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Free Trade in Food: Moral and Physical Hazards

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1 Introduction

The essential principle of 'free' trade is the abolition of artificial subsidies supplied in the production of goods and services, and the absence of tariffs (customs duties) imposed upon the consumers of the same goods and services. The most famous classical economist associated with free trade is the Englishman David Ricardo (1772–1823). Ricardo claimed that free trade, operating through the principle of 'comparative advantage' can benefit producers *and* consumers, creating a competition in which no-one is a loser.¹ Simply stated, this principle proposes that producers should specialise in the growing or production of goods and services for which the supplier is best suited. For example, tropical countries will have an advantage in the growing of bananas, compared with countries at high latitudes. Comparative advantage can be determined by more than climate. Regions with a long tradition of specialisation in a craft, industry or agricultural skill are likely to be more efficient producers than a novice population. Ricardo's genius was to show that specialisation of goods produced using comparative advantage could avoid 'zero sum limits'.² That is, free trade between parties each specialising in their greatest comparative advantage was claimed to result in a game where all competitors could in fact be winners—a form of free lunch.

At times, advocates of trade liberalisation have claimed that a wider adoption of free trade is an inevitable step in an inexorable march of history towards global prosperity. For example, Margaret Thatcher's proclamation 'there is no alternative' (to market deregulation—a synonym for free trade) achieved notoriety as the acronym TINA. Typical of the view in support of free trade is the following: 'We know from David Ricardo that a country enjoys higher welfare if, instead of directly producing all the goods its members wish to consume, it specialises in the production of goods

it can produce at comparatively lower cost, and exchanges the surplus for those it does not produce in sufficient quantity.³

Unlike most free lunches, free trade *can* avoid some zero sum limits. Greater efficiencies, enabled by comparative advantage, are often possible. Nevertheless, free trade, as practised in the real world, has many hidden costs. In most cases, one diner, the proposer, enjoys a bargaining position far superior to his or her partner. As well, the chef and the waiter who prepare and serve the meal are likely to be underpaid. Sometimes their labour is guaranteed by coercion. Finally, the food consumed at this lunch is often invisibly tainted, not only by odourless and tasteless poisons, but also by many 'shadow' costs, including environmental degradation that may only become apparent in the distant future.

Like many fables, this critique of free trade is an oversimplification. Sometimes even substantial environmental damage may be justified if it lessens human misery. But an unqualified endorsement of free trade is unjustified, especially from the position of the weaker party to the negotiation. This chapter starts with a critique of comparative advantage, arguing that its benefits have been overstated. It then discusses four main kinds of economic *externalities* uncounted in the cost of food. These are (a) the hardships, risks and exploitation endured by many human beings, both directly and indirectly engaged in the production of food for export, (b) the cruelty to many animals raised in 'factory farms', (c) the contamination of food by infectious agents and toxic wastes and, finally, (d) the damage to the wider environment, especially to the climate system and to ecosystems. The chapter does not argue that these problems can be entirely eliminated, but points out that the cost of these moral and physical hazards is immense. These hazards should, and can, be lessened.

A more complete accounting of these hazards would create financial and transaction costs that would increase the cost of food to the consumer. The payment of higher wages to food exporters in developing countries will reduce global inequality. For both reasons, reforms are likely to be resisted. Nevertheless, the article explores some practical ways to reduce these moral and physical hazards.

2 Free Trade – Theory and Reality

Ricardo's argument that comparative advantage could escape zero sum limits is illustrated in the following example. Assume, in pre-trading England and Portugal, that equally skilled, healthy and remunerated workforces exist, each of ten people. Assume that these workers constitute the entire economy, and their wages are paid, in kind, in proportion to their output. In each country, we assume that half of this workforce is engaged in producing each commodity, but that the average cloth-maker in England is twice as productive as his counterpart in Portugal, and that the reverse is true for making wine. Using these assumptions, each country produces 45 units of cloth and wine over 30 days (see Table 1).

Ricardo's genius was to demonstrate the consequences if each country specialised in producing the goods for which it had the greatest *comparative advantage*. Ricardo noted that different regions, countries and workforces were more or less efficient producers, because of factors such as geography, soil, climate, culture, history and chance. In the example under consideration, Portugal has a comparative advantage in producing

Table 1 *Pre-specialization. Both countries produce each good. Total production during 600 person-days of labour is 90 units for the two countries*

| | Good | Person-days/Unit | Workforce | Person-days Worked | Production (30 days) | Total |
|-----------------|-------|------------------|-----------|--------------------|----------------------|-------|
| England | Cloth | 5 | 5 | 150 | 30 | 45 |
| | Wine | 10 | 5 | 150 | 15 | |
| Portugal | Cloth | 10 | 5 | 150 | 15 | 45 |
| | Wine | 5 | 5 | 150 | 30 | |
| Total | | | 20 | 600 | | 90 |

Table 2 *Post-specialisation. Each country specialises in the production of a single good. Total production increases to 120 units, yet no more person-hours are worked*

| | Good | Person-days/Unit | Workforce | Person-days Worked | Production (30 days) | Total |
|-----------------|-------|------------------|-----------|--------------------|----------------------|-------|
| England | Cloth | 5 | 10 | 300 | 60 | 60 |
| | Wine | 10 | 0 | 0 | 0 | |
| Portugal | Cloth | 5 | 0 | 0 | 0 | 60 |
| | Wine | 10 | 10 | 300 | 60 | |
| Total | | | 20 | 600 | | 120 |

wine, but England is more suited to making cloth. Specialisation allows the same sized labour force to produce more goods in the same time. This is shown in Table 2.

In this case, specialisation boosts the total production of wine and cloth, without engaging any more labour. Despite additional costs, such as transport, it seems plausible that these costs will be outweighed by greater production. This is true even if other costs are considered, such as the dismantling of cloth-making machinery in Portugal, and producing labels in a different language. These gains are maximised if no country applies a tariff to the imported goods.

The efficiencies used in this example may be overstated. The extent of comparative advantage may change over time, for example as a workforce gains more experience or becomes more capitalised. A closer examination of Ricardo's theory reveals additional problems. For one thing, it assumes that there are no diminishing returns of labour and land productivity. That is to say, while Portugal may have a clear advantage over England in making the first million litres of wine, production of the second million litres may rely on land, labour or climatic conditions that are not as well-suited, reducing the gains.

