

And thus none of the dependence or production measures can vindicate

> Unequal Distribution On the basis of being more important partial grounds of their collective's contributions, some workers deserve greater economic reward.

I will look at three kinds of dependence and production measures.

The first and simplest is a dependence measure, one that I invoked in passing in Section 3.1. It says that the importance of a partial cause is given by the difference that it makes to what it partly causes.[35]

Now, some individual workers certainly make a bigger difference to total output than others, and in that sense are more important partial causes of it.

[35]Northcott 2005a, 2005b, 2006, 2008a, 2008b.

This is the original reason for assuming that the principle of reward according to contribution would produce serious inequality. But, first, I mentioned at the beginning of this paper that I am taking off the table the idea that workers can claim credit for—deserve reward commensurate with—the size of the differences they individually make. This is, to repeat, because its size depends on the collective labor of other workers that the very scheme in question—distribution according to individual contribution—leaves unrewarded.

In any case, and this is the second point, Unequal Responsibility is not about an individual's importance for total output; it is, in keeping with what I said above, about their importance for their collective's contribution to total output. For any individual shipping worker, it is plausible enough that they make some difference to total output, even if very small. By contrast, for any one of these workers, their membership in the shipping collective will make no difference to the contribution that the collective makes to total output. To see this, imagine that the shipping collective goes on strike, and is not replaced. The economy will grind to a halt whether or not any given shipping worker joins the strike. It is in that sense that their membership in the shipping collective makes no difference to the difference that the collective makes.[36] This makes the generation of this collective's contribution a case of

[36]Distinguish these two senses in which a member of a collective might make a difference to the collective's contribution. The first is the one that appears in the text: their membership *in the collective* might make a difference. This requires evaluating three possible worlds. First we have the actual world. Next we have a world in which the shipping collective is on strike. (This is not the *closest* such world; what we care about here are not simple counterfactuals but the more complex ones used to capture causal judgments, where we specify in our antecedents that certain other things are held fixed. Thus the phrase "and is not replaced" in the text.) And third we have a world in which the shipping collective is again on strike but this time differently constituted: the single worker in question is not a member of the collective and so does not join the strike. Our question was whether output differs between the second and third worlds. (I answered: no.) Now for the second sense: a worker's membership *in the economy* might make a difference. This requires evaluating four possible worlds—two pairs. In the first pair we have the first and second worlds from above. In the second pair we again compare a no-strike world to a strike world, but this time while imagining the worker in question out of the economy altogether. And now our question: is the difference between the worlds in the first pair bigger? That is, would the abdication of the shipping workers make a smaller difference if the worker in question had never been part of the economy? The answer to *this* question, given what I said in the text, is yes: because the worker makes a difference to total output, they thereby make a difference to the contribution of the shipping collective—that is, by increasing the size of the economy that the collective can bring to a halt. I invoke the first rather than second sense in the text because the first seems to capture a less derivative way of making a

overdetermination—even when the generation of total output is not.[37] This is why I said, above, that the inefficacy problem is particularly relevant in the present context. Where no worker makes a difference, we cannot use this simplest dependence measure to vindicate Unequal Responsibility.

Does this mean that we can now reject Unequal Responsibility altogether? No. To show that no worker makes a difference is not thereby to show that there is not some other sense in which some workers' labor is more important than others'. In some cases of overdetermination, some overdeterminers *do* seem to be more important than others; and there are both dependence and production measures designed to capture this impression. Since the present case is a case of overdetermination, these are the measures best positioned to vindicate Unequal Responsibility. I now argue that they, nonetheless, cannot. I will introduce one dependence and one production measure and identify a problem for their application to the economic case. As will become clear, that problem should generalize against any similar measure.

Chockler and Halpern's (2004) dependence measure asks, in effect, how many other things would have to have gone differently for a given overdeterminer to have made a difference. If a politican wins an election by just a few votes, then only a few things would have to have gone differently for each vote to have been decisive. If the politican instead wins by many votes, then more things would have to have gone differently for each to have been decisive. The latter situation is more overdetermined than the former. The voters in the former are, the thought goes, more important partial causes of the outcome.

