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CONSUMER ETHICS, HARM FOOTPRINTS, AND THE EMPIRICAL DIMENSIONS OF FOOD CHOICES

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Food, Consumer Ethics, and Arguments Based on Harm Footprints

Consider the following pro-vegan reasoning, which is often endorsed by philosophers such as Peter Singer:

> Would you ever open your refrigerator, pull out 16 plates of pasta, toss 15 in the trash, and then eat just one plate of food? How about leveling 55 square feet of rain forest for a single meal or dumping 2,400 gallons of water down the drain? Of course you wouldn't. But if you're eating chickens, fish, turkeys, pigs, cows, milk, or eggs, that's what you're doing—wasting resources and destroying our environment.[1]

Like many arguments about consumer ethics, and like almost all pro-vegan arguments, this argument begins with an empirical premise about the harm footprint of actions of a particular type—namely, the action-type of *eating animal products*—and then draws the (implicit) conclusion that it would be wrong to perform actions of that type because of that harm footprint. However, even if we grant that the empirical premise is correct (as we should), there are a number of important objections to such footprint-based arguments.

To see the first objection, note the similarity between the pro-vegan argument just displayed and the following anti-vegan argument:

> Would you ever dump thousands of gallons of water down the drain, dump pollutants into our rivers, kill the creatures that inhabit our ecosystems, and impose the risk of debilitating injuries and serious violence on other human beings? Of course you wouldn't. But if you eat a vegan

> meal—such as a familiar vegan meal that combines quinoa, greens, avocados, berries, and nuts—then that's what you're doing—wasting resources, destroying our environment, and harming people. Therefore, it is wrong to eat a vegan meal because of this serious harm footprint that lies behind a vegan meal.

Presumably, no one would think that this anti-vegan argument is a good argument, despite the fact that it relies on the same as the reasoning as the pro-vegan argument. So then what is wrong with this anti-vegan argument? Is the problem merely that its empirical premise is false about the harm footprint of vegan staples, whereas the empirical premise of the pro-vegan argument is true about the harm footprint of animal products?

Unfortunately for the pro-vegan argument, that cannot be the relevant difference between these two arguments, because the empirical premise of the anti-vegan argument is actually true—in particular, it is true that vegan staples have a surprisingly high harm footprint, just like animal products.[2] This is true, in part, because contemporary agriculture is surprisingly intensive in terms of the land, water, chemical fertilizers, pesticides, fossil fuels, migrant labor, and other inputs that it requires, where that intensity—even in the production of vegan staples—causes serious harms to humans, nonhuman animals, and other aspects of nature. Furthermore, some vegan staples are delivered by supply chains in which rape, torture, and murder of those who produce those goods is a common occurrence due to the predatory acts of the criminal gangs that control those supply chains.[3] And there is also a host of other harms that may also lie behind a vegan meal—for example, as one recurring example, demand from developed nations for a particular vegan staple might harm humans in lesser developed nations by pricing their hungry citizens out of the market for that nutritious staple, as has allegedly happened with staples such as quinoa, and other commodities such as corn that are also used in biofuel production.[4]

This points to a structural problem for the pro-vegan argument we started with, because even after the empirical facts become clear about the surprisingly high harm footprint associated with vegan meals, it does not immediately follow that it is wrong to eat such a meal—but such an inference seems to be exactly the inference that is made by the pro-vegan argument. Upon reflection, the underlying problem for such an inference is that the conclusion that it is wrong to consume X does not follow from the premise that X has a high harm footprint because, for one thing, the alternatives to X might have an equally high harm footprint or worse. This explains why it does not follow from the high harm footprint of vegan staples that it is wrong to eat those staples—but by the same token, it then does not immediately follow from the high harm footprint of animal products that it is wrong to eat them.

In light of this problem, defenders of the pro-vegan argument will presumably insist that the harm footprint of vegan staples is still *much lower than* that of

animal products, which provides grounds for a more charitable reconstruction of the argument they endorse based on harm footprints:

Pro-Vegan Argument Based on Harm Footprints

Empirical Premise: The harm footprint of animal products is much worse than the alternatives—in particular, it is much worse than the harm footprint of vegan staples.

Conclusion: So, it is wrong to be a consumer of animal products when vegan alternatives are available.

Note that this argument is an instance of a more general form:

Consumer Ethics Argument Based on Harm Footprints

Empirical Premise: The harm footprint of X is much worse than the alternatives.

Conclusion: So, it is wrong to be a consumer of X when those alternatives are available.

As the empirical premise makes clear, a crucial question we need to ask in evaluating such arguments based on harm footprints is a *comparative* question about the difference in harm footprints between the good in question and its alternatives—for example, we need to ask what exactly is the difference in harm footprints between vegan staples and the alternatives involving animal products. This comparative question about vegan food and animal products will be my main focus in the rest of this chapter, along with analogous questions about the harm footprint of organic versus conventional food, and locally produced food versus food delivered by the conventional global supply chain.

But before delving deeper into these comparative, empirical questions about the harm footprints of food, it is worth noting a few general points that arise from the discussion so far: namely, that the crucial questions to ask when evaluating any consumer ethics argument based on harm footprints are, first, the empirical question of how the footprint of a particular good compares with the footprints of the alternatives; second, how important it is that we consume that general category of goods in the first place; and finally, whether and in what exact way ethical conclusions about how we should behave follow from facts about footprints.

To get a better feel for this last issue, which is the most philosophical issue in the neighborhood, it is worth taking the time to identify an important kind of general objection to arguments based on harm footprints: namely, that even if it were true that, for example, vegan staples always had a much lower harm footprint than the alternatives, it still wouldn't obviously follow that we should prefer to consume those goods, because it isn't obvious that minimizing our

harm footprint is ultimately the best way to promote our ethical goals. This kind of objection arises from two independent considerations.

