Chapter Two

Toward an Anthropological Theory of Money

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Abstract

Money arises to solve a problem of social coordination: How to reliably settle debts, or satisfy creditors, in a particular market at low cost. Because it is a solution to a problem, money can be considered a social *technology*. I argue that the motivational principle of economy guides human aggregates, over time, to select forms of money that more efficiently solve this problem by improving upon specific characteristics of money that function as technical parameters. These include its ability to store value (its use value and scarcity) as well as its availability, durability, portability, fungibility, divisibility, and verifiability. These technical characteristics of money enable it to perform specific social functions: As a store of value (collateral), a medium of exchange, and a unit of account. Taken together, these social functions render money a reliable method of payment.

Thus money is a kind of chimera: It is the *cheapest valuable* that is both sufficiently scarce to retain its value and sufficiently cheap (easy) to acquire, move, store, precisely subdivide, and verify. Monies whose

1. The author would like to thank George Selgin, Nick Szabo, Dan Hughes, Tuur Demeester, Vincent Van Gerven Oei, John Van Houdt, Adam Staley Groves, and Emanuele Caminada for their helpful comments on earlier versions of this paper.

technical parameters render them better suited for satisfying creditors in a particular market at lower cost tend to displace less efficient monies within that market over time; they may even give rise to unexpected new social technologies, as with the development of writing from the use of Mesopotamian commodity tokens. However, the process of monetary displacement also entails *switching costs* that include the costs of issuing, verifying, storing, and replacing the new currency as well as the cost of decentering or relativizing the established authority of previously standard forms of money. The relatively low costs of transacting with an established form of money combined with the relatively high costs of adopting new forms of money render money a social *institution*.

I further argue that the purpose of money—to satisfy creditors—is psychological before it is legal or technological. Satisfaction that a debt has been paid is a *moral sentiment* that precedes institutions of both law and money. Accordingly, there is always the possibility that a debt has been *paid but not settled* in the mind of a creditor. The phenomena of *political legitimacy* and *rule of law* are largely functions of the overall state of creditor satisfaction in a human community. When the balance of this social ledger is tipped consistently and significantly to the negative, the social system undergoes a transformation: A reformulation or reorganization of roles, hierarchies, processes, leading personalities, and, potentially, of social utilities such as money.

Before presenting my outline of a theory of money, however, I first take stock of the state of the art in anthropological theories of money by reviewing in some detail the account presented by anthropologist David Graeber in his 2011 book *Debt: The First 5,000 Years*. After describing several fatal shortcomings of Graeber's theory, I propose a theory of money that I believe is better grounded in the historical and ethnographic evidence.

Introduction

There is no theory of money that is broadly accepted within the anthropological discipline.[2] I use the term "anthropology" as a shorthand to

2. For a literature review of recent anthropological work about money, see

refer to cultural anthropology, the subfield of anthropology that "aim[s] to provide a rounded view of the knowledge, customs, and institutions of a people."[3,4] The lack of clarity characterizing anthropological theories of money reflects, to a large extent, the hostility of dominant thinkers within cultural anthropology to the assumptions and methods underlying the field of economics. This hostility has created an unnecessary disciplinary divide that prevents anthropologists from benefiting from significant insights from economists about the nature of both money and value. The role played by the motivational principle of economy, foundational for many branches of economics, is particularly relevant for any theory of money.

The principle of economy states that humans will, in aggregate, tend to select the least costly means of achieving whatever ends they set for themselves. Importantly—and this is a distinction many anthropologists fail to make—the principle of economy does not determine the *ends* people seek or the *relative costs* of those ends. Indeed, people often set very costly ends for themselves. As political philosopher Leo Strauss has observed, "Man possesses a certain latitude; he can choose not only from among various ways of overt behavior . . . but from among various values; this latitude, this possibility has the character of a fact. . . . Choice does not mean here the choice of means to

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Bill Maurer, "The Anthropology of Money," *Annual Review of Anthropology* 35, no. 1 (October 1, 2006): 15–36, https://doi.org/10.1146/annurev.anthro.35.081705.123127.

3. Suman Nath, "Social and Cultural Anthropology," *Anthropology for Beginners*, June 11, 2010, http://sumananthromaterials.blogspot.com/2010/06/social-and-cultural-anthropology.html.