Braham and van Hees's (2009) production measure is somewhat similar. Here is the rough idea. Take some overdetermined event. Now collect its causes into *minimally sufficient pluralities* of events. A plurality is sufficient if it suffices for the event's obtaining; it is minimally sufficient if none of its sub-pluralities is sufficient. For each cause, count how many such minimally sufficient pluralities it appears in. The greater the number, the more important the cause.

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difference to the collective's contribution. Note that this—I think—makes my argument harder. That is because the second sense of making a difference is just the one that I have already set aside. (See, in the text, the previous paragraph.)

[37] I assume that grounding is, like causation, nonmonotonic, but also that partial grounds, like partial causes, are not made irrelevant—and thus ruled out by nonmonotonicity—merely by their not making a difference.

Now, the collective impact literature distinguishes between threshold and non-threshold cases. An overdetermined vote is a threshold case: there is a threshold number of votes such that, if a candidate receives that number, each vote (in a two-person race) is decisive. The two measures above both require that we *find a threshold*—that is, that we find a situation in which at the least the cause in question makes a difference.[38] This is straightforwardly true of the first, but it is also true of the second: for a plurality to be minimally sufficient is for each of its constituents to make a difference.

Here is what I want to claim: because these measures require that we find a threshold, they cannot be applied to the economic case, and so cannot vindicate Unequal Responsibility.

Consider again the dockworker with whom we began. Now search for a threshold—a situation in which their membership in the shipping collective makes a difference to the collective's contribution. How? By subtracting other workers. For Chockler and Halpern this means evaluating counterfactuals in which they are absent; for Braham and van Hees this means kicking them out of our subplurality. Our preliminary assumption is that, just as in the voting case, once we subtract enough of these others a threshold will emerge.

But there is a problem. As we subtract these other workers, before we reach a situation in which the worker in question makes a difference we may reach a situation in which they *cannot do their job at all*. That is because these other workers are among the causal preconditions of the given worker's labor.

Complex economies are *doubly interdependent*. First, the size of the *contribution* made by a given worker's labor depends on what other workers do. This is what lies behind our assumption that, when we subtract other workers, we will find a point at which the dockworker makes a difference. But, second, that labor *itself* depends on what others workers do. You cannot load containers onto trucks if no one lifts them off the ship in the first place. And so on.

In this respect the economic case is helpfully distinguished from an overdetermined vote. There are some interdependencies in a standard voting case: the votes may not be statistically independent; they may, relatedly, share common causes; and whether or not a vote makes as difference may depend on the other votes. But, for all of that, none of the votes will be a *cause* of any

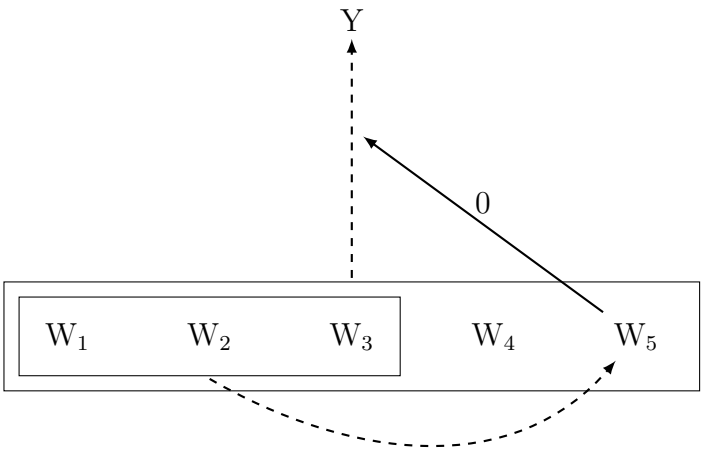
[38] I intend "situation" to encompass both something like a possible state of affairs, for Chockler and Halpern's measure, and a subplurality of events, for Braham and van Hees's.

of the other votes: we vote at the same time, in ignorance of one another. The economic case is not like this. In the economic case, there are causal dependence relations *among* the joint causes of output.