First, the harms captured in the notion of a harm footprint are only a subset of the things that ultimately matter, which means that at best harm footprints provide only *defeasible* reasons for choices—defeasible in the sense that those reasons can be outweighed by other reasons that derive from other things that matter more. For example, if there are occasions where vegan food can only be purchased at great expense to other things that matter more (e.g., where vegan food would require a two-hour detour to the nearest city center, which would take you away from projects that are very important from an ethical point of view), then vegan food may not be what it would be best for you to choose on that occasion, even if there are some genuine considerations based on harm footprints that tell in favor of vegan food, because those considerations, although genuine, can be outweighed. In other words, the idea that we should always act to minimize our harm footprint is mistaken because it overlooks the opportunity cost of doing so—sometimes minimizing the harm footprint of our food would be the wrong thing to do because it would come at the cost either of not doing nearly as much good as we could have done, or not avoiding doing nearly as much harm as we could have avoided doing.

Second, a deeper problem arises from the fact that the *footprint* of a particular act X is essentially a measure of the *average effect* of *all acts of the same type* as X—but there are impressive reasons to think that when making decisions, the average effects of the possible actions open to you are not what matters, and instead what matters are the *actual effects* of your specific acts (as opposed to the average effects of everyone's acts of that type). To illustrate the importance of this in the current context, consider John Robbins's claim in *The Food Revolution* that a pound of beef raised in California has a larger water footprint than taking a shower each day for six months; from this he immediately concludes that you can save more water by not eating a pound of beef than by not showering for six months.[5] The problem is that such a conclusion does not follow, because even if Robbins is correct about the footprint of eating a pound of beef—that is, the average effect of eating a pound of beef—it does not follow that you should expect the actual difference made by your action as a single individual to be equivalent to that average effect. Instead, what you do as a single individual might make no difference at all, or at least might make a difference that should be expected to be much less than the average effect. This example suggests that it is a fallacy to think that your decisions should be based on what the average effects of such actions would be, rather than what the actual effects of your actions would be—a fallacy that might be called the *Average Effects Fallacy*—and to avoid this fallacy, when making decisions what really matters are the actual effects of your actions, not the average effects as measured by footprint analyses.

With this objection in mind, we should be particularly worried about the *Inefficacy Objection*, that what you do as a single consumer generally cannot be expected to have any effect on the harms that lie behind the goods you consume. This worry is particularly pressing, because it may seem to show that rather than engaging in futile *direct action* such as boycotting goods with a high harm footprint, you can often do much better by ignoring the harm footprint of your actions and investing your resources more productively elsewhere, such as in *political advocacy* to change 'the system' that perpetuates those harms, or in charitable giving.[6] In short, the worry is that if your choices as an individual consumer cannot make any difference to the harms that lie behind the goods that you consume, and those harms are also not your fault in any ethically interesting sense, then perhaps they should not affect your consumer choices, and instead you should focus on what would actually be an effective way to make the world a better place.[7]

In what follows I set aside the general objections to arguments based on harm footprints that arise from the Average Effects Fallacy, the Inefficacy Objection, and other worries about the basic relevance of footprints to decision-making. I set aside these objections partly because I discuss them at length elsewhere, and partly to focus attention in the remainder of this chapter on the empirical facts relevant to pro-vegan, pro-organics, and pro-locavore arguments. So, in what follows, I will simply assume for the sake of argument that your primary concern should be the harm footprint of your actions, contrary to what the objections just discussed might seem to show.

I also set aside the other objection above based on the fact that the harms captured by harm footprints are only a subset of what ultimately matters, except to note that such an objection does seem to show that your ultimate goal in the domain of food should not generally be to *minimize* the harm footprint of your food choices, but rather to *optimize* your footprint given the other things that matter and thus the trade-offs that you will have to make to best promote our ultimate ethical goals.

As a result, in what follows I assume that your goal in the domain of food should be to keep your harm footprint below some threshold determined by the all-things-considered facts of what ultimately matters—in other words, your goal should be to keep your harm footprint *under budget*. This notion of keeping your footprint under budget is what we should expect not only on consequentialist views, but also on deontological views, where on such views the budget will be determined by the footprint of harm that can be justified to others, which on any plausible view will generally be greater than the minimum possible harm footprint you could obtain. And this notion of keeping your footprint under budget in the food domain is also consistent with the idea that you nonetheless have a duty to bring your overall harm footprint to zero by taking *offsetting* actions outside the domain of food—such as by purchasing carbon offsets. However, those actions and obligations outside the domain of food are

beyond the scope of our concern here and would require a longer discussion to address adequately, and so I set them aside. I also set aside important questions about offsetting *within* the domain of food, such as whether it is permissible to continue to consume food that you enjoy very much if that food has a very high harm footprint, as long as you make offsetting sacrifices elsewhere in what you eat that keeps your overall harm footprint under budget within the domain of food—or whether instead there are some kinds of harm that lie behind food and other goods that create something more like a *permanent ethical stain* on anyone who consumes them, where that stain cannot be removed by offsetting. Again, I simply set aside these interesting and important issues in order to focus attention on the crucial empirical issues in the remainder of this chapter.[8]

The Empirical Dimensions of Vegan versus Omnivore

So, turning then to the crucial empirical issues, what should we make of the claim that the harm footprint involved in eating animal products is worse than the harm footprint involved in eating vegan staples?