Another issue is the problem of monopolies. In this example, following specialisation, England will enjoy a monopoly on cloth, and Portugal will have a monopoly on wine. Either party could abuse this position, especially if there is asymmetry in either the number of monopolies held by one country, or asymmetry in the demand for the goods produced by that monopoly.

In a perfectly fair world (and assuming no significant transport or transaction costs), the extra productivity could translate to higher real wages in both countries (see Table 3). In the real world, wages and prices are influenced by the relative economic power of the broader economy within which any workforce is located, as well as by supply and demand. Consider if a third country (*e.g.* Spain) also has a comparative advantage over Britain in the production of wine (see Table 3). After specialisation, the supply of wine is then likely to exceed demand, consequently depressing the unit price of wine. This can then lower wages, in both Spain and Portugal. England, as the sole producer of cloth is then in position to arbitrarily increase the price of cloth, and this could further increase the disparity in the wages paid in the three countries.

These are simplified examples, for example by assuming that the unit of production is a country rather than a firm. Nevertheless, they demonstrate that free trade and comparative advantage do not necessarily result in gains for *all* parties, and that increases in absolute and relative inequality are possible. Real wages of commodity producers will tend to fall if supply exceeds demand, even if producers exercising their comparative advantage generate increased total productivity. Specialisation can make nations vulnerable to oversupply, gluts and reduced demand for its exports, because of substitution or a change in fashion. It also means that a country can seal in a long-lasting or even permanent comparative disadvantage that might otherwise only be temporary. These drawbacks are far from theoretical.

Table 3 *Before specialisation, wages in each country are equal at 4.5 per person. After specialisation, the price of wine falls, because of its over-supply. Even though the wine-specialising countries have increased their productivity, wages decline relatively, and may even decline absolutely, depending on the elasticity of demand for wine*

| | Cloth | | | Wine | | | Wages |
|-----------------|--|--------|-------|------------|--------|-------|-------|
| | Production | Demand | Price | Production | Demand | Price | |
| England | 30 | 20 | | 15 | 25 | | 4.5 |
| Portugal | 15 | 20 | | 30 | 25 | | 4.5 |
| Spain | 15 | 20 | | 30 | 25 | | 4.5 |
| Total | 60 | 60 | 1 | 75 | 75 | 1 | |
| | pre-specialisation | | | | | | |
| England | 60 | 20 | | | 25 | | 6 |
| Portugal | | 20 | | 60 | 25 | | 3.75 |
| Spain | | 20 | | 60 | 25 | | 3.75 |
| Total | 60 | 60 | 1 | 120 | 75 | 0.625 | |
| | post-specialisation, unchanged wine demand | | | | | | |
| England | 60 | 20 | | | 28 | | 6 |
| Portugal | | 20 | | 60 | 28 | | 4.2 |
| Spain | | 20 | | 60 | 28 | | 4.2 |
| Total | 60 | 60 | 1 | 120 | 84 | 0.7 | |
| | post-specialisation, increased wine demand | | | | | | |

Problems with Ricardo's idealised theory were pointed out in the 19th century by the Austrian economist Friedrich List.⁴ Yet his criticisms still remain largely unknown, both to supporters and opponents of free trade. Instead, the alleged virtues of free trade are repeatedly proclaimed as an important tool of benefit to both supplier and consumer. This is a reassuring myth in a vastly unequal world. The myth hints that economically powerful nations actually have the best interest of their weak trading partners at heart, and that, somehow, the continued poverty of Third World nations is despite the efforts of rich countries to give them an equal opportunity. No doubt this myth helps to assuage the conscience of policy makers, economists, consumers and others who benefit from decades of exploitation masked as fairness. Giving equal attention to List's critique would risk the unveiling of this conceit, and suggest that modern economic theory is not as benign as its advocates claim.

In recent decades, many countries have reduced their levels of protection, especially for manufactured goods. The low wage, well disciplined labour force in many developing countries, allied with increasingly sophisticated management systems and the use of advanced technologies, has seen significant increases in the export of manufactured goods to developed countries, resulting in the 'offshoring' of a significant number of jobs. The 1970 Nobel Laureate in Economics Paul Samuelson, one of the grand old men of modern economics, has dared to criticise free trade theory.⁵ However Samuelson's critique does not concern the hazards discussed in this chapter. Instead, he speculates that the offshoring of jobs from developed countries has reached such a scale that its benefits to consumers threaten to be outweighed by damage to the social fabric and living standards of working class communities in developed countries. Samuelson says little about the gains to workers in developing countries, but he implicitly supports the 'race to the bottom' critique which argues that a small class of privileged consumers stands to gain, as long as production costs fall, irrespective of their geography. That is, Samuelson points out that these gains in fact come at a price to other people.

While many developed countries have substantially reduced tariffs and subsidies on manufactured items, they have been far more cautious in commensurate subsidy reductions for agricultural produce. But many developing countries, especially in the tropics, with comparatively small areas and poorly educated labour forces, have accepted (or have been virtually forced, such as Ghana was shortly after its independence) the virtues of comparative advantage. More than 50 such developing countries depend on three or fewer primary commodities for more than half of their export earnings.⁶ These countries are highly vulnerable to the decline in the price of many food commodities that has occurred since 1980 (see Table 4). Critics of the free trade in food have observed 'The potential for profitable agricultural expansion lies not in feeding the hungry but in better serving the markets of those with plenty to spend.'⁷ Similarly the 'extraction and relaying of surpluses' has been identified as a central function of the poor, in serving wealthier people in both developing and developed countries.⁸ A Filipino shrimp farmer lamented:

'The shrimp live better than we do. They have electricity, but we don't. The shrimp have clean water, but we don't. The shrimp have lots of food, but we are hungry.'⁹

Table 4 *The price of many important commodities declined in real terms between 1980 and 2000.⁶*

| <i>Decrease by 0–25%</i> | | <i>Decrease by 25–50%</i> | | <i>Decrease by more than 50%</i> | |
|--------------------------|----|---------------------------|-----|----------------------------------|-----|
| Bananas | 4% | Coconut Oil | 44% | Cocoa | 71% |
| Tea | 8% | Fishmeal | 32% | Coffee | 64% |
| | | Groundnut Oil | 31% | Palm Oil | 56% |
| | | Maize | 42% | Rice | 61% |
| | | Soybean | 39% | Sugar | 77% |
| | | Wheat | 45% | | |

Coffee

Second only to oil, coffee is the world's most heavily traded commodity. It has long been overproduced. Most producing countries perceive advantage in the production of *more* rather than *less* coffee because any country that refrains from production will lose market share. Farmers committed to coffee are naturally reluctant to abandon their investment. Coffee growers, mostly in developing countries, also have a relatively compromised position with regard to information. The consequence of coffee overproduction is a depressed price. This suits consumers, not least because the wide geographic dispersion of coffee plantations reduces the vulnerability to supply from adverse weather or crop diseases which are unlikely to be global in scale.