This raises the possibility that there is, for a given worker's labor, *no* situation of the relevant sort in which it makes a difference to their collective's contribution—not because their work is useless but because we cannot reach the situation in which they make a difference without depriving their labor of its causal preconditions. This possibility will be realized whenever the following condition is met: the causal preconditions of a given worker's labor are themselves sufficient for the collective's contribution taking its actual value.

Here is a procedure for checking whether that condition is met. First, select a given worker's labor, like stacking shipping containers. Second, identify what other bits of shipping-related labor need to be performed for that labor activity to be performed. Third, collect these other bits of labor together—the causal preconditions—and ask: what would happen to total output in their absence? If the answer is that it would fall to zero—that these other shipping workers can themselves bring the economy grinding to a halt—then they are sufficient for their collective making a contribution equal to total output. And so the given worker cannot make a difference to that contribution: any situation in which their labor is performed is also a situation in which the shipping workers could bring the economy grinding to a halt with or without them—that is, it is already a case of overdetermination.

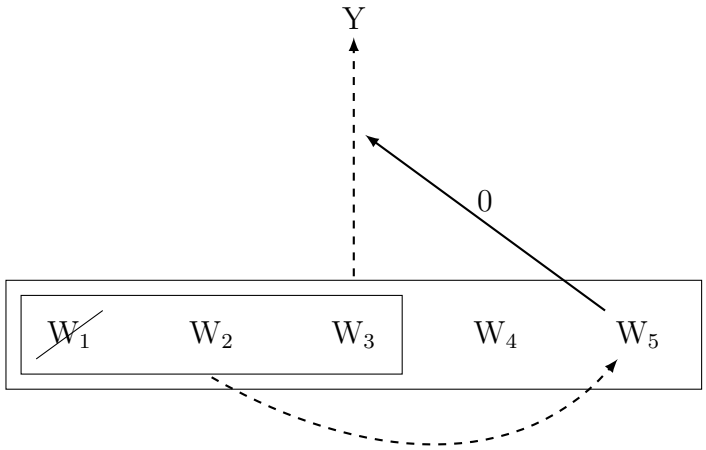
An illustration:



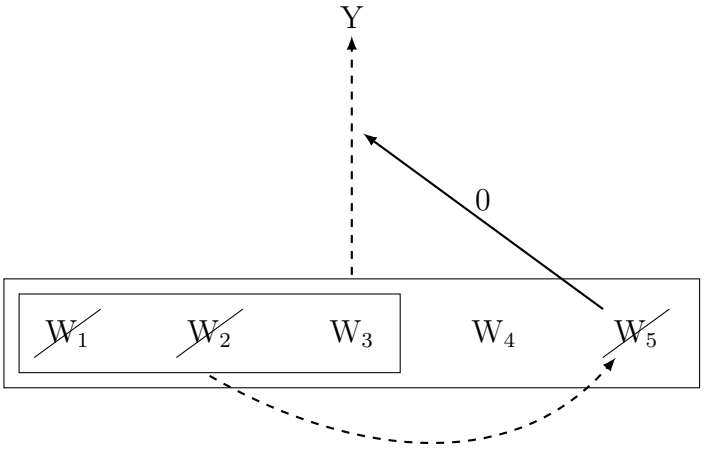
The dashed lines represent causal relations. The solid lines represents grounding relations. The dotted lines are drawn from boxes to represent joint causation (by what is inside the box): so all five workers—W_1 through W_5—are together a cause of output, Y.

Focus on W_5. This worker's labor partly grounds the fact that their collective is a cause of output—the solid arrow. But they make no difference to the difference that their collective makes to output—the "0" attached to that arrow.

Now we want to look for a threshold, to see if we can get W_5's labor to make a difference. First we subract W_1. Suppose that there is no change:



Then we additionally subtract W_2. Now suppose that there is a change, but not the one we were looking for. It is not that W_5's labor now makes a difference to their collective's contribution. It is that W_5's labor is no longer performed: W_1, W_2, and W_3 are together a cause of W_5's labor—the curved arrow at the bottom—and without W_1 and W_2, W_5 cannot go on:



How often will the causal preconditions of a given worker's labor themselves be sufficient for the collective's contribution taking its actual value? I am not sure, in part because I do not know how fine-grained our individuations of labor activity should be. But it seems that, given almost any plausible principle of individuation, the answer will be: very often.