It turns out that even if we ignore all of the other possible objections to the pro-vegan argument, this empirical claim is itself problematic, and is false in many cases. The source of the problem is the same as noted earlier: that even vegan staples have a surprisingly high harm footprint as a result of the land, water, chemical fertilizers, pesticides, fossil fuels, migrant labor, and other inputs that they require that cause serious harms to humans, nonhuman animals, and other aspects of nature. And when we carefully investigate the empirical facts about the harm footprints of vegan staples and compare them with the footprints associated with animal products, it turns out that many vegan staples do *worse* than animal product alternatives, and so it appears that an ethical consumer will reject the idea that food choices should be based simply on vegan principles. As a result, instead of being a *typical vegan*, it appears better to be an *altruistic omnivore* who pays careful attention to the particularities of the food products consumed, and who periodically judges that eating animal products is best.

To begin to see why, consider Figure 9.1, which compares the main kinds of harms that lie behind many general kinds of food.[9]

This chart expresses the harm footprint of various kinds of food in terms of their footprint *per unit of nutrition* along various dimensions, which paints a much more accurate picture than the presentations favored by pro-vegan sources in terms of footprint *per unit of product weight*, because animal products contain much more nutrition per unit of product weight than vegan alternatives. So, a presentation of footprints by product weight introduces a highly misleading pro-vegan bias.[10]

As the chart shows, there are regularities such that if your goal is to keep your harm footprint *under budget*—or if your goal is to *minimize* your harm footprint—you can do much better than by simply being a vegan, and you can

FOOTPRINT / UNIT OF NUTRITION

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	GHG		Land	Water		Other Pollution	Animal Harm	Human Worker Harm
	kg CO2eq / kg protein	kg CO2eq / 10,000 kcal	sq. meters / kg protein	liters / kg protein	liters / 10,000 kcal	(judgment) / unit of nut.	(judgment) / unit of nut.	(judgment) / unit of nut.
Beef	102	93	656	75969	60645			
Lamb	160	133	120	66985	42348			
Pork	46	51	51	30231	26104			
Chicken	25	29	28	11925	10316			
Farmed Salmon	54	58	7					
Mussels	6	8	2					
Eggs	38	31	36	12468	10951			
Milk	60	31	34	25270	13049			
Cheese	54	33	34	15843	9789			
Butter	42	3		131091	8669			
Lentils	10	8	20	22767	17125			
Beans	22	14	20	23590	14562			
Rice	116	24		28960	6000			
Tomato	125	61		24318	11889			
Potato	155	33		14208	3727			
Broccoli	71	59		10106	8382			
Carrots	33	8		20968	4756			
Oranges	51	8		80000	12174			
Bananas	45	6		72477	8876			
Peaches	45	11		100000	23333			
Strawberries	75	16		51791	10844			
Grapes	63	6		96508	9075			
Apples	135	7		316154	15808			
Almonds	11	4		76099	27798			
Peanuts	5	2		15403	7009			
Cabbage	25	13		21875	11200			
Lettuce	25	23		17426	15800			

do so by internalizing a strategy for eating that is much less costly to you than being a typical vegan. This is because in the food domain, as in every domain, the empirical facts really matter, and it is surprising what really best promotes our ethical goals. As the numbers here indicate, adopting the simple intuitive strategy of eating vegan is highly suboptimal, and a more nuanced strategy is much better.

For example, suppose you have to decide between four meals that are on offer, where those meals are: (a) the vegan meal described above, combining pasta, quinoa, greens, avocados, berries, fruit, and nuts; (b) macaroni and cheese with vegetables—namely, carrots, beans, and greens; (c) grass-fed beef with the same vegetables; and (d) factory farmed chicken with the same vegetables. Suppose these four meals all cost the same and contain comparable protein, calories, and micronutrients—in other words, assume that they are comparable nutritionally, as could be the case if the portions of meat and cheese are modest. If we know nothing further about the source of these meals, it appears that we should expect (d) to have the best overall footprint, even though it is the farthest from the vegan ideal of the four options. Meal (d) is likely to be best because (a) has a high human harm footprint, due to the harm suffered by farm workers, especially in picking the berries and fruit, and in the supply chain that lies behind quinoa and especially avocados—and at the same time (a) also has a very high environmental footprint, due to the water and greenhouse gas footprint associated with many nuts, fruits, and vegetables, which are comparable or worse than, for example, the footprints of the factory farmed chicken per unit of nutrition. Meal (b) also appears inferior to (d), because the cheese that is at the center of the meal is as bad or worse than factory farmed chicken along every relevant dimension. Similarly, (c) appears worse than (d) because it is worse along every relevant dimension. Of particular note, (c) has a much worse environmental harm footprint than all of the other options, and some negative human-welfare footprint due to the injuries suffered by those who work in slaughterhouses, as well as an animal welfare footprint that is in the neighborhood of (a) and (b).

The upshot that this example illustrates is that, based on regularities in the harms that lie behind the food we eat, you can do much better by being an altruistic omnivore than by simply being a vegan, in the sense that the best meal to choose in our nonideal world is sometimes one that involves factory farmed meat even when nutritionally comparable vegan, ovo-lacto vegetarian, and humanely raised meat options are available at the same cost. Importantly, this is true even if we ignore the Average Effects Fallacy, the Inefficacy Objection, and other objections—which, if sound, only serve to further undermine pro-vegan arguments based on harm footprints.

The Importance of Considerations beyond Animal Welfare

One key issue highlighted by the discussion in the previous section is that trade-offs have to be made between human harms, animal harms, and environmental

harms, and in making these trade-offs, everyone should grant the general ethical point—as do even utilitarians like Peter Singer—that suffering by a human, per unit of time, is generally much worse than the same duration of suffering by a chicken, in part because humans have capacities that chickens don't, which makes the suffering of a human worse, other things being equal.[11] In addition, most ethical views imply that humans count for more than chickens, and that humans have more ethical constraints on what can be permissibly done to them. As a result, any plausible view must be open to the idea that the harms to humans that lie behind many vegan staples might be worse than the harms to animals that lie behind a meal that involves, say, factory farmed chicken.

