

Scarcity

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Scarcity poses a paradox. If, according to the *Merriam-Webster Dictionary*, scarcity means “the quality or state of being scarce; especially: want of provisions for the support of life,” then presumably *actual* scarcity has grown ever less common over the past 200 years, as industrial capitalism has expanded global supplies of food and other material goods to unprecedented levels in both absolute and per capita terms. But, during the same period, the *idea* of scarcity has grown increasingly pervasive in both obvious and obscure ways. Modern economics takes scarcity as its fundamental theoretical premise and *raison d'être*, and major strands of environmentalism likewise find motivation in the idea that natural resources are not only finite but also increasingly scarce. The prospect of imminent scarcities of food, energy, water, or other key resources has been a leitmotif of modernity, and chronic economic inequality and poverty have left significant numbers of people lacking basic necessities, apparent victims of scarcity. It is as though society cannot produce abundance without constantly thinking about – and in some places producing – its opposite.

Although the English word dates back to the fourteenth century, scarcity's prominence as a modern concept coincides with the ascendancy of market economies in northwestern Europe in the latter half of the 1700s. Scarcity was associated first and foremost with food, and especially with the political threats that high food prices could

pose to the old and declining feudal regimes of the time. Occasional food shortages and famines were, of course, much older phenomena; what was new was the extensive mediation of the food supply by intra- and interstate commerce and the dynamics of supply and demand that this entailed. High prices could no longer so easily be blamed on climatic vagaries or divine misfortune if hoarding, speculation, monopoly, and trade were potential alternative culprits.

In the 10 years beginning with 1795, a series of spikes in the price of grains in United Kingdom prompted a flurry of polemical speeches, pamphlets, and treatises dedicated expressly to the topic of scarcity. Some viewed the deficiency of grain as a natural result of unfavorable weather, basing their arguments on personal observations of harvests in various parts of the kingdom. Others blamed farming methods and the quality of various soils, or referred to data on imports and exports and pointed to disruptions in interstate trade caused by the Napoleonic Wars. But, in the absence of comprehensive agricultural statistics – both for the United Kingdom and for countries whence grain was imported – actual supplies of food were difficult to judge, and the causes of price increases were subject to speculation and debate. Merchants and middlemen were widely accused of hoarding, monopoly, and speculation to create the appearance of (and to profit from) scarcity, regardless of real supplies. Some extended this criticism to landowners who were consolidating their holdings into fewer and larger farms, which critics viewed as more prone to monopoly and more vulnerable to unfavorable weather than smaller farms.

While nominally about scarce food supplies, the debates were more fundamentally concerned

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with how government should relate to the market economy. Two other pressing issues lent great urgency to this question: the specter of the French Revolution and the emergence of widespread poverty among commoners, many of them recently displaced into urban centers by the Enclosure Acts. In a time of growing national and imperial prosperity, the masses of impoverished laborers were a paradoxical and ominous novelty, and elites feared that high prices – whatever their cause – might result in riots, rebellion, or revolution. In Karl Polanyi's (1957/1944, 111) words, "When the significance of poverty was realized, the stage was set for the nineteenth century."

Adam Smith's *Wealth of Nations* provided the intellectual ammunition for those, such as Edmund Burke, who argued that free trade and private property were the best – indeed, the only – way to solve imbalances between producers and consumers of food. "Labour is a commodity like every other, and rises or falls according to the demand. This is in the nature of things," Burke (1800/1795, 6) insisted. Middlemen "are to be left to their free course; and the more they make, and the richer they are, and the more largely they deal, the better for both the farmer and the consumer" (Burke 1800/1795, 24). By this logic, government measures to cap prices or ban hoarding would only make the problem worse by preventing market signals from operating effectively. "Of all things, an indiscreet tampering with the trade of provisions is the most dangerous, and it is always worst in the time when men are most disposed to it: – that is, in the time of scarcity" (Burke 1800/1795, 1).