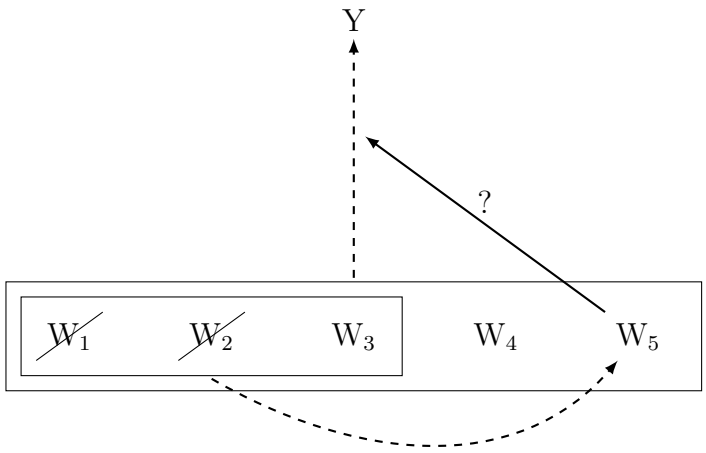
The claim here is not that collective contributions in complex economies are non-threshold cases. Such a claim would face an uphill battle: many philosophers deny that there are *any* non-threshold cases. My claim is rather that collective contributions in complex economies are what we might call *disappearing threshold* cases: in looking for a situation in which a given partial cause makes a difference—a threshold—we end up with a situation in which that partial cause does not even occur. If we cannot find a threshold, we cannot vindicate Unequal Responsibility using anything like the dependence or production measures under consideration.[39]

The foregoing problem is a problem for any dependence or production measure that requires us to find a threshold: we cannot find what disappears in the course of our searching. But there is good reason to think that any such

[39]I do not mean to imply that, in any disappearing or apparent non-threshold case, we cannot show that some partial causes (grounds) are more important than others. Simply imagine that one of Parfit's torturers presses the button twice: they are still harmless, but now there is pressure to say that they contribute twice as much as the others. (I am taking at face value that this really is a non-threshold case.) The point is that, in a case where we cannot find a threshold, we cannot show that some causes (grounds) are more important than others *using an output-based conception of contribution*. This is the kind of conception that I care about, in part because it is the kind that threatens serious inequality: see note 4.

measure will require this. Dependence measures descend from the tradition of thinking about causation in terms of difference-making. To find difference-making just is to find a threshold. Production measures from the tradition of thinking about causation in terms of sufficiency. But "sufficiency" almost always means minimal sufficiency. And, as I noted above, finding minimality just is to find difference-making, which is to say a threshold.

Now let me consider an objection. Even if it is true that the causal preconditions of a given worker's labor are sufficient for the collective's contribution taking its actual value, the objection claims that this problem can be solved using one of several maneuvers familiar to philosophers from discussions of the semantics of counterfactuals and counterfactual analyses of causation. Consider, from the latter, *explicitly nonforetracking (ENF)* counterfactuals. These are counterfactuals of the form: "If [the cause] had not occurred, but [the effect] had occurred anyway, then..." (Hitchcock 2001: 275). It might seem that, in principle, we could use ENF counterfactuals to push these measures through the barrier posed by the causal interdependence just highlighted. We would do so by evaluating counterfactuals with antecedents like: If the causal preconditions of the dockworker's labor had not occurred, but the dockworker had performed their labor anyway, then... Here is an illustration of this strategy at work:



The difference between this and the previous illustration is that W_5 is no longer crossed out: we simply stipulate that W_5 carries on, even though the preconditions of their labor are absent. And now, perhaps, we will find that W_5's labor makes a difference—hence the "?".