All of this is further supported by the fact that factory farms are becoming gradually more humane, led by both consumer pressure and regulation by progressive states like California that have enacted stricter regulations on factory farm conditions, such as regulations that require cages of approximately twice the size of the national average.[12] Furthermore, all of this is also consistent with thinking that the overall harm footprint associated with, say, pork is still worse on balance than the overall harm footprint of all fruits and vegetables, on the grounds that pigs have sufficiently higher moral status than chickens. The main point here is that *some* animal products such as chicken present a particularly pressing challenge to pro-vegan arguments in light of the trade-offs that have to be made—because although chickens are clearly sentient, they are also clearly not of anything like the same level of moral status as pigs or even cows (even on a utilitarian view like Peter Singer's),[13] and so it is at best unclear why their interests are always be taken to trump the interests of, for example, human workers in pro-vegan arguments.

Here it is important to emphasize—as it is not emphasized nearly enough—that in our actual food system many of the fruits and vegetables that we consume require intensive backbreaking work by humans to harvest, where that work is ultimately debilitating to many of those farm workers before they reach middle age (especially when harvesting involves constant bending over and other 'bad posture' movements, as in many kinds of berry harvesting), and is performed under conditions that also involve constant exposure to very large amounts of pesticides and harassment, very little access to medical or psychological treatment of any kind, and inadequate access even to basic requirements for human dignity, such as bathrooms.[14] In the case of female farm workers, this also includes a pervasive environment of sexual harassment and sexual assault.[15] With these serious harms to humans clearly in mind, it is difficult to see how harms to chickens could be thought to outweigh these human harms in a way that is so obvious that it requires no further argument, as pro-vegan arguments generally presuppose.[16]

In response, it could be argued that migrant farm workers have freely consented to the work that they perform, and so that work must make them better off by their own lights—and thus no harm is done to them, at least not in the sense that a utilitarian should worry about. However, the actual testimony of migrant workers suggests that this argument is mistaken in a number of important ways.

For example, even setting aside the question of whether migrant workers should be interpreted as *freely consenting* to their labor market choices, when people choose to become migrant workers, they are typically mistaken about how this will actually benefit or harm them in the future, because they often have highly misleading evidence about what to expect.[17] When they are subsequently asked, after working as migrant workers for several years, whether they would make the same choice if they could do it all over again, they often emphatically insist that they would not—instead, common complaints are that (1) they are not actually making the kind of money that they expected; (2) they have become trapped in this labor market, far away from home, with no feasible way out; and (3) they are suffering significant and unexpected harms. So, they often do not see their choice to become a migrant worker as having made them better off by their own lights. In addition, the most serious harms that they will suffer will manifest themselves only later, insofar as they are incapacitated either by chronic illness or injury, and so are not yet even taken into account. In light of this, and the magnitude of the harms at issue, it would be a dramatic mistake to assume our current system of migrant farm labor makes those workers better off by their own lights.[18]

Furthermore, even if your only goal was to minimize your animal harm footprint (and so you didn't care at all about human harm or other kinds of harm), nonetheless vegan staples generally have a worse animal harm footprint than some specific animal products, such as mussels (as the chart above indicates). This is because many vegan staples have substantial land and water footprints, which means that they take away land and water from wildlife, which can lead to serious harm to those animals. In contrast, mussels have essentially no animal harm footprint at all—partly because mussels are not conscious and so harvesting them does not involve animal harm that has any important weight, and partly because the land and water footprint of mussels is miniscule, and much lower than many vegan staples.[19]

This illustrates perhaps the most important general point in this chapter, which is that the empirical details really matter and things are far more complicated than they initially appear, even for a conscientious ethical thinker. If one aspires to be an ethical consumer, it is crucial to investigate the nuances and counterintuitive facts that are essential for doing what is genuinely best, rather than unintentionally doing what is worse.

Effective Altruism, Information, and Individual Action

It is important to emphasize that many of these important nuances are obscured by the chart above, which does not offer the kind of 'disaggregated' data that choices should be based on when available—disaggregated data such as, for example, the footprint of Roma tomatoes from a particular producer in Mexico purchased in August 2012 in Williston, North Dakota, when considering buying tomatoes of that type at that time and location—and data on how that footprint compares to the other specific substitutes available at that time and location. As

another example, consider that grass-fed beef has a much worse environmental footprint than the numbers indicate in the chart above, because the numbers in the chart above are essentially based on the footprint of conventional beef—whereas the environmental footprint of grass-fed beef is many times worse than conventional according to most calculations. In contrast, the environmental footprint of organic chicken is only about 10 percent worse than conventional factory farmed chicken.[20] (Conventional production is essentially the basis for the numbers in the chart, as the numbers in the chart are based on an average for all goods of the general type actually produced, where actual production is dominated by conventional production.) As a result, if you believe it is permissible to sometimes eat meat beyond fish and mollusks, but you also believe (as you should) that animal welfare is a very important consideration, then it is important to know that organic chicken appears to be a better choice than the organic meat alternatives along every dimension relevant to harm footprint, especially with respect to environmental footprint.

At this point, an important objection to consider is that the costs of obtaining this kind of nuanced information is prohibitively high, given that investing scarce resources of time and attention elsewhere might yield greater returns. In response to this objection, it should be granted that insofar as it is true that investing elsewhere should be expected to pay greater dividends even when what ultimately matters is taken properly into account—which might, on some ethical views, include 'agent-relative' prohibitions on performing particular acts *yourself* that have a high harm footprint—then it is true that you should not invest further in gathering information in the domain of food.