4. There is some overlap between cultural anthropology and social anthropology; the latter focuses on how human social relations are organized and structured, which often shades into a study of culture, and vice versa. Accordingly, sometimes cultural anthropology is referred to as sociocultural anthropology. Cultural anthropology is distinct from the three other subfields of anthropology: Biological anthropology, which studies human evolution, genetics, and health; archaeology, which studies the peoples and cultures of the past through their material remains; and linguistic anthropology, which focuses on the role of language in human societies. These fields lie beyond the scope of this discussion. For reference, see, for example: "Subfields: Department of Anthropology," Northwestern University, n.d., https://anthropology.northwestern.edu/subfields/.

pre-given ends; choice here means the choice of ends, the positing of ends or, rather, of values."[5]

In other words, people are motivated to achieve ends that are heavily determined by *values*. Economists writing in the Austrian tradition, including Carl Menger, Richard Strigl, Ludwig von Mises, Lionel Robbins, Israel Kirzner, Mario Rizzo, Peter Boettke, and others have stressed that values are not and cannot be derived from economic theory; this is what it means for economic science to be "value-free."[6] Rather, economic theory is concerned with describing the *means* that economic actors use to achieve their ends, whatever those may be. Ends, in turn, are chosen by individuals inheriting values, norms, and knowledge from social institutions, including the family, the religious and political community, the school, the firm, and other types of associations. But individual valuation and action are not constrained by that inheritance. It is the open-endedness, or the freedom, of human subjective experience (including thought, belief, and valuation) and action that creates the possibility of learning, discovery, and progress over time.

Some anthropologists, such as David Graeber, have objected strenuously to considering values they take to be more instrumental or transactional—that is, self-interested—in the same analytical register as values they associate more with altruistic moral orientations.[7] Graeber takes particular offense at collapsing both kinds of values into the economic concept of *utility maximization*, which could render even the most allegedly altruistic motivations a version of self-interest.[8] But in his rejection of the reduction of altruism to self-interest, Graeber commits a perhaps even more serious analytical error: He appears to argue that self-interested motivation has effectively no analytical value for the study of human social life, dismissing the entire discipline of economics as

5. Leo Strauss, "An Epilogue," in *Essays on the Scientific Study of Politics*, ed. Herbert J. Storing (New York: Holt, Rinehart and Winston, Inc., 1962), 325.

6. Peter Boettke, "Why Are There No Austrian Socialists? Ideology, Science and the Austrian School," *Journal of the History of Economic Thought* 17 (Spring 1995): 35–56.

7. David Graeber, *Toward an Anthropological Theory of Value* (New York: Palgrave, 2001), 7.

8. Ibid.

essentially useless.[9] In other words, Graeber's is a *value-laden* anthropology: He begins with value judgments about which kinds of human motivations are good, or virtuous, and which are bad, then suggests that only behavior that is motivated virtuously should be the object of social science.

Such value judgments quickly generate unresolvable scientific difficulties. Values that motivate human actors may include self-preservation, social status, social reproduction, material production or acquisition, aesthetic enjoyment, generosity, graciousness, justice, or anything else that may be defined as a virtue or as a relative advantage or both. Is desiring, having, and caring for children an instrumental value or a manifestation of altruism? Is charitable giving transactional or selfless? That these questions cannot be answered in a general way indicates that human moral reasoning is not straightforward or binary. There is no way to develop a social scientific account of value that pre-judges which values are to be described and which excluded.[10] In particular, the scarcity of means and necessarily resulting economy of resourcing and effort that have acted as constraints on the development and reproduction of human culture suggest that values function as heuristics that help social actors answer the question of what ends should be prioritized at any given moment. This necessarily implies that "values" and "virtues" are not synonymous, and that neither anthropologists nor economists can "afford," in a scientific sense, to exclude certain values or categories of values from their analyses of human societies.

Virtue is by definition costly; that is what makes it scarce and in large part why it is considered a moral achievement. As Adam Smith observed in *The Theory of Moral Sentiments*, "As in the common degree of the intellectual qualities, there are no abilities; so in the common degree of the moral, there is no virtue. Virtue is excellence, something uncommonly great and beautiful, which rises far above what is vulgar and ordinary."[11] Human beings who behave virtuously a majority of

9. Ibid.

10. See, for example, the discussion of anthropologist Clyde Kluckhohn's attempts to develop a comprehensive theory of "value orientations" in Graeber, *Toward an Anthropological Theory of Value*.