The problem with this strategy is as follows. We are stipulating that other workers—the causal preconditions—have no effect on a given worker's labor *while hunting for one of their effects*, namely the effect of rendering the given worker a difference-maker. I noted above that complex economies are doubly interdependent. ENF counterfactuals would only solve our problem by breaking one kind of economic dependence—the causal dependence of a worker's labor on other workers' labor—while maintaining a second—the dependence of the difference that this labor makes on these other workers' labor. I am not sure if this is coherent; if it is, I cannot see what would justify it. (Similar remarks apply to the use in this context of other maneuvers that likewise cleave effects from their would-be causes, like the invocation of *small miracles* that some philosophers, following Lewis [1973b: 75], think is required to make sense of our ordinary use of counterfactual conditionals.)

4.1.3 The Upshot

All of this leaves us with a surprising, if tentative, egalitarian conclusion. Each member of the shipping collective is a partial ground of a collective contribution equal to all of output. The same is true of each member of the everyone else collective. And we have, I have just argued, no way to show that some of these partial grounds are more important than the others: we cannot vindicate Unequal Responsibility, and so we cannot vindicate Unequal Distribution. Put more positively, each worker is here *doing their part*, and, given the complexity of the economy in which they work, that is all that we can and should say.

Some political philosophers will be skeptical of an egalitarian conclusion that rests on details about things like partial grounding and non-foretracking counterfactuals. I understand this reaction but in the end take the opposite view. Consider a famous claim of Elizabeth Anderson's: "From the point of view of justice, the attempt, independent of moral principles, to credit specific bits of output to specific bits of input by specific individuals represents an arbitrary cut in the causal web that in fact makes everyone's productive contribution dependent on what everyone else is doing" (1999: 321). When I first read this claim, it seemed both compelling and not at all obviously true. Why not simply look at the difference to output made by each input? Why would doing so amount to an "arbitrary cut in the causal web"? How many of us really think, to use Anderson's example (1999: 322), that the interdependence between basketball players and the people who maintain

their facilities shows that there is no non-arbitrary sense in which Michael Jordan causally contributed more to output than a single ballboy? To vindicate what is nonetheless compelling about Anderson's claim, we need an argument. First we need to show why a certain kind of dependence does after all mean that workers cannot claim credit of the size of the difference to output that they individually make—this is the dependence of individuals on collectives. We then need to show that, in very complex economies, it is not the case that some individuals are more important partial grounds of what their collectives do. The first is the claim that I am here assuming. The second is the claim that I am here arguing for. And arguing for it seems to me to require engaging with finicky details. There is no easy road from economic interdependence to distributive egalitarianism.

Finally, on a related note, it will be helpful to compare the problem I have identified with the epistemic problem that that some economists and philosophers think plagues the determination of marginal revenue products. Thomas Piketty (2014: 418), for example, considering the question of whether a large firm could determine its CFO's marginal revenue product, suggests that "[a] precise, objective answer to this question is clearly impossible." In my view this is a slender basis on which to rest an egalitarian rejection of reward according to marginal revenue product. This is because, even if Piketty is right, high-wage workers in a market economy might still give a "directional" defense of their pay: they could say that, while neither their firm nor the market as a whole can determine their exact marginal revenue product, it is at least larger than that of the firm's lowest-paid workers. This kind of defense would not vindicate any exact distribution of labor income, but it might justify some more coarse-grained arrangement—say, white-collar professionals making much more than manual laborers and non-professional service workers. Rejecting even this directional defense requires maintaining that the epistemic problem is so severe that the wages firms are willing to pay their employees have *nothing* to do with their employees' marginal productivity. That is an extreme position. The claim that we cannot show that some economic overdeterminers are more important than others—that we cannot vindicate Causal Inequality—should seem, by contrast, less extreme.