But at the same time, becoming a more educated and more responsible consumer is not difficult, and appears ethically required up to some threshold, partly because of its low opportunity cost up to that threshold, and partly because there is a general ethical requirement that we educate ourselves enough to be confident that when we act, we are not doing unjustifiable harm, at least when the cost of educating ourselves is low. As anyone who investigates supply chains can attest, although it is generally difficult or impossible to get *fully* satisfactory information on the harms that lie behind the goods we consume, nonetheless there is a large amount of information that is easily available and sufficient to draw *some* ethical conclusions. For example, even if it is difficult to get fully satisfactory information on all of the food options available to us, nonetheless there is enough information easily available to show that, for example, eating veal is a mistake from an ethical point of view. More importantly, as the discussions in this chapter indicate, there appears to be enough information available to know a number of more surprising and counterintuitive facts about what food choices are best: for example, that vegan staples are often much worse than some animal products, that organics are generally worse for the environment than conventionals, and other facts that emerge from the considerations discussed in this chapter.

In general, there is often no more significant cost to becoming educated about the nuanced facts about the footprints of food than there is to becoming educated

on more specific facts about animal harms on factory farms—and it is often possible to access even the kind of highly disaggregated information about the footprint of food that is an ideal basis for decision-making.[21] In other words, even if you are not required to know everything about the harm footprints of food, you should still know—based on easily accessible facts, including facts about migrant workers—that strawberries have a much worse harm footprint than mussels. Similar remarks apply to a wide range of food. The fact that it is impossible to know everything is no excuse for not knowing anything, especially if the harm you impose on others increases with your ignorance.

With the ideal of highly disaggregated information in mind, a public policy initiative should be to require such information to be made readily available regarding most of the food and other goods that we purchase. Despite initial appearances, this initiative would not be as costly as it may initially appear, because most of the relevant infrastructure is already in place and much of the relevant data are already tracked throughout the supply chain by the firms involved, either for purposes of profit-maximization or for other regulatory purposes, and could thus be made readily available in machine-readable format to consumers and others at little additional cost. This could be done simply by requiring, for example, a link to that information via an optical code on goods, which consumers could scan with smartphones. (Japan has already done this for beef, and some other consumer information.) Social entrepreneurs could then build applications to read this data and aid in our food choices, partly by performing comparisons and calculations that import additional data from academic, government, and nonprofit research—perhaps also offering 'ethical algorithms' for making trade-offs between different kinds of harm footprints and arriving at an all-things-considered recommendation about what to buy.[22] As with other increases in transparency and consumer consciousness-raising, the collective result would be a shift in demand sufficient to make a large positive difference that significantly reduces the harms that lie behind the food and other goods that we consume, and this shift can be accelerated by this kind of virtuous social entrepreneurship.

As this sort of example reinforces, as a single individual you might be able to do much more good by carefully investing in promoting these kind of policy changes and entrepreneurship than by taking more direct action to lower your harm footprint—which illustrates that advocacy toward policy change and entrepreneurship are often better from an ethical point of view than direct action—and, again, this is true even if we ignore the Inefficacy Objection.

The Empirical Dimensions of Organic-Local versus Conventional-Global

In response to all of the preceding, some people would insist that the correct lesson to draw is very different than what has been suggested so far, and that instead

the correct lesson is that we need to shift away from contemporary intensive agriculture and move back toward more traditional organic farming methods that avoid chemical fertilizers, pesticides, and the inputs that drive many of the surprisingly high harm footprints of vegan staples.

There are two main objections to this pro-organics view. The first objection is that such a pro-organics view is mistaken about the relevant empirical facts. In particular, although it is true that organics may be better for the environment than conventionals *in some locations and with respect to some food products*, and although it may be generally true that organic methods produce less environmental harms *per cultivated acre*, nonetheless all-things-considered organics are generally *worse* for the environment than conventionals, because organics have lower yields, and when the lower yields per cultivated acre are taken into account, it is generally true that organic methods produce more environmental harms of most kinds *per unit of product* than conventional methods—which, according to this objection, should surely be the relevant measure of whether organics are better for the environment than conventionals.[23] This is true because the lower yields of organics imply that shifting toward organics means increasing the amount of the Earth's land that must be devoted to agriculture, which is bad for the environment in myriad ways—from destruction of ecosystems and loss of biodiversity as a result of increased land use, to turning carbon sinks into sources of carbon emissions, and many others.[24] Furthermore, some studies indicate that in addition to being generally no better *for the environment*, organics are also generally no better *for human consumers* than conventionals: Organics are generally no more nutritious than conventionals (with exceptions in some locations with respect to some particular products), and organics do not help avoid pesticide levels that have been found to be a threat to human health (with exceptions in some locations with respect to some particular products).[25]

The second main objection to the view that we should move heavily to organics is that even if such a pro-organics view were not mistaken about the empirical facts, it would still be mistaken as an answer to the question of what we should do, because it mistakenly assumes that we have no important goals beyond simply minimizing our footprint on the environment. But on the contrary, we have a number of additional goals that are much more important—for example, we have the goal of *feeding the entire world*, and not merely feeding wealthy people who can afford to shop at farmers' markets. This leads to a serious problem for the pro-organics response, because if we shifted heavily toward organic methods of farming, it appears that we would not have nearly enough food to feed the world, given the world's growing population and growing affluence, which makes for a growing demand for meat, as well as a growing demand for renewable energy, which is provided in part by biofuels, which subtract from the agricultural output available as food.[26]

In reply to these arguments that we need more intensive agriculture to feed the world, many on the pro-organics side insist that such arguments assume

that too many regrettable aspects of our current world are unchangeable, including regrettable facts about increasing consumption of meat, regrettable facts about climate change, and perhaps also other regrettable background facts such as the use of biofuels and the general background of the congressional-agribusiness-industrial complex. Instead of taking these things as fixed, many on the pro-organics side insist that the only sustainable way forward is to turn away dramatically from these aspects of the status quo: In particular, they insist that we must reduce our consumption of meat and we must combat climate change effectively, which would then allow us to feed the world via organic farming methods. More generally, along these lines it could be argued that a world with dramatically reduced meat consumption and global organic agriculture is a key part of the outcome that is ideally best for the world, because it represents the food system that is part of the best possible outcome for humanity given the basic physical constraints of our world.