11. Adam Smith, *The Theory of Moral Sentiments* (London: Henry G. Bohn,

the time, or in specific social contexts in which virtue is considered particularly costly, often engender sharply divided social reactions: They may be seen as moral exemplars or as dangerous threats to the social order—that is, the routinized morality that does not yet rise to the level of virtue. The ambivalent social reaction to the practice of virtue invokes the bipolar structure of the sacred that anthropologists including Marcel Mauss, Henri Huber, and Mary Douglas (among many others) have identified as *purity and danger*: People *in aggregate* have conflicting feelings toward those they see as virtuous or as symbols of virtue.[12, 13]

The rarity of virtue is sociologically meaningful. It indicates that, rather than demarcating the entirety of the field of human social life, virtue is only one phenomenon within that field. A question for the social scientist then becomes: How can virtue be described in terms of the structural characteristics of individual human perception, judgment, and action in a social field? Here the principle of economy provides some analytical guidance: Humans will generally and in aggregate realize the ends they value, virtuous or otherwise, using the means that involve the least *sacrifice*. This general economizing tendency suggests that the use of costlier means to achieve one's ends is exceptional and therefore potentially itself a condition of virtue—though perhaps not a sufficient one.

What *sacrifice* means is, of course, strongly influenced by the regimes of value that dominate in a particular cultural context. Behavior that in one social setting would be considered extremely self-sacrificial (for example, the potlatch from the point of view of many modern Western observers) could in another cultural setting be *less* costly than its alternatives (for example, the sacrifice of social status that would result from *not* holding a potlatch in communities in which it is practiced). Yet sacrifice also displays certain regularities that make it a commensurable phenomenon across human societies. To once again use Strauss's language, sacrifice as a category (not its particular manifestations) is one

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1853).

12. Mary Douglas, *Purity and Danger: An Analysis of the Concepts of Pollution and Taboo* (New York: Routledge, 1966).

13. Henri Hubert and Marcel Mauss, *Sacrifice: Its Nature and Function*, trans. W. D. Halls (London: Cohen & West, 1964).

of the "political *things* [emphasis added] that are not affected by the difference of regimes."[14]

One frequently recurring mode of *collective* sacrifice across cultures has involved the cathecting of a particular human or animal with the virtues or vices (or both) of a human community and, by ritually destroying it, wiping the ledger clean of the costs that everyone else in that community would otherwise feel obligated to pay.[15] Expiatory sacrifice is one of the most ancient religious practices and serves to demarcate the boundaries of a group by imaginatively identifying those entities, human and nonhuman, that receive the benefits of the sacrifice.[16] But sacrifice also happens at the individual level with mundane frequency: A person sacrifices one thing to achieve another. This is the essence of making a payment.

This article situates the principle of economy within the culturally inflected and gamified social fields in which making payments is given meaning and takes place: Spheres of exchange, or markets. Sacrifice is unintelligible outside of the sphere of exchange in which it occurs. For example, the widely observed monetary phenomenon known as Gresham's law is a way of describing how certain kinds of sacrifice become routinized in specific markets. As economist Robert Mundell has observed, humans will, in general, "pay with that which involves the least sacrifice;"[17] that is, they will "settle a debt or transaction with the cheapest means of payment."[18] In other words, people routinely prefer to spend what they perceive to be less valuable money over what they perceive to be more valuable money "if they exchange for the same price."[19] Gresham's law is therefore sometimes referred to as the tendency for "bad" (overvalued) money to drive out "good" (undervalued)

14. Strauss, "An Epilogue," 318.
15. Hubert and Mauss, *Sacrifice*.
16. Ibid.
17. Ibid.
18. Ibid.
19. Mundell, "Uses and Abuses of Gresham's Law."

money.[20, 21] "Overvalued," or "bad" money, is money that users perceive will be worth *less* in the future, so they spend it; meanwhile, users of "undervalued," or "good" money believe that it will be worth *more* in the future, so they save it.

The cheapest means of payment in one sphere of exchange—in one market—may not be the cheapest in another. The different *stakes*, or game-theoretic conditions, of high-trust and low-trust spheres of exchange, for example, translate into differing interpretations of "sacrifice" in those markets. In high-trust markets, it is generally cheaper to settle transactions with credit; in low-trust markets, it is cheaper to settle transactions with a commodity. This is why both credit and commodity monies emerged historically and persist to this day.