4.2 Dividing the Economy into More than Two Collectives

In the previous subsection we divided the economy into the shipping collective and the everyone else collective. Consider now a revision to this: cleave off from the latter a group of workers who together make a difference much smaller than the value of total output. It is common, in contexts like this, to reference workers who produce things for which there is almost no market demand, like a niche artist. But we need not do so. The workers who make wool sweaters and the workers who make Ford Broncos make a difference to output, and indeed a difference that is probably larger than traditional "value-added" calculations would suggest (see note 21), but they could not bring the economy grinding to a halt: they do not make a difference equal to total output. And likewise for any proper subset of these two groups,[40] and for members of any number of other professions. Being useful without being a *sine qua non* is the normal order of things.

But then the normal order of things can also mislead. Any group that falls short of being itself a *sine qua non* will be *part* of a group that is. In the previous paragraph we began by cleaving off a group from the everyone else collective—a collective that makes a contribution equal to total output. And there is, as far as I can see, no objection to the members of the cleaved off group simply ignoring that cleaving: they are unambiguously members of the everyone else collective, and they can legitimately claim a share of economic output on the basis of *that* membership, rather than another. If what I said in the previous subsection is right, then this share will be an equal one, at least insofar as we are guided by reward according to contribution.

To say that these workers have such a claim is not to say that they will make such a claim. This is an important point of connection between the normative claims I am making in this paper and political facts about how workers see themselves. Marxism gives a central place to a phenomenon that, as a historical development, it perhaps helped to bring about—the phenomenon of class consciousness. This consciousness is partly consciousness of differences—centrally, in relationships to the means of production. But it is also (the other side of the coin) consciousness of the possibility of seeing themselves as part of one—very important—collective. The recognition of its

[40] In saying this I am assuming that each member of these groups makes a positive difference—that none of the jobs are "bullshit" in Graeber's (2018) sense.

importance is recognition of a kind of power, but it is also, on the way of thinking I advance here, recognition of a normative fact. The power is the power to wring out a greater share of output via collective action; the normative fact is that they have a legitimate claim to a greater share, and on the same basis as what grants the power to get it.

5 Appendix

I offer a structural equations model of slavery's effect on the nineteenth-century American economy that captures the cliometricians' main counterfactual claims. I then show that, on any of the candidate counterfactual theories of causation, this model vindicates the claim that enslaved people were a cause of America's prosperity.

The model is meant to capture three counterfactual dependence claims in particular:

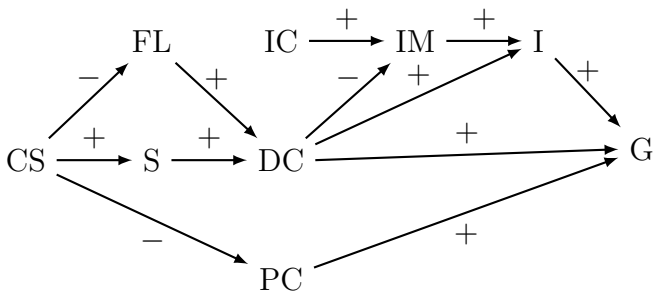
1. American cotton production did not depend on slavery.
2. New England's cotton textile manufacturing did not depend on domestic cotton production.
3. The south's level of investment in physical capital, by contrast, did depend on slavery.

Now for a narrative description of historical sequence that is here modeled, in which I identify the states of affairs represented by the model's variables, and the model's assignment of values to those variables. As is typical, these values are discrete, and a variable representing a non-occurrence will be assigned a value of 0. Not all of the variables are binary, though. Where a variable can be assigned more than two values, a higher number means "more" of what the variable represents.

After the Revolutionary War, the United States retains the institution of **chattel slavery** ($CS = 1$). So **enslaved people** ($S = 1$), not **free labor** ($FL = 0$), **produce domestic cotton** ($DC = 1$) in the nineteenth century. Cotton is also **produced internationally** ($IC = 1$), but it is not **imported** into New England ($IM = 0$); instead New England uses domestic cotton for the textile production that facilitates **industrialization** ($I = 1$). At the same time, slavery reduces the south's

investment in **physical capital** ($PC = 0$). This lowers the country's **growth rate**, even as northern industrialization and the production of cotton increase it ($G = 3$).