On the other hand, it could be noted that even if we agreed that the ideally best outcome would involve organics heavily in this way, nothing would immediately follow about what we should actually do. In particular, even if we agree that the ideally best outcome would involve the conjunction of (a) reducing people's preferences for meat, (b) reducing people's preferences for fossil fuels, and (c) moving our agricultural production heavily toward organics, nonetheless it does not follow that we should actually try to bring about (a), (b), and (c). That is because if the predictable effect of a policy portfolio that aims for (a), (b), and (c) is that we will fail to succeed in bringing about both (a) and (b), then insofar as we do succeed in bringing about (c), the main effects will be to malnourish the world's poor while the rich continue to eat meat, and to increase use of land for agriculture, and thus accelerate destruction of ecosystems and increases in atmospheric greenhouse gas concentrations. As a result, ~~adopting~~ such a portfolio of policies does not seem to be what we should actually do even if we agree that it aims most directly at the ideally best outcome.

Furthermore, because it is foreseeable that such a simple-minded approach to policymaking would have this downside with no realistic upside, such policymaking would be an example of *counterproductive altruism*, in which well-intentioned idealism is paired with a lack of serious concern for the empirical facts in a way that makes our goals much worse achieved than they could have been, and at worst is catastrophically counterproductive.[27]

With counterproductive altruism in mind, it is useful to consider Marion Nestle's answer to the question of what food choices you should make:

> When you choose organics, you are voting with your fork for a planet with fewer pesticides, richer soil, and cleaner water supplies—all better in the long run. When you choose locally grown produce, you are voting for conservation of fuel resources and the economic viability of local communities, along with freshness and better taste. Once you consider such

> things, the choices in the produce section are much easier to make. Whenever I have the choice, here are my priorities in that section: (1) organic and locally grown, (2) organic, (3) conventional and locally grown, (4) conventional.[28]

Unfortunately, the pro-organic and pro-locavore strategy that Nestle advocates appears to be counterproductive altruism: As we've just seen, voting with your fork for organics is much less like voting in favor of admirable environmental goals and much more like voting in favor of starvation and greater destruction of the natural world. That is because, first, as we saw above, a move toward organics should be expected to make things worse for both humanity and the overall environment, which are ultimately more important than the other narrow goals that Nestle mentions—which in any event are not clearly better promoted by organics given a close examination of the evidence.

Second, it is also generally counterproductive to be a *locavore* and strongly prefer consuming locally produced foods, because those foods generally have a *higher* carbon footprint than their nonlocal substitutes, given lesser efficiencies in the supply chain for production and transportation of local foods.[29] For example, because the miles you drive back and forth to buy your food are a disproportionately large part of the transportation-related footprint of what you buy, biking to the store is a more effective way of reducing the carbon footprint of your food. And with that in mind, it turns out that biking to the conventional grocery store and buying food generally has a lower carbon footprint than biking to the farmers' market and buying the same basket of food, because the local food at the farmers' market will generally have a higher carbon footprint independent of your own transportation choices.[30] As a result, it appears that an ethical consumer should not generally follow Nestle's advice—and, to a first approximation, should generally follow the opposite advice instead.

Conclusion

In sum, we've seen that in the domain of food, as in every domain of practical ethics, the empirical facts really matter and things are far more complicated than they initially appear, and it is crucial to investigate these nuances in order to determine what actions are genuinely best, and to avoid unintentionally doing what is worse. Beyond that, some more substantive conclusions have been suggested. For example, we've seen that there are fundamental objections to the ethical relevance of harm footprints. And, even if we set those objections aside, as individual consumers we've seen why it is better to be an altruistic omnivore than a typical vegan.

As a final note, it is worth noting that the strategy outlined here of being an altruistic omnivore may not be the best strategy to preach to the world, even if it represents the truth about what individuals ought to do. For one thing, here as in

many cases in social philosophy, 'morality may not be enough,' in the sense that what is needed most are diverse initiatives from social entrepreneurs and activists who act in the public good above and beyond the call of ethical duty, where their collective actions change the system and move us in the right direction.[31] Many of these innovators are motivated by a higher calling than mere ethics, while some others are motivated by a mistakenly demanding conception of what ethics requires. Furthermore, with respect to even the educated masses who will not take the lead in these ways, the truth about ethics is probably insufficiently inspiring and catchy to motivate them in the way that is best. So, it is important to consider what 'short attention span' principles are most likely to capture their imagination and motivate them with the best results. In light of all the preceding, and with some inspiration from Michael Pollan, perhaps the best message to preach is something like the following:

> Eat food, mostly plants—but not too much food, and not too much harm in the background: keep both under budget.[32]