In other words, money arises to solve a problem of social coordination: How to reliably settle debts, or satisfy creditors, in a particular market at low cost. Because money is a solution to a problem, it can be considered a social *technology*. The motivational principle of economy guides human aggregates, over time, to select forms of money that more efficiently solve this problem by improving upon specific characteristics of money that function as technical parameters—including its ability to store value (a function of its use value and scarcity) as well as its availability, durability, portability, fungibility, and verifiability. These technical characteristics of money enable it to perform specific social functions: As a store of value (or collateral), a medium of exchange, and a unit of account. Taken together, these social functions render money a reliable method of payment—that is, a widely accessible and repeatable form of sacrifice.

Thus, money is a kind of chimera: It is the *cheapest valuable* that is both sufficiently scarce to retain its value and sufficiently cheap (easy) to acquire, move, store, precisely subdivide, and verify. Monies whose technical parameters render them better suited for satisfying creditors in a particular market at lower cost will tend to displace less efficient monies within that market over time. However, the process of monetary

20. George Selgin, *Good Money: Birmingham Button Makers, the Royal Mint, and the Beginnings of Modern Coinage, 1775–1821* (Oakland, CA: The Independent Institute, 2008).

21. Robert Mundell, "Uses and Abuses of Gresham's Law in the History of Money," 1999, https://www.usagold.com/cpmforum/greshamslaw-mundell/.

displacement also entails *switching costs* that include the costs of issuing, verifying, storing, and replacing the new currency as well as the cost of decentering or relativizing the established authority of previously standard forms of money. The relatively low costs of transacting with an established form of money combined with the relatively high costs of defection to new forms of money make money a social *institution*. A social technology that is also a social institution can be described from a game-theoretic standpoint as an optimal or efficient outcome in a social game: It is durable unless and until a more efficient solution emerges.[22] Such a new solution may result from the innovation of a more widely and reliably beneficial strategy in the game or from a transformation of the game itself, which may entail a change in the motivations or world models of the social agents playing the game.[23]

I further argue that the purpose of money—to satisfy creditors—is psychological before it is legal or technological. In other words, payment and settlement are two different things. While legal and state institutions often take pains to define settlement as a legal process, and although many economists describe settlement simply as the rendering of payment, satisfaction that a debt has been paid is a *moral sentiment* that precedes institutions of both law and money. Accordingly, there is always the possibility that a debt has been *paid but not settled* in the mind of a creditor.

A creditor is anyone who feels a debt is owed them.[24] Importantly, most debts are not denominated in money, and of those that are, most are never paid. Collecting on a debt is costly, especially if the debtor is disinclined to pay. One of the costs of debt collection is the risk that the attempt to collect will not be successful—potentially leaving the

22. Andrew M. Bailey and Craig Warmke, "What Satoshi Did," in *The Satoshi Papers: Reflections on Political Economy After Bitcoin*, ed. Natalie Smolenski (Washington, DC: Bitcoin Policy Institute, 2025), 1–56.

23. Bailey and Warmke, "What Satoshi Did."

24. The term "creditor" is often used in the social scientific literature to refer to a person or social class engaged in some form of lending for profit; it may also carry a negative value judgment in the work of some politically committed scholars. Here I wish to strip the term of its political and moral connotations. I define a creditor as a person with a psychological state characterized by the moral sentiment of feeling that something is owed them.

creditor in a worse position than before. As a result, most of the time creditors are left unsatisfied. Indeed, the frequency with which debts are forgotten, forgiven, erased, or not accounted for in the first place gives rise to moral doctrines of generosity, reciprocity, and contract across human societies. But this does not mean—as David Graeber contends and as we shall see below—that debt institutions do not exist in some societies.[25] The feeling that someone is in one's debt is a moral sentiment that can be potentially experienced by any human being; how it is expressed, of course, varies from one social context to another, and from one person to another.

Under some circumstances, unsatisfied creditors do choose to demand satisfaction: They decide to incur the costs of attempting to collect on their debts. Creditors may endeavor to derive some satisfaction by refusing to transact in the future with their debtors, by working to sabotage or commandeer economic institutions that they believe create conditions in which they habitually feel unsatisfied, or by engaging in violence—the controlled violence of the law, the organized violence of warfare or revolution, or the extrajudicial force of blood feud and vendetta—to recover all or part of what they believe is owed them. The phenomena of *political legitimacy* and the *rule of law* are largely functions of the overall state of creditor satisfaction in a human community. When the balance of this social ledger is tipped consistently and significantly to the negative, the social system undergoes a transformation: A reformulation or reorganization of roles