$CS := 1$, $IC := 1$
$FL := 2 - 2(CS)$, $S := CS$
$DC := S + FL$, $PC := \neg CS$
$IM := IC \wedge DC = 0$
$I := (DC + IM) \geq 1$
$G := DC + I + PC$



Considered as a representation of an actual sequence of historical events, this model is extremely crude. But, to emphasize, the goal here is simply to build a model that can capture the three counterfactual dependence claims identified above, and to show that such a model vindicates the claim that enslaved people were a cause of America's prosperity. Let me first explain why this model does capture those counterfactual dependence claims. I will then explain how it vindicates the claim about slavery and American prosperity.

The first counterfactual dependence claim was that American cotton production did not depend on slavery. The model captures this via the relationship between CS, FL, and DC. If America had abolished slavery at its founding ($CS = 0$), then free labor would have produced cotton. In particular, there would have been more free laborers producing cotton than there were enslaved people in the actual world: $FL := 2 - 2(CS) = 2 - 2(0) = 2$. And, in the model, domestic cotton production simply requires that there be either free laborers or enslaved people producing cotton. (Its value—which we can think of as the amount of domestic cotton produced—is the sum of the values for the two groups of workers.) Thus the model captures the claim that, without slavery, domestic cotton still would have been produced.

The second counterfactual dependence claim was that New England's tex-

tile manufacturing did not depend on domestic cotton production. The model captures this via the relationship between DC, IC, IM, and I. International cotton, the model assumes, is being produced: the value of that exogenous variable is 1. And it would be imported if there were no domestic cotton: $IM := IC \wedge DC = 0$. That would, per the model, be sufficient for cotton textile production; it requires only some cotton or other: $I := (DC + IM) \geq 1$. Thus the model captures the claim that, without domestic cotton, New England still would have produced cotton textiles.

The third counterfactual dependence claim was that the south's level of investment in physical capital depended on slavery. The model captures this straightforwardly: the value of the physical capital variable, PC, is simply the negation of the value of the slavery variable, CS.

Note that these together imply that slavery was bad for the American economy. Without slavery, (more) cotton would have been produced ($DC = 2$), and the north would have industrialized anyway ($I = 1$), but the south would have invested more in physical capital. So growth would have been higher ($G = 5$).[41] The basic mechanism here is this: the positive contributions that slavery made to the economy were redundant, while the negative contribution was not.

I now explain why the model vindicates the claim that enslaved people were a cause of America's prosperity. Very roughly, structural equations theories of actual causation say that one thing causes a second thing if and only if the value of the variable representing the second thing depends on the value of the variable representing the first thing while variables that are not on the path from the candidate to cause to effect—"off-path variables"—are held fixed at certain values. Which values? Different structural equations theories give different answers to this question.

We begin with the simple theory that Weslake calls (PRE), for "preliminary." According to (PRE)—again speaking roughly—one thing causes a second iff the latter depends on the former holding the off-path variables fixed at their *actual* values. Let us apply (PRE) to the model above. $S = 1$ is our candidate cause; $G = 3$ is our effect. First we hold fixed the off-path variables at their actual values. Then we see whether the value of G depends

[41] I assume that growth is a positive function of cotton production itself, that is, even holding the production of cotton textiles fixed. In other words, I do not assume that cotton production merely increases the permanent level of output without increasing its growth rate. In making this assumption I am relying on the evidence that cotton productivity increased in the nineteenth century. See Olmstead and Rhode 2008.

on the value of S. And indeed it does: if enslaved people did not produce cotton, then, holding the off-path variables fixed, America's growth rate would have been lower. So, per (PRE), $S = 1$ is a cause of $G = 3$.

Now, (PRE) is not a plausible theory of causation: it faces immediate counterexamples. (This is why it is "preliminary.") But its problem is, exclusively, the generation of false negatives. That is, it says that some things which are clearly causes are not. It does not generate false positives. Thus other, more plausible structural equations theories of causation add but do not subtract: everything that (PRE) deems a cause is also deemed a cause by these other theories. But we have just seen that (PRE) deems the labor of enslaved people a cause of America's prosperity. Thus we can conclude, without any further work, that the other, more plausible structural equations theories do the same.

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