Notes

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1. This is a quote from People for the Ethical Treatment of Animals (PETA), "Meat and the Environment," http://www.peta.org/issues/animals-used-for-food/meat-environment. Compare Singer, P., *Practical Ethics* (3rd ed.), Cambridge: Cambridge University Press, 2011, pp. 54–56; Singer's conclusion is that we should endorse something "very close to a vegan way of life" (p. 56). See also Singer, P. and Mason, J., *The Ethics of What We Eat*, Emmaus, PA: Rodale, 2007, especially chapters 17 and 18.
2. For more detail, see ~~the chart~~ later in this paper ~~titled 'Footprint / Unit of Nutrition'~~, along with the ensuing discussion and references.
3. De Cordoba, J., "The Violent Gang Wars Behind Your Super Bowl Guacamole," *Wall Street Journal*, January 31, 2014; Holmes, S., *Fresh Fruit, Broken Bodies*, Berkeley: University of California Press, 2013; Waugh, I. M., "Examining the Sexual Harassment Experiences of Mexican Immigrant Farmworking Women," *Violence Against Women* 16, no. 3 (2010): 237–261.
4. Romero, S. and Shahriari, S., "Quinoa's Global Success Creates Quandary at Home," *New York Times*, March 19, 2011; for some critical discussion, Paarlberg, R., *Food Politics* (2nd ed.), Oxford: Oxford University Press, 2013.
5. Robbins, J., *The Food Revolution* (10th anniversary ed.), Berkeley, CA: Conari Press, 2010, pp. 236–237.
6. Note that there is not an interesting "but what if everyone did that?" objection to this advice, because if everyone followed the advice not to take direct action but

merely to politically support the best policies and otherwise do what is best, the world's problems would largely be solved by policy supported by all—which appears to be the best solution to these problems that we could hope for.

7. I discuss these issues at length in a number of papers. For a focused discussion of the Inefficacy Objection and evaluation of an important reply to that objection by Peter Singer (which has also been endorsed by Alastair Norcross and Shelly Kagan), see my paper "The Inefficacy Objection to Consequentialism and the Problem with the Expected Consequences Response," forthcoming in *Philosophical Studies*; see also "The Inefficacy Objection to Deontology," and "Collective Action, Climate Change, and the Ethical Significance of Futility," both unpublished.
8. I discuss some related ethical questions about offsetting in my paper "Global Justice, Political Realism, and the Ethics of Collective Action," unpublished.
9. The spreadsheet that contains the relevant calculations, data sources, and a description of the methodology behind this chart is available at http://www.budolfson.com/footprints. In brief, the numbers are based on the best data easily available, including in peer-reviewed sources, and the cells that do not have numbers are based on my own judgment, which aims for empirical accuracy, which the reader can judge for himself or herself, perhaps in conjunction with my more detailed explanation of the methodology. The shading is done by the default three-color shading algorithm in Microsoft Excel 2010. Main sources of numerical data are Nijdam, D. et al., "The Price of Protein: Review of Land Use and Carbon Footprints from Lifecycle Assessments of Animal Food Products and Their Substitutes," *Food Policy* 37, no. 6 (2012): 760–770; ~~Hamershlag~~, K., "What You Eat Matters," Environmental Working Group, 2011, accessed at static.ewg.org/reports/2011/meateaters/pdf/report_ewg_meat_eaters_guide_to_health_and_climate_2011.pdf; CleanMetrics greenhouse gas footprint data, accessed at http://www.foodemissions.com/foodemissions/Calculator.aspx; Mekonnen, M. et al., "The Green, Blue, and Grey Water Footprint of Crops and Derived Crop Products," *Hydrology and Earth System Sciences* 15 (2011): 1577–1600; Mekonnen, M. et al., "A Global Assessment of the Water Footprint of Farm Animal Products," *Ecosystems* 15 (2012): 401–415; and the USDA National Nutrient Database for Standard Reference, accessed at http://ndb.nal.usda.gov. Of particular note, the specific numbers for greenhouse gas footprints that I use from ~~Hamershlag~~ and CleanMetrics are near the median estimates reported in Nijdam, which is a survey of the peer-reviewed literature on land and greenhouse gas footprints, are also in line with the numbers reported in other peer-reviewed publications, and the numbers in ~~Hamershlag~~ are used for the main goal of advancing a pro-vegan argument; so, for all of these reasons, there is no risk that these numbers have an anti-vegan bias.
10. It is standard in the peer-reviewed scientific literature (such as the articles cited in note 9) to express the footprints of food in per unit of nutrition terms.
11. Singer, *Practical Ethics*, pp. 51–53.
12. See Strom, S. "Wishing They All Could Be California Hens", *New York Times*, March 3, 2014.
13. Singer, *Practical Ethics*, pp. 101–104.
14. Holmes, *Fresh Fruit, Broken Bodies*; Eric Schlosser, *Fast Food Nation*, Boston: Houghton Mifflin, 2001; Barry Estabrook, *Tomatoland*, Kansas City, MO: McMeel, 2012.
15. Waugh, I. M., "Examining the Sexual Harassment Experiences of Mexican Immigrant Farmworking Women", *Violence Against Women*, 2010.
16. For example, Peter Singer's main pro-vegan argument in *Practical Ethics* is: "In considering the ethics of the use of animal products for human food in industrialized societies, we are considering a situation in which a relatively minor human interest must be balanced against the lives and welfare of the animals involved. The principle of equal consideration of interests does not allow major interests to be sacrificed for

minor interests. . . . [Therefore, the correct conclusion is to live] very close to a vegan way of life" (pp. 54, 56).