Thomas Malthus weighed in with *An Investigation of the Cause of the Present High Price of Provisions* (1800), echoing many of Burke's positions in defense of landowners and middlemen and in opposition to government intervention. Malthus saw bad weather as responsible for short-term declines in agricultural output, but

he argued that the price increases were out of proportion to these shortfalls. Monopoly was not the cause of this disparity, however: in Malthus's view, the market for food was too large and had too many players for anyone to monopolize it. Rather, he diagnosed the problem as stemming from the Poor Laws, which since 1795 had guaranteed supplements to wages at levels pegged to the price of bread (Polanyi 1957):

the attempt in most parts of the kingdom to increase the parish allowances in proportion to the price of corn ... is, comparatively speaking, the sole cause, which has occasioned the price of provisions to rise so much higher than the degree of scarcity would seem to warrant. (Malthus 1800, 4–5)

Giving the poor money simply added to the effective demand for food without increasing supply, further raising prices, even if it did also help diminish suffering by spreading the impact across a larger number of people. The only real solutions were increased production and imports, both of which would come about in response to higher prices; in the shorter term, large farmers and middlemen were to be thanked for raising "the corn to that price which excluded a sufficient number from their usual consumption, to enable the supply to last throughout the year" (Malthus 1800, 15).

At the end of his pamphlet, Malthus shifted the question from food prices to the growing dependence of United Kingdom on food imports. Asserting (without evidence) that domestic agricultural production could not have "gone backwards" in the preceding 20 years, he deduced that "the present inability of the country to support its inhabitants" could only be due "to the increase of population" (Malthus 1800, 27). He referred readers to his *Essay on the Principle of Population*, originally published in 1798, which he was in the process of almost completely rewriting for the more famous second edition of 1803.

Two points about Malthus's *Essay* are key to understanding its outsized influence on subsequent thinking about scarcity. The first is that it was fundamentally a *moral* argument about the nature of good and evil, virtue and vice – what LeMahieu (1979) termed a “theology of scarcity.” Although Malthus dampened his theological claims in the second (and subsequent) editions, he continued to view humans as naturally “inert, sluggish, and averse from labour” (Malthus 2004/1798, 115–116), and he considered moral and physical deprivation to be necessary, divinely sanctioned spurs to virtuous activity. High food prices were therefore actually a good thing, or at least served as a kind of medicine whose effectiveness required an unregulated market economy:

There are some disorders, which, though they scarcely admit of a cure, or even of any considerable mitigation, are still capable of being made greatly worse. In such misfortunes it is of great importance to know the desperate nature of the disease. The next step to the alleviation of pain, is the bearing it with composure, and not aggravating it by impatience and irritation. (Malthus 1800, 1)

LeMahieu (1979, 474) concludes: “Here at last was the Protestant ethic and the spirit of capitalism.”

The *Essay's* second key contribution was interpreting scarcity as ultimately a function of human population – this was the underlying “disease.” Malthus defined his principle in terms of food: “the power of population is indefinitely greater than the power of the Earth to produce subsistence for man” (Malthus 2004/1798, 19). But neither the reductive circularity of his logic (Engels famously pointed out that even two people would constitute overpopulation by Malthus's argument), nor the empirical fact that food production has indeed increased more rapidly than population since he

wrote, has prevented Malthus's followers from seeing virtually any environmental or natural resources-related problem as a function of population. Neo-Malthusianism can be understood as a body of thought that ignores the moralism and political context of Malthus's arguments in order to take – and mistake – his principle of population as a “scientific” insight based on “natural” laws.

By the end of the nineteenth century, the meaning of scarcity had shifted from anomalous and transient episodes of shortage (people spoke of “a scarcity” as a period of time) to a normal, universal condition of human life and activity. The leading proponents of this shift were economists such as William Stanley Jevons, Leon Walras, and Carl Menger, who developed marginal utility theory on the basis of “what has come to be known as the scarcity postulate, an assumption of the universality of the condition of scarcity that at once gives neoclassical economics its focus and provides the legitimacy of its claim to science” (Xenos 1989, 68). (In his study *The Coal Question*, Jevons also developed the famous paradox that bears his name: When per unit costs are reduced, gains in the efficiency of use of a resource will increase, not reduce, its overall use. Scarcity thus becomes self-reinforcing.) Lionel Robbins (1984/1932, 15) summarized the postulate succinctly: “Scarcity of means to satisfy ends of varying importance is an almost ubiquitous condition of human behaviour. Here, then, is the unity of subject of Economic Science, the forms assumed by human behaviour in disposing of scarce means.”

In contrast to the political economy of Smith, Marx, and Mill, neoclassical economics was unconcerned with wealth and value. The new science understood human needs as “constructed solely out of the individual's preferences, without any trace of social determination” (Xenos 1989, 70), expressed through individual calculations

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of economizing self-interest. In one sense this reduced economics to the narrow world of commodity exchange, with scarcity as its fundamental premise. Anything that was abundantly available to all was not worth economizing, and therefore irrelevant to the discipline:

Economics is the science which studies human behaviour as a relationship between ends and scarce means which have alternative uses ... It does not attempt to pick out certain *kinds* of behaviour, but focuses attention on a particular *aspect* of behaviour, the form imposed by the influence of scarcity. (Robbins 1984/1932, 16–17)

But this formalism also contained the potential for almost infinite expansion as scarcity came to characterize – or could be understood to characterize – a proliferating diversity of phenomena. “Economics is entirely neutral between ends ... in so far as the achievement of *any* end is dependent on scarce means, it is germane to the preoccupations of the economist” (Robbins 1984/1932, 24; emphasis in the original). Even exchange was “subsidiary to the main fact of scarcity” (Robbins 1984/1932, 20): an individual’s time, for example, could be economized in choices about how to “spend” it, provided time were made or perceived to be scarce. Modern macroeconomics also rests on the scarcity postulate, applied at the scale of aggregate output, which is constrained by diminishing returns to capital and labor (Cobb and Douglas 1928; Solow 1956).

Scarcity in neoclassical economics naturalizes more than just a particular model of rationality: “It also universalizes a particular set of institutions – property and markets – which are deemed to be natural results of scarcity” (Xenos 1989, 72). Focusing on exchange-value (price) to the exclusion of use-value affords neoclassical economics the apparent objectivity of quantitative methods based on the universal abstraction

of *Homo economicus*, but this very tractability *presupposes* that individuals always already appropriate property through markets. The question that preoccupied Burke and Malthus – the extent and legitimacy of a free market, with minimal government interference – vanishes by conceptual fiat under the postulated universal condition of scarcity.

The realization and extension of markets – and therefore the applicability of economic science understood in this way – is of course a historically and geographically specific process attended by contentious political struggles. Markets are not pre-given by nature but must be produced, and the state necessarily plays a major role in that production. It is in this role that Michel Foucault (2007) identified the origins of modern governmental power – government based on an “apparatus of security” rather than on a juridical-disciplinary system – which he traced to debates about food scarcity in eighteenth-century France. There, as in United Kingdom, older measures to keep food prices low began to backfire by inhibiting production and trade; what was needed was policies to foster and manage circulation. According to Foucault (2007, 41–42), a profound shift in the meaning of government pivoted on scarcity:

It means allowing prices to rise where their tendency is to rise. We allow the phenomenon of dearness-scarcity to be produced and develop on such and such a market, on a whole series of markets, and this phenomenon, this reality which we have allowed to develop, will itself entail precisely its own self-curbing and self-regulation. So there will no longer be any scarcity in general, on condition that for a whole series of people, in a whole series of markets, there was some scarcity, some dearness, some difficulty in buying wheat, and consequently some hunger, and it may well be that some people die of hunger after all. But by letting these people die of hunger one will be able to make scarcity a chimera and prevent it occurring in this massive

form of the scourge typical of the previous systems.

For Foucault, this was not merely a question of markets and economics. It also shifted the target or focus of government actions from individuals to the population; individuals were henceforth “no longer pertinent as the objective, but simply as the instrument, relay, or condition for obtaining something at the level of the population” (Foucault 2007, 42). Modern power seeks not to dictate or to proscribe specific individuals’ actions, but to establish general conditions that encourage behaviors that collectively ensure the smooth operation of a market society. This suggests that the Malthusian emphasis on population was not coincidental but internally related to both scarcity and political economy. Foucault’s idea of “governmentality” is strikingly parallel, in the realms of law and government, to the scarcity postulate of neoclassical economics, extending it into the subjective dispositions suited to a society structured by the economizing logics of market exchange:

scarcity operates as a principle of rule and of personal conduct. Indeed, one might say that scarcity represents a sort of precondition for the modern, an epistemological principle on which our lives are built. It operates as part of a powerful discursive formation of the modern world. (Watts 2005, 99)

The Enclosure Acts are the most famous instance of what Marx termed “primitive” or original accumulation, which can be understood as the *making scarce* of the means of production (including land) and subsistence (including food) through commodification (including the commodification of labor, which brings scarcity to bear on time itself). But as Foucault suggests, the realization of scarcity encompasses much more. Scholars have shown that primitive accumulation is an ongoing process by which the

commodity form is imposed on an ever-growing array of inputs and outputs. As Kloppenburg (1988) shows in the case of seeds, scarcity need not be based on actual physical dearth: all that is required is that private property claims be established to some good, and that others be compelled by law, technology, or other circumstance to recognize those claims and purchase that good in the market.

Actual physical dearth can also be produced by the very market processes that benefit from it, and the neoclassical economists’ narrow focus on price plays an instrumental role in this dynamic. Resources that are abundant or freely available, and therefore not economized, can nonetheless be brought into production for exchange, directly as raw materials or indirectly as conditions of production (e.g., sinks for pollution), and these actions can cumulatively degrade or reduce the resources in question to the point that they become scarce at local or larger scales. Or, short of actual scarcity, such actions can prompt measures to enclose the resources and assign property rights to them, effectively turning them into economic goods subject to the logic of scarcity. Such measures are often taken under the sign of the “tragedy of the commons” thesis, according to which the absence of property rights, rather than the market forces that motivate overexploitation, is the cause of environmental degradation.

Neoclassical economic theorizing about market effects on unenclosed (uneconomized) resources has often employed fisheries (Gordon 1954) and pastures (Coase 1960) as exemplars and touchstones from which to draw conclusions for broader application. In a more recent variant, economists understand free or nonpriced “ecosystem services” as “externalities” that should be “internalized” into market signals through the assignment of prices. Costanza *et al.* (2014), for example, calculate that the value of the world’s ecosystem services

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dwarfs official global economic output, and the Millennium Ecosystem Assessment prescribes internalization as the solution to addressing global environmental problems (even though it attributes most of those problems to industrialization and globalization). The related concept of “natural capital” equates the ecological with the economic: nature becomes capital, and vice versa, and the conservation of one becomes identical with the conservation of the other. But as Robertson (2006) has shown, the practices of measurement and abstraction necessary to commodify nature are riddled with weaknesses and may well make matters worse.

Neo-Malthusianism arose in parallel to, but distinct from, the consolidation of neoclassical economics in the mid-twentieth century. Broadly speaking, neo-Malthusians focused on the use-values of the natural world, beginning from the axiomatic observation that the Earth is finite, and deducing that a growing human population must inevitably run up against the limits thereof. Progressive era conservation and the emerging science of ecology, coupled with the catastrophic spectacle of the Dust Bowl, provided intellectual and political traction for these views, often expounded (then and now) in the rubric of carrying capacity (Sayre 2008). In *Road to Survival*, William Vogt (1948) defined carrying capacity as the ratio of “biotic potential” to “environmental resistance” – more encompassing, but otherwise analogous to Malthus’s pairing of population growth and agricultural production. Early neo-Malthusians were also strongly influenced by eugenics, which subsequent proponents euphemized and transmuted into theories of modernization and development. During the Cold War, fears that population growth and resulting food shortages would favor communism in the developing world helped motivate both the Green Revolution (to modernize agriculture and raise yields) and

international family planning programs (including coercive sterilization campaigns in places like India). Paul Ehrlich’s famous book *The Population Bomb* (1968), commissioned and published by the Sierra Club, helped consolidate population as a defining concern of emergent environmentalism. Economists countered with studies that showed declining real costs for natural resources based on technological innovation and substitution; Barnett and Morse (1963), for example, could not find evidence of increasing scarcity in US natural resources except in the case of forestry.

In the 1970s, neo-Malthusians turned to systems analysis and computer-based modeling to assess the prospects for continued economic growth at a global scale. The most famous result was *The Limits to Growth* (Meadows *et al.* 1972), which predicted the collapse of the modern world economy within a century. Although more sophisticated than Malthus’s principle of population, the *Limits* model ultimately reflected the same mathematical disparity between arithmetic and geometric (or exponential) growth. The book provoked raging debates, in which mainstream economists attacked the model on technical grounds while insisting that economic progress would solve environmental problems and extend the limits of available natural resources. Growing prosperity, they argued, would also lead to growing concern about environmental quality and political momentum to protect it – the so-called environmental Kuznets curve. In response, the original *Limits* authors twice refined and updated their model, reaching broadly similar conclusions as before. Others have built similar models to calculate the “ecological footprint” of human activities, calibrated by the number of planets identical to Earth that would be needed to support those activities indefinitely; values over 1.0 were reached, they claim, in the late twentieth century (Wackernagel and Rees 1996) – a conclusion that critics

might understandably see as proof that the model must be wrong.

The dominant debates about scarcity today cleave along the same lines as they did circa 1970: *either* economic growth has already exceeded (or will inevitably exceed) the limits of a finite Earth, *or* human ingenuity, motivated by market competition and opportunity, will extend those limits indefinitely. What both sides of the debate share, perhaps unwittingly, is an obsession with scarcity as the unquestioned lens through which to examine modern society. Lost are the voices of those who have challenged scarcity itself, whether as a flawed basis for economic reasoning and policy (e.g., Leon Keyserling, who helped design the New Deal) or as an anachronism rendered obsolete by the miracles of modern technology (e.g., ecological anarchist Murray Bookchin). Equally invisible are the views of the man who designed the original *Limits to Growth* model, pioneer systems analyst Jay Forrester (1971) of Massachusetts Institute of Technology, who concluded in a separate monograph that industrialization was the root cause of both population growth and environmental problems, and that restraining economic development might therefore be the best solution. Demographers have concluded that there is no fixed carrying capacity of Earth for humans; their projections indicate, with significant confidence, that the human population will stabilize this century for reasons unrelated to food supplies. Yet mainstream debates continue to focus on “feeding 9 billion by 2050,” as though alleviating hunger were a matter of increased production rather than more equitable distribution.

In this light, it is supremely ironic that the emerging field of behavioral economics, conducted squarely within the neoclassical tradition, has produced clinical evidence that the perception of scarcity can interfere with rational thought. A large body of research indicates

that, whether real or imagined, scarcity makes people “less insightful, less forward-thinking, less controlled” (Mullainathan and Shafir 2013, 14). The idea of scarcity causes people to misapprehend their interests and misallocate their attention and resources, leading to self-perpetuating “scarcity traps”: the poor become poorer, the busy become busier, and so on. This is presented not as a threat to the fundamental premise of neoclassical economics, however, nor as a critique of the society that scarcity thinking has helped to produce, but as a useful insight that “sheds new light on how we might go about managing our scarcity” (Mullainathan and Shafir 2013, 15). Scarcity is taken not as a postulate, but as an unavoidable, ubiquitous, universal reality of the modern world.

The most prominent challenge to scarcity thinking was mounted by Karl Marx, who insisted that any shortage – whether of food, land, income, or jobs – could only be understood in relational terms, and that the root cause of imbalances in capitalist society was not scarcity but overabundance or surplus. If there were too many people relative to available jobs, it was not due to any “natural” human propensity to breed, but to excessive amounts of capital that had been amassed and transformed into machinery that displaced laborers. The resulting oversupply of laborers – the industrial reserve army of the unemployed – depressed wages, rendering the poor vulnerable to high prices for food and other necessities. Even for capitalists, the threat of overproduction – which can cause prices to collapse and profits to evaporate – has been a greater threat than scarcity in the history of capitalist natural resources extraction, as Huber (2011) has shown for the case of oil. Perhaps the path to addressing modern scarcity begins by thinking about its opposite.

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SEE ALSO: Commodification of nature; Environment and resources, political economy of; Environment and the state; Environmental degradation; Environmental valuation; Environmentalism and green governmentality; Famine; Food security; Governmentality; Modernity; Natural resources; Neoliberalism and the environment; Population growth; Population and natural resources; Poverty; Property and environment

References

- Barnett, Harold J., and Chandler Morse. 1963. *Scarcity and Growth: The Economics of Natural Resource Availability*. Baltimore: Johns Hopkins University Press.
- Burke, Edmund. 1800. *Thoughts and Details on Scarcity*. London: Bristol Selected Pamphlets. (Original work published in 1795.)
- Coase, R.H. 1960. "The Problem of Social Cost." *Journal of Law and Economics*, 3: 1–44.
- Cobb, Charles W., and Paul H. Douglas. 1928. "A Theory of Production." *American Economic Review*, 18: 139–165.
- Costanza, Robert, Rudolf de Groot, Paul Sutton, et al. 2014. "Changes in the Global Value of Ecosystem Services." *Global Environmental Change*, 26: 152–158.
- Forrester, Jay W. 1971. *World Dynamics*. Cambridge, MA: Wright–Allen Press.
- Foucault, Michel. 2007. *Security, Territory, Population: Lectures at the College de France, 1977–1978* (ed. Michel Senellart, trans. Graham Burchell). New York: Palgrave Macmillan.
- Gordon, H. Scott. 1954. "The Economic Theory of a Common-Property Resource: The Fishery." *Journal of Political Economy*, 62: 124–142.
- Huber, Matthew T. 2011. "Enforcing Scarcity: Oil, Violence, and the Making of the Market." *Annals of the Association of American Geographers*, 101: 816–826.
- Kloppenborg, Jack, Jr. 1988. *First the Seed: The Political Economy of Plant Biotechnology, 1492–2000*. Cambridge: Cambridge University Press.
- LeMahieu, D.L. 1979. "Malthus and the Theology of Scarcity." *Journal of the History of Ideas*, 40: 467–474.
- Malthus, Thomas Robert. 1800. *An Investigation of the Cause of the Present High Price of Provisions*. London: Davis, Taylor, and Wilks.
- Malthus, Thomas Robert. 2004. *An Essay on the Principle of Population*, 2nd edn (ed. Philip Appleman). New York: Norton. (Original work published in 1798.)
- Meadows, Donella H., Dennis L. Meadows, Jorgen Randers, and William W. Behrens III. 1972. *The Limits to Growth*. New York: Universe Books.
- Mullainathan, Sendhil, and Eldar Shafir. 2013. *Scarcity: Why Having Too Little Means So Much*. New York: Times Books.
- Polanyi, Karl. 1957. *The Great Transformation: The Political and Economic Origins of Our Time*. Boston: Beacon Press. (Original work published in 1944.)
- Robbins, Lionel. 1984. *An Essay on the Nature and Significance of Economic Science*, 3rd edn. New York: NYU Press. (Original work published in 1932.)
- Robertson, Morgan M. 2006. "The Nature that Capital Can See: Science, State, and Market in the Commodification of Ecosystem Services." *Environment and Planning D: Society and Space*, 24: 367–387.
- Sayre, Nathan F. 2008. "The Genesis, History, and Limits of Carrying Capacity." *Annals of the Association of American Geographers*, 98: 120–134.
- Solow, Robert M. 1956. "A Contribution to the Theory of Economic Growth." *Quarterly Journal of Economics*, 70: 65–94.
- Vogt, William. 1948. *Road to Survival*. New York: W. Sloane Associates.
- Wackernagel, M., and W.E. Rees. 1996. *Our Ecological Footprint*. Philadelphia: New Society.
- Watts, Michael. 2005. "Reflections: Scarcity, Modernity, Terror." In *Making Threats: Biofears and Environmental Anxieties*, edited by Betsy Hartmann, Banu Subramaniam, and Charles Zerner, 99–106. Oxford: Rowman & Littlefield.
- Xenos, Nicholas. 1989. *Scarcity and Modernity*. London: Routledge.