A successful coffee cartel is unlikely. Unlike oil, coffee is produced by many countries, and, also unlike oil, coffee decays after production. Oil suppliers that temporarily refrain from production bear little if any long-term penalty, unlike coffee growers that refrain from harvest for one year. To be successful, a coffee cartel would require a governing mechanism, able to plan, enforce and compensate growers that refrain from production in many countries, which is an unlikely prospect.

In 2002–03, global production of coffee was 117 million 60 kg bags, but of these only 108 million were consumed. Overproduction resulted in historically low coffee prices (adjusted for inflation) of about US\$1.10 per kg. Of the total retail value for 2002–03 of US\$70 billion, producing countries received less than US\$6 billion. This is a significant decline compared to the early 1990s, when producer countries earned about US\$10–12 billion from a total of US\$30 billion retail value.¹⁰ Most of the value of coffee is retained in the largely wealthy countries that buy coffee, accruing to middlemen and retailers.

Tasmanian potatoes

Problems from competition among food suppliers are not confined to developing countries. The island state of Tasmania grows about 600,000 tonnes per annum of chipping potatoes, supplying about two-thirds of the Australian market. Until recently a handful of buyers have held the price at A\$200 per tonne at the factory gate. The same tonne of potatoes (with oil) retails for up to A\$9,000 if sold by the serving at McDonalds. Of course, additional labour and other costs are involved in the transportation from farm gate to mouth, but a difference of this size is indicative

of exploitation. Eventually, the Tasmanian potato growers became sufficiently desperate and organised to win a price increase.¹¹

These two examples show how free trade exploits competition between relatively numerous producers who are similarly poor with regard to information, capital, and economic and political power. Kenyan coffee growers can indeed grow coffee more easily and efficiently than in German greenhouses. But this has not brought them the prosperity suggested by the most naïve interpretations of Ricardo's theory.

3 The Moral Hazards of Free Trade

Any fall in commodity prices creates incentives to reduce production costs, including the cost of labour. Already-poor economies are perversely forced, through competition, to undercut the prices and living standards of producers in other poor countries. Where labour is plentiful, capital scarce, and the maintenance of machinery difficult, it makes economic sense to reduce the wages and conditions of as many workers as possible, thus lowering production costs and winning some exports.

These market forces mean that a substantial, though uncertain fraction of many commodities that are eaten, drunk and sipped are the products of Third World workers with few rights and few opportunities, particularly in comparison to First World consumers, who in most cases are unconscious of the scale of this divide. The 'fair trade' movement has publicised and reduced some of the most egregious forms of exploitation, and developed niche markets for ethically produced goods, such as coffee. It seeks to find markets for goods produced more ethically, particularly by the payment of higher wages. Consequently, fairly traded goods are more expensive. The global sales of the most widely fair-traded good, coffee, are less than 1% of global production, and the percentage of fair trade in other commodities is probably even lower.¹²

The Abuse of Human Beings

'Proper economic prices should be fixed not at the lowest possible level, but at a level sufficient to provide producers with proper nutritional and other standards.'

*John Maynard Keynes (1944)*¹³

While the most extreme examples of inequality between consumer and producer are found in the international food trade, exploitation is also involved in the domestic growing of some labour-intensive First World crops. For example, the fruit and vegetable industry in the US has long relied on a comparatively poorly paid, pesticide-exposed, health-care deprived workforce, much of which is vulnerable, illegal and even desperate.

The problem of newly arrived immigrants from developing countries underpinning labour-intensive food production in developed countries is not restricted to the US. Recently, in the UK, more than 20 Chinese workers, thought to be vulnerable, illegal immigrants, drowned in treacherous Morecambe Bay while collecting valuable cockles.¹⁴ Although some analysts claim that free trade does not depress working conditions,³ market forces can be clearly seen at work in this case, depressing wages and safety for this dangerous work.

The issue of an underpaid and exploited workforce being used to produce goods in competition with a freer work force has long been an issue. In the US, the import of goods produced using convict labour was banned in 1890.¹⁵ Goods produced using prison labour are still banned by the World Trade Organisation, but there is no exclusion for produce grown using child, slave or indentured labour. There are also claims that some goods sold on the world market *are* produced by prisoners, kept in Laogai (Chinese 'reform through labour' camps).¹⁶

The suffering and risk involved not only in the making of food but in the myriad of elements that support its production and global distribution are rarely included in the calculus of cost and benefit of trade, which instead mainly uses indicators such as the volume, price and monetary profit. This suffering and risk thus constitutes a moral hazard of free trade. In situations where fairly traded goods are either unavailable or considered too expensive, how can the consumer discriminate in order to avoid an unwitting endorsement of the most egregious exploitation? Currently, this is virtually impossible.

The Modern Economy: A Long Economic Chain

Central to ecology is the concept of 'food chains', in which the energy of a large number of simple organisms is consumed by a smaller group of organisms further up the chain, who in turn are vulnerable to consumption by better positioned predators. At the end of these food chains are found large and comparatively long-lived species such as eagles and sharks. Human beings now occupy the ends of most food chains, including those involving marine systems.

Less well-recognised is the parallel existence of a form of economic supply chain, in which the final human consumers benefit, usually indirectly, from the sweat, sacrifice and risk of the enormous number of people further down the economic chain. Our fellow humans have replaced non-human animals as our main competitor and predator, and some of our species ruthlessly exploit others through means such as debt bondage and slavery.¹⁷ Particularly vulnerable to exploitation are groups perceived as 'other' by more powerful groups, whether of a different culture or language, or a lower class, caste, or 'claste'.¹⁸

Billions of people occupy positions in this chain which provide at least tolerable living conditions, with access to shelter, adequate nutrition, health care and a degree of freedom.¹⁹ But near the start of this chain there exist many hundreds of millions of people who endure lives that few people nearer to the end of the chain could tolerate. The lives of these human beings are marked by risk, poverty, disease, fear and insecurity. One in six children of the world are child labourers.²⁰ At least eight hundred million are chronically hungry, and thus literally lack the energy to work themselves out of their poverty trap.²¹ More than two billion people are estimated to be deprived of one or more essential micronutrients, especially of iron, iodine, vitamin A and zinc.²² Most people with protein energy undernutrition probably also lack micronutrients; thus incurring a double burden, being deprived not only of energy, but also of cognitive potential, stolen by chronic micronutrient lack.²³

Until recently, the world consisted of a myriad of separate economic chains. While some of these human systems were more equal than others, no society was ever

entirely egalitarian.²⁴ Nevertheless, constraints, traditions and laws seem to have operated within most of these disparate chains to limit the degree of poverty and inequality.²⁵ In most cases the poor and wealthy lived in physical proximity and were more or less mutually visible. Principles of mutual obligation, religious duties and the possibility of open revolt usually restrained the worst exploitation. When inequality became visible and extreme, such as within Britain during the Industrial Revolution, many countering social forces arose which, over time, reduced the worst abuses.²⁶ These countering factors included the organisation of workers, sometimes supported by members of the upper class and intellectuals, to campaign for the vote and for better working conditions. As well, there is evidence that the government perceived that the deepening inequality could damage not only the social fabric but also national security. For example, though the declining height of the average British navy recruit, caused by chronic undernutrition, theoretically enabled smaller cabins, saving space and funds, it generated alarm because of the correlation of decreased height with reduced strength, stamina and fitness. In other societies, such as in Hindu India, a caste system evolved which, though imposing rigid controls and cruel conditions on members of the lowest caste, nevertheless provided limited rights to members of that caste, as well as generating a support system within it.

Today, the globalisation of trade has effectively melded thousands of economic systems into a single chain that embraces almost the entire global population. Probably the only people who survive outside this chain are a few indigenous populations, still clinging to subsistence lives, with minimal contact with the wider world. The number of these people is now miniscule, and their lack of acknowledged property rights makes them extremely vulnerable.²⁷

While comparatively few people at the beginning of this global chain participate *directly* in food-exporting industries, virtually all consumers who live further along the chain benefit, albeit often indirectly, from the poverty of the poorest group. For example, assume that workers employed in a shrimp-processing factory in Chittagong, Bangladesh, which exports to Europe are paid reasonably well by Bangladeshi standards, so that they live above a level of absolute poverty (though far below the living standard of the average consumer of their produce in Europe). Because we have assumed that these workers are not subsistence workers, but participate in the Bangladeshi economy, it follows that the living standard of these workers will in turn rely on goods and services supplied, in the main, by workers who occupy an even lower economic level. In the context of many low-wage economies, the gap in living standards between those who constitute the first link of the chain and those further along who are employed in food-export industries may not be large, and may seem contextually reasonable. However, when viewed *across* economies the gap between many First World food consumers and many Third World food producers is profound and probably exceeds most historic gaps between rich and poor in either developed or developing countries. Thus all consumers in this global supply chain are both economically and morally connected to the poorest group.

The physical, linguistic and cultural gaps between consumers and producers disguise the economic gulf and weaken efforts, on either side, to narrow the gap. Although 'Fair Trade' makes an effort to improve the working and income conditions for many commodity producers, such as for coffee and cocoa, Fair Trade can

do little to diminish this gap, or to improve conditions for people whose poverty underpins those involved in the export of crops, other than hoping that a 'trickle down' of money and values will gradually lead to reform.

Child Labour

Approximately 1.3 billion people globally (one in four) are employed in the agricultural labour force. A poor and vulnerable fraction of this group are landless labourers or subsistence farmers, who rarely, if ever, grow cash crops. But even poorer than this group are millions of child labourers, whose involvement has been documented in the production of many heavily traded food commodities including bananas,²⁸ cocoa,²⁹ oranges, shrimp,⁹ and sugar,³⁰ tea and coffee.³¹ Child labour may be as apparently benign as helping out after school on the family farm, but it can also involve relentless, heavy, ill-paid and dangerous work. For example, a recent report by the International Institute of Tropical Agriculture for the US Agency for International Development found that hundreds of thousands of children, most under 14 years, are engaged in hazardous tasks in the growing of cocoa, in the four West African nations (Ivory Coast, Cameroon, Ghana and Nigeria) that are the major source of this key ingredient of chocolate. These tasks including the spraying of pesticides, carrying heavy loads and using machetes.³²

Similarly, a recent report in the New York Times claimed that Bonita branded bananas sold in the US depended in part on child labour.³³ Impoverished families are less likely to keep children at school, when they can be making even a small amount of money in exchange for hazardous conditions. Tasks undertaken by children include tying insecticide-laced cords between banana trunks.

In South-east Asia a substantial area of traditionally used land has, in comparatively recent history, been appropriated from indigenous populations, with minimal or no compensation, in order to grow palm oil, a hidden ingredient for margarine, chocolate, soups and potato crisps.³⁴ This appropriation of land is not a form of direct slavery or forced labour, but by depriving people of their ecological resources it has a similar effect.

The International Labour Organisation has estimated that 69,000 children of ages 10 to 14 and an additional 325,000 young people aged 15 to 19, were working in Ecuador alone in 1999. In circumstances similar to coffee, each 43 pound box of bananas purchased in Ecuador by exporters for \$2 or \$3 is sold for \$25 in the US or Europe. Like coffee, the global oversupply of bananas for export forces the price lower.

The number, working conditions, life histories and life expectancy of the world's child labourers is poorly documented. Obstacles to such investigation range from employer and official non-cooperation to overt violence. Child labourers involved in agriculture are scattered in countless locations in dozens of countries. There are many advocates, especially in developing countries, for the use of child labour to produce traded goods, whether manufactured or agricultural.¹⁵ These advocates argue that exclusion of goods produced by child labour would be a kind of protectionism, consigning labour-rich countries to even deeper poverty. This argument is plausible, not least because there is little evidence that those who propose boycotts

against goods produced using child labour invest commensurate effort in finding an alternative livelihood for displaced workers.

There are compelling theoretical reasons for how untempered free trade can increase inequality, in a 'race to the bottom'. That is, competitive forces that operate in a market constructed only to reward the cheapest financial cost will inevitably reproduce and invent measures to lower the cost of production. This argument is especially strong for goods and services that do not require high levels of skill (because, by definition, highly skilled labour forces will be harder to exploit).

The use of child labour for unskilled agricultural work serves the short-term interest of both consumer and employer (that is, where employers compete against peers who also use child labour), not only by lowering the cost of labour, but also by reducing other costs entailed by employing an older and less compliant workforce, who are more conscious of exploitation, and also more knowledgeable of forms of escape from, or resistance to, exploitation.

In reality, the most extreme forms of such 'free' trade are limited, because even the most egregious markets and societies are tempered by the countering influences of international law and opprobrium. But, at the same time, the force of these countering winds is continually lessened by distance, blindness and greed. That is to say, when the area of production is far away, when the people involved in production are unknown, when the price to the consumer is low, and when the profits to the importer are great, the incentive to abuse human beings is high.

The Abuse of Animals

Countless animals are 'warehoused' in cruel conditions in 'factory farms'. In these landless farms most animals are treated as if they are inert factors of production, rather than sentient creatures. Urbanisation has greatly reduced the percentage of people with first-hand experience of farm animals. Factory farms are rarely visited, filmed or publicised. Consequently, few people know or seem to care about their conditions, even though these conditions would once have been regarded as abhorrent by many farmers. Examples of this abuse include calves that are reared away from the sun in order to keep their flesh pale, and of pigs kept in crates so tight that they cannot turn around or even lie down.³⁵

The view that humans, like chimpanzees and other primates, evolved from forest-dwelling species was once widely ridiculed. An enormous gap was held to exist between the intelligence, and even the pain perception of humans and other animals. But this gap is increasingly under challenge.³⁶ At least some non-human animal species appear to be self-aware. There is also increasing evidence that many animals, from chickens to chimpanzees, are capable of complex communication, have distinct 'cultures',³⁷ extraordinary facial recognition, family bonding and even emotional reactions such as mourning and depression.^{38,39}

We live in a global society that sanctions organ transplants for beloved pets,³⁶ yet forces billions of equally sentient creatures to crowded, housed lives with a complete absence of freedom. Defenders of intensively farmed animals point to regular feeding and the absence of predators (until the end) as compensatory virtues, but no doubt similar claims were once made about human slaves. To provide adequate

nutrition for the human population of more than six billion probably requires a substantial degree of intensive animal farming, but the suffering involved is clearly an uncosted hazard of free trade. As with child labour, it should be possible to reduce this hazard, even though its complete elimination may seem utopian at present.

The Hazards of Intensive Animal Farming

Antibiotics and Hormones Many of the animals raised in intensive farms are fed antibiotics and hormones. These accelerate growth and reduce animal disease, but create hazards to human health, such as the inadvertent promotion of antibiotic-resistant organisms and the contamination of food with trace amounts of foreign chemicals, such as bovine somatotrophin.⁴⁰

Nearly half of the total volume of antibiotics in the US is fed to animals, despite a strong scientific consensus that this is undesirable. Links exist between the sub-therapeutic use of antibiotics in animals and the increasing prevalence of resistant bacteria in humans. The World Health Organisation has advised against the practice of dosing animals with the same antibiotics used in human medicine. Yet the practice continues in many nations. For example, in 1996, the US Food and Drug Administration approved the use of the antibiotic class fluoroquinolones in chickens and turkeys, despite strong opposition from the Centers for Disease Control (CDC). Fluoroquinolone resistance quickly appeared in *Campylobacter* isolated from chickens, and by 1999 18% of *C. jejuni* and 30% of *C. coli* isolated from human patients showed fluoroquinolone resistance.⁴¹

Modern Herd and Flock Diseases Intensive farming practices have been directly linked with the emergence of several devastating herd and flock diseases, including 'mad cow disease' or bovine spongiform encephalopathy (BSE), foot and mouth disease (FMD) and avian influenza. The background of the BSE epidemic is well known. In order to improve the protein content in the diet of cattle, ground-up cattle remains, including the brain and spinal cord, were fed to cattle. This practice was claimed as economically 'rational' because it turned a waste product into a valuable food. But from an ecological perspective this practice was anything but rational, as cattle are normally vegetarian and certainly not cannibals.⁴²

While it was originally argued that this practice is harmless, a similar disease called kuru, transmitted through the ritual cannibalism of human brains, was already known in New Guinea. In time, the causal agent of BSE, an unusual protein called a prion, was transmitted to humans, causing a devastating, rapidly progressive and still untreatable brain disease, called Creutzfeld–Jacob disease (CJD). So far, the size of this human epidemic has been modest, but transmission is probably still occurring, through blood transfusions⁴³ and surgical instruments that cannot be sterilised. As well as these human health effects, the BSE epidemic imposed an immense economic and psychological toll upon farmers, as millions of cattle had to be destroyed.

The genesis of the BSE epidemic is unsettling in the context of modern fish farming. A form of prion has recently been identified in fish.⁴⁴ Fishmeal is an important source of food for farmed carnivorous fish, and includes land animal as well as fish-derived protein. As well, under conditions of food scarcity, large, aggressive, transgenic,

growth hormone-enhanced salmon cannibalise their smaller, non-genetically modified kin.⁴⁵ In sum, it is conceivable that neuro-degenerative diseases may one day be transmitted from eating farmed fish.

The 2003 epidemic of FMD in the UK also had a severe psychological impact on farmers. Unlike BSE, FMD does not pose a severe health threat to either cattle or humans, but it constitutes a significant *economic* risk. National herds that are free of FMD have an economic advantage; in order to maintain this advantage millions of cattle were again destroyed.^{46,47}

The 2004 epidemic of bird influenza in several East Asian countries has led to the repeated culling of millions of birds. This flu has also been detected in pigs and cats, raising fears that genetic recombinants may enter the human population.⁴⁸ The crowded conditions in which many thousands of birds are housed facilitates the spread of these epidemics.

Food-borne Diseases Food is an important source of microbiologically transmitted disease, including gastroenteritis, hepatitis, peptic ulcer and, in some cases, gastric cancer. Gastroenteritis is a particularly important cause of child mortality in developing countries, but is also an important cause of morbidity in developed countries. On several occasions gastroenteritis in the US has been traced to food imported from developing countries, including Mexican strawberries and Guatemalan raspberries.⁴⁹ The most likely mechanism for the spread of these illnesses is that the food, designed to be eaten uncooked, was contaminated by sewage. The low standards of sanitation and hygiene in developing countries contributes to a lower production cost of these foods (than from fruit grown in a country with universal sanitation and clean water) but in some cases is accompanied by the invisible carriage of unwanted micro-organisms. Again, this hazard is not weighed in formal assessments of the gains of free trade.

4 The Physical Hazards of Free Trade

Even more subtle forms of food contamination occur than that due to micro-organisms, such as pesticide residues and mercury.⁵⁰ These costs are also not incorporated into calculating the cost of freely traded food.

Pesticide Residues in Crops

There is wide agreement that exposures to high doses of pesticides (likewise herbicides, fungicides and insecticides) is harmful to health. In many parts of the developing world, pesticide poisoning has become a favoured means of suicide.⁵¹ In parts of Sri Lanka, more deaths are attributed to pesticide poisoning than to infectious diseases.⁵¹ There is also broad agreement that the regulation, usage and education concerning pesticides in developing countries is poor.⁵² Not all pesticides are equally harmful; many of the ones believed to entail the highest risk have been banned in developed countries, but are still used in developing countries.⁵³

However, the relationship between *chronic* exposure to *low* levels of multiple pesticide residues, such as those absorbed through diet, and ill health is far more contested.⁵⁴ Advocates of pesticide safety can point to many epidemiological studies that

have failed to find a substantial health risk from pesticides. However, critics of pesticide exposure, including within epidemiology, argue that existing epidemiological methods are a blunt instrument for detecting a causal effect from low-dose pesticide exposure and ill health. Critics point to four main limitations. These are (a) the difficulty of investigating the causation of diseases such as cancer and neurological conditions with development times as long as several decades, (b) the difficulty of measuring the cumulative dose of pesticide exposure, (c) the significance of interactions between different pesticides, and (d) the scarcity of adequate control groups. The fourth limitation may be the most important obstacle. That is, because exposure to multiple pesticides is now almost ubiquitous—within both developed and developing countries, it is extremely difficult to find otherwise comparable populations with little or no pesticide exposure. As well, there are few sources of funds to conduct proper studies, sometimes because of significant and powerful vested interests hostile to such research.

Nonetheless, a growing number of studies suggest that chronic exposure to low levels of pesticides may cause significant adverse health effects.⁵⁵ Farmers in developed countries have been repeatedly found to have higher rates of lymphoma than expected, possibly due to their exposure to multiple interacting pesticides.⁵⁶ Some groups appear genetically vulnerable to illness if exposed to pesticides. So far, this has been best documented for Parkinson's Disease,⁵⁷ but may also apply to breast and other forms of cancer. Children too, are an important subgroup who may be more vulnerable to pesticide and other unwanted residues than other groups.⁵⁸

Pesticides belonging to a class of chemicals called organochlorines (now banned from most developed countries) have been particularly suspected of harming health. This is considered plausible because of their propensity to bio-accumulate, their long half-life in human tissue, and, in some cases, their capacity to mimic oestrogen. In one particularly troubling study, exposure to the organochlorine pesticide dieldrin was assessed from blood samples collected from 7,712 women in 1976 whose health was then followed for 17 years. The investigators found that the level of dieldrin in 1976 predicted their subsequent development of breast cancer.⁵⁹ However, while other investigators have claimed that a causal link exists between breast cancer and pesticides⁶⁰ it is probably fair to say that this view is still provisional among most epidemiologists.

Whether or not pesticides are harmful, many consumers are unwittingly exposed to them, knowing nothing or little of the kind, dose or toxicity. Some of these consumers may be particularly vulnerable to adverse effects. This clearly represents a hazard of free trade. Which grower or exporter of food is likely to proclaim the unseen menu of pesticide and other residues in their product?

Chemical Residues in Fish and Marine Mammals

Residues of several organochlorines, including polychlorinated biphenyls (PCBs) and dieldrin have recently been detected in comparatively high concentrations in farmed, compared with wild, salmon.⁶¹ Concentrations of chemicals among salmon farmed in Scottish waters were higher than among farmed fish in Washington state and Chile. Wild-caught fish from Alaska had, in some cases, concentrations 100

times lower than in the Scottish salmon. Just as in crops, debate continues about the health effects, if any, of these residues in salmon. But again, how many consumers can make an informed choice about the risk of exposure to these chemicals?

Another example of a food contaminant is the antibiotic chloramphenicol. This has been recently detected as a contaminant of Chinese honey. In susceptible people, this antibiotic can cause aplastic anaemia which is sometimes fatal. Honey contaminated by chloramphenicol is banned from sale in developed countries. Despite this, large quantities of contaminated honey continue to circulate on the world market.⁶²

5 The Environmental Hazards of Free Trade

Climate and Ecosystem Change

The abundance of agricultural production available to affluent consumers in both developed and developing countries is subsidised by vast quantities of fossil fuels, burned and transformed by a handful of profligate generations, and by other forms of uncOSTED global environmental damage, including that to fisheries, forests and the atmosphere. As a result, an ever increasing number of humans are fed, but these environmental costs will be paid by future generations, who will inevitably have a reduced richness of possible experience and who may even experience compromised health and living standards as a result.

Food Miles

'Food miles' refers to the cumulative distance travelled and energy expended to assemble and distribute the components of a food and its packaging. A study from Germany in 1993 found that the ingredients in a glass jar of strawberry yoghurt travelled an average of 3,500 km.⁶³ Air transport of fresh vegetables from developing to developed countries is an even more profligate user of energy. The transport of asparagus, grown in Chile and flown to New York, has been estimated to consume more than 70 times the amount of energy as contained within the vegetable.⁶⁴

The effect on the global climate from the transport of food is more than simply from greenhouse gas emissions, such as of carbon dioxide produced by the combustion of fossil fuels. Contrails left by jets and shipping wakes are thought to have distinct effects on the climate, separate to that of the associated greenhouse gas emissions.⁶⁵

The Abuse of Ecosystems

Intensive farming practices have led to the transformation of ecosystems on a global scale. In most cases the clearing of forests, the planting of crops and the destruction of fisheries has enabled the feeding of more people. Free trade *per se* cannot be held responsible for all ecosystem damage. However, many ecosystems are harmed by modern trade in ways that are ignored by, or even deliberately disguised from, consumers. The law of supply and demand fails to reflect the real value of many ecosystem services and products.

Ground Water Contamination

In many places, fertilisation of the world's crops has led to substantial contamination of ground, river and coastal water with nitrogen, phosphorus and other substances. This nutrient loading has caused increased eutrophication, the symptoms of which pose a significant threat to coastal resources and ecological and human health.⁶⁶ These problems include the phenomenon of coastal 'deadzones', regions near river mouths in which algal blooms are depleted, not only reducing the spawning of fish. Large dead-zones occur regularly in the Gulf of Mexico, the Baltic and off the Chinese coast.⁶⁷ Chronic exposure to nitrates in drinking water has been linked to gastric cancer.⁶⁶

Fisheries Depletion

Supporters of the free market often claim that price signals will drive substitution and innovation. In fact, there is often a non-linear relationship between supply and price. That is, until supplies are very short, the price can be deceptively low. For example, in the case of fish, many depleted fisheries compete with others that are still plentiful, providing virtually no signal to contribute to conservation. Clever marketing can also mask scarcity and promote depletion. The long-lived, but now scarce deep-water fish called the orange roughy was originally known as the rather less appetising 'slimehead'.⁶⁸ Three-quarters of the fish sold in the United States as 'red snapper' belong to other species, at least some of which are likely to be endangered.⁶⁹ Consumers may thus inadvertently contribute to the depletion of fish species.

Further, not all species are ecologically equal; some may be the last member of an ecological 'suite', *i.e.* functionally related species that perform critical roles in maintaining ecological integrity. For example, several species of fish specialise in eating plankton in coral reefs, providing a form of ecological insurance. That is, the complete loss of *one* such species will not necessarily have a major ecological effect. On the other hand, the loss of the last population of a functionally related group is likely to have a major ecological effect, but this is most unlikely to be reflected in any price signal provided by the market. Parrotfish, one of a small number of species that feed on dead corals, are sold in London.⁷⁰ Few parrot-fish eaters are likely to have any idea that their purchase could have a disproportionately adverse ecological effect upon coral reefs.

6 Reforming the Global Economy

Externalities

Many of these shortcomings of free trade theory, whether involving the abuse of human beings, animals, the broader environment or the invisible contamination of food, fall into an ostensibly arcane and unimportant economic concept called 'externalities'. Formally, externalities are costs that are recognised but not systematically measured. By definition, the cost of externalities is not incorporated into the price of goods and services. Thus, there is almost no *economic* incentive to reduce externalities, which must rely instead on legislation, agitation and persuasion. If sufficient, these may force the mainstream economy to take them into account, 'internalising'

the externality. For example, in developed countries, persistent campaigning and regulation has slowly reduced hazardous working conditions, at the same time increasing production costs and consumer prices.

Many factors prevent the incorporation of existing externalities into the calculation of prices. The most important is that the costs of externalities are nearly always borne by individuals, objects, and ecosystems which have or are utilised by people with no economic power (including people yet unborn). Markets respond to *effective* demand,⁷¹ that is, to actual price and legislative signals, rather than to ideas that are simply desirable or laudable. For example, over 800 million people are chronically deprived of an adequate caloric intake; they clearly need food, but cannot command it. Similarly, the individuals, animals and ecosystems who are most harmed by externalities lack not only the power to change the current economic system, but, in most cases, to even raise the alarm.

The Evolution of Externalities As we have seen, the causal pathway between the consequence and cause of an externality is long and contested. Causal 'proof' may not only be impossible, but is sometimes not even suspected. Many ecological externalities developed because of the genuinely held view that the human impact upon nature could be no more than trivial. In the 19th century the naturalist Thomas Huxley claimed that marine resources were inexhaustible.⁷² If this were really the case, then damage to oceanic ecosystems could be ignored in the balance sheet of fishing and land-based practices that harm coastal ecosystems, including coral reefs. A contemporary example concerns the relationship between fossil fuel consumption and climate change. Until recently, many people considered that human actions could not change the global climate, or that such change would be inconsequential.

At the time of the development of free trade theory, social conditions were vastly different from those of today. Food was grown everywhere by labour-intensive techniques only recently recognized as 'organic'. Animals were raised in fields and barns, and only draft animals and humans (including children) worked in factories. Empires, colonialism, social Darwinism, rigid class structures and racism were dominant values in much of the world. Democracy, as we now know it, was embryonic. The suffering of humans, especially those from the lower classes or from races held to be 'inferior', was considered part of the natural order.

In summary, there was virtually no incentive for economists to consider the kinds of adverse effects enumerated above, whether for humans, animals or the wider environment. Slowly, starting mainly in developed countries, social conditions changed, leading to an increased recognition of all kinds of problems. Problems that were near, visible and obvious attracted attention. Occupational safety, child labour and slavery (within developed countries) became legitimate areas for struggle and debate in the 19th century, assisted by the efforts of many social reformers. Unlike today, most workers lived close to the communities which consumed their produce. Injured workers were harder to ignore, a process assisted by increased literacy, good record-keeping and a free press. Virtuous competition led to improved working conditions and less environmental harm, especially when damage was local, visible and remediable. The pressure in developed countries to improve working conditions, provide compensation for injuries, and to make allowances for

retirement all contributed to increased costs. Thus, these externalities were internalised. Prices increased, profits diminished, but a trade-off occurred in which the community as a whole benefited.

By contrast, in many countries today, rudimentary or even no compensation is available, and the cost to the consumer is correspondingly reduced. Even in developed countries, some of the hard-won gains for labour, described above, are being eroded. Prices are depressed by low wages, comparatively few taxes and low overheads. Some countries, such as India, are still scarred by ancient social divisions which sanction open discrimination, unacceptable in many countries. China too has an enormous underclass of disenfranchised 'floating' workers, with few rights.^{73,74} Globally, this economic underclass forms a bedrock of human services upon which the broader economy is erected.

Real National Wealth

National accounting methods, such as those used to calculate the gross national product (GNP), routinely ignore externalities. There are many critics of the GNP who argue that it gives a misleading indicator of progress.⁷⁵ The GNP measures the circulation of formal currencies, ignoring barter, subsistence and the black economy. These exclusions understate national wealth, but this is outweighed by the failure to measure environmental damage and human suffering. For example, if an injured worker sues for damages, or if contaminated food causes an epidemic of gastroenteritis, the GNP will rise, giving the false impression that welfare has *improved*. Similarly, the conversion of an old growth forest into woodchips or paper will add to the GNP, while the loss of the natural capital represented by the intact forest is ignored.

Although pressure has increased, mainstream economic theory continues to resist proposals to internalise the cost of these externalities. Prices that do so are more expensive. Measuring, monitoring and incorporating these costs into prices constitutes a significant transaction cost. No government is likely to legislate to fully internalise these costs, because it would increase the price structure within that economy and disadvantage consumers and exporters in comparison to economies that act conventionally. As a result, goods with prices adjusted to incorporate externalities are likely to be restricted by market forces to niche status, such as 'fair traded' products.

Nevertheless, a fuller accounting of the externalities involved in the free trade of food, measuring what can be called 'real national' (or 'inclusive') wealth,^{76,77} may reveal that a higher market price to the food-consuming customer is not quite as costly as first appears. A fraction of consumers who balk at paying a premium for the 'gold standard' of fairly traded or 'organic' goods may still pay extra for produce that is *relatively* low in pesticide residues or heavy metals, or is not reliant on forced labour. Others, especially in affluent societies, may be willing to pay more if the extra funds can be diverted to environmental protection, or if the goods are produced using a less ecologically damaging method.

Collective action and pressure on large companies may reduce the profitability of selling goods produced using the most egregious methods, such as slave-dependent

cocoa. More genuine development assistance to such societies is also likely to stimulate the internal social forces that can restrict the most barbaric production practices.

Morality

These uncosted problems collectively subsidise the production of abundant food for those with the economic means to pay for it, but constitute a hidden and immoral system. However, morality receives little recognition in modern economic theory.⁷⁸ All societies have a degree of inequality, and throughout history, affluence has almost always been attained, in part, at the expense of another person, animal or other environmental element. Nevertheless, today's immorality is arguably greater in scope than ever before, even if the worst cases of past immorality, such as the forced shipping of slaves from Africa to the New World, exceeds the worst of today.

Morality is influenced by time and culture, but a sense of right and wrong remains fundamental to religion, ethics, social cohesion and law. The gradual decline in morality, evident in many aspects of modern society, is illustrated not only by the examples such as those discussed above, but also by the dishonest accounting of firms such as Enron and the enormous growth in domestic inequality in many societies.^{79,80} Although contested, the immorality of Western society is a plausible cause of much anti-Western terrorism.²⁵ Few commentators would dispute that, in turn, terrorists are also behaving immorally. The lack of attention to ethics and morality within mainstream economics may one day be seen as a grave error.

There are also many moral hazards in the restriction of free trade. In particular, even after decades of attempts, free trade continues to be practised very asymmetrically, with countries who have a stronger position (the European Union, Japan and the US, in particular) flouting principles of free trade with regard to commodities such as sugar, cotton, grain and skimmed milk powder.⁶

Fair Trade

Critics characterise fair trade as a threat to free trade, motivated by the desire to protect jobs at home against increased competition from the Third World, rather than reflecting genuine concerns about either the environment or human and animal rights. Fair traders have been described as 'irrational moral fanatics, prepared to sacrifice global economic welfare and the needs of developing countries for trivial, elusive, or purely sentimental goals'.⁸¹ Examination of this statement in fact reveals language and assertions that could probably be fairly classed as propaganda. For example, the phrase 'global economic welfare' could be restated as 'global economic dominance'. The number of undernourished people (of macro or micronutrients) currently exceeds that of the total global population a century ago. Global inequality, no matter how measured, is more extreme than in any single country. At least 30 million people are frankly enslaved.¹⁷ Such ills have not occurred because of the whims of fair traders, nor even because of the indifference of an impartial market. Instead, exploitation and inequality are cornerstones of the modern economy. Fair trade attacks this inequality. To further the stated goal of 'global economic welfare' more rather than less fair trade is needed.

7 Conclusion

Surely it is possible to develop a method to generate a trading system in which inequality is reduced and in which the most egregious abuses to humans, ecosystems and the wider environment are at least alleviated. Some advocates of free trade claim that the real purpose of the World Trade Organisation is, in fact, to improve well-being, including real incomes and living standards, for both rich and poor. But people with value systems that give genuine weight to the physical and moral hazards discussed in this chapter are likely to arrive at other conclusions.

This chapter has argued that the scale of recent and current exploitation – of other species, other humans, and other generations – is unprecedented, and is likely to have adverse consequences unprecedented in scale, including for many affluent populations. Just as enlightened individuals and groups lobbied in the past to reduce local exploitation, in part to reduce local social tension, we also need to better study the links between global injustice and global terrorism, for reasons of self-interest, as well as altruism. We also need to better document and study the physical hazards of food contamination. Despite claims to the contrary, the extent of physical harm from these substances may be very large, particularly for genetically vulnerable subgroups. Better labelling of contaminants would increase consumer awareness and stimulate niche markets. While entirely ‘organic’ food is likely to remain out of reach for most of us, new farming and industrial methods should enable the growing of food using more ecologically sustainable methods, with reduced concentrations of pesticides and other food contaminants.⁸²

Improved mechanisation and computerisation will enable the replacement of many of the most menial, repetitive and poorly paid tasks by automata. The emergence of a more compassionate, inclusive and less fearful global society would accord greater recognition to the rights of other people, animals and ecosystems. Finally, the article has argued that a fuller and more balanced accounting of externalities will identify financial benefits likely to accrue from the reduction of physical and moral hazards. If this is possible, then a considerable volume of economic wealth currently consumed non-productively (such as treating preventable disease and insecurity) could be liberated. Much of this additional wealth could then be redirected to the poor, reducing inequality but without reducing the absolute living standards of the well-off. While not revolutionary, progress is possible.

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