17. For more theoretical discussion of how this sort of situation, and related situations, can lead people to freely choose options that predictably make them worse off, see the literature in economics on asymmetric information and market failure—for example, Stiglitz, J., "Information and the Change in the Paradigm in Economics" (Nobel Prize Lecture), *American Economic Review* 92, no. 3 (2002): 460–501.
18. For further discussion and evidence for these claims, see Holmes, *Fresh Fruit, Broken Bodies*. A~~n interesting~~ question noted by an anonymous reviewer, which I lack the space to pursue here, is the extent to which farm workers should be seen as ethically responsible for the harms in which they are complicit (e.g., slaughterhouse workers), despite their poverty and diminished labor options.
19. Peter Singer and Jim Mason agree that it is permissible to eat mussels and other sustainably sourced mollusks in *The Ethics of What We Eat* (Emmaus, PA: Rodale, 2007), but beyond this judgment of mere permissibility, they do not seem to appreciate the *substantial superiority* of mussels and some other animal products to many vegan staples, even on a purely utilitarian view.
20. For discussion of these numbers regarding grass-fed beef and organic chicken, see Nijdam et al., "The Price of Protein," especially pp. 763–764; see also Herrero, M. et al., "Biomass Use, Feed Efficiencies, and Greenhouse Gas Emissions from Global Livestock Systems," *Proceedings of the National Academy of Sciences* 110, no. 52 (2013): 20888–20893.
21. For example, see the Environmental Working Group application and website "Food Scores," http://www.ewg.org/foodscores; the Monterey Bay Aquarium campaign "Seafood Watch," www.seafoodwatch.org; and the Buycott application available at www.buycott.com. The "Food Scores" app was released after the initial version of this paper was submitted, and may be the closest real-world example in the domain of food to the kind of social entrepreneurship suggested here—but still falls short of the ideal, as it does not take into account some important dimensions of harm footprints, such as animal welfare and human worker harm footprints—and is not based on fully disaggregated information (although it does an admirable job moving us in that direction given limited available information).
22. See the examples of applications using this data in the previous footnote. Compare also Cass Sunstein on the importance of government data being made readily available in machine readable format in *Simpler: The Future of Government*, New York: Simon & Schuster, 2013.
23. Tuomisto, H. L. et al. "Does Organic Farming Reduce Environmental Impacts? A Meta-analysis of European Research," *Journal of Environmental Management* 112 (2012): 309–320; Mondelaers, K. et al., "A Meta-analysis of the Differences in Environmental Impacts between Organic and Conventional Farming," *British Food Journal* 111, no. 10 (2009): 1098–1119; Fischer, T. et al., *Cropyields and Global Food Security* (Canberra: ACIAR Press, 2014).
24. Seufert, V. et al., "Comparing the Yields of Organic and Conventional Agriculture," *Nature* 485 (2012): 229–232; Fischer, *Cropyields and Global Food Security*; Burney, J. et al., "Greenhouse Gas Mitigation by Agricultural Intensification," *Proceedings of the National Academy of Sciences* 107, no. 26 (2010): 12052–12057.
25. Smith-Spangler. C. et al., "Are Organic Foods Safer or Healthier than Conventional Alternatives? A Systematic Review," *Annals of Internal Medicine* 157, no. 5 (2012): 348–366. Again, there are sometimes wide differences with respect to nutrition between particular items bought at a particular time at a particular location, due partly to the fact that nutrients decay quickly after harvest in some foods; for some of these, see Frith, K., "Is Local Food More Nutritious? It Depends," Harvard Center for Health and the Global Environment, 2007, accessed at http://chge.med.harvard.edu/

resource/local-more-nutritious. Similarly there are sometimes wide and systematic differences with respect to pesticide levels; for some of these, see the Environmental Working Group report on pesticides in food, accessed at http://www.ewg.org/food-news/summary.php.

26. Godfray, H.C.J. et al., "Food Security: The Challenge of Feeding 9 Billion People," *Science* 327 (2010): 812–818; Foley, J., "A Five-Step Plan to Feed the World," *National Geographic*, May 2014.
27. The intended contrast with counterproductive altruism is *effective altruism*. For discussion of these issues and related issues through the lens of effective altruism, see my paper "Effective Altruism, Food, and the Environment," forthcoming in the *Oxford Handbook of Food Ethics*, edited by Anne Barnhill, Mark Bryant Budolfson, and Tyler Doggett (Oxford: Oxford University Press).
28. Nestle, M., *What to Eat*, New York: North Point Press, 2006, p. 66.
29. For a good overview of why this is true, see Venkat, K., "Do Organics Have a Lower Carbon Footprint?," *CleanMetrics* (blog), April 11, 2010, http://cleanmetrics.typepad.com/green_metrics_clean_metri/2010/04/do-organics-have-a-lower-carbon-footprint.html; Sexton, S., "The Inefficiency of Local Food," *Freakonomics* (blog), November 14, 2011, http://freakonomics.com/2011/11/14/the-inefficiency-of-local-food; see also Wakeland, W. et al., "Food Transportation Issues and Reducing Carbon Footprint," in Boye, J. and Arcand, Y., eds., *Green Technologies in Food Production and Processing*, New York: Springer, 2012, and the discussion and references in Fischer, *Cropyields and Global Food Security*.
30. Wakeland, W. et al., "Food Transportation Issues and Reducing Carbon Footprint."
31. I discuss philosophical reasons why everyone doing what is required sometimes does not lead to our goals being satisfied in my paper "Why Morality and Other Forms of Normativity Are Sometimes Dramatically Directly Collectively Self-Defeating," unpublished.
32. Compare Pollan, M., *Food Rules*, New York: Penguin, 2009, where the main advice is "Eat food, mostly plants, not too much," but where "not too much" is meant only to mean 'not too much food.' Keeping your harm footprint under budget can also be aided by minimizing food waste, minimizing consumption of packaging that itself has a high footprint when there are not strong reasons for consuming such packaging, and other actions that I lack the space to discuss at length here, but which are important parts of a more complete discussion of harm footprints and the ethics of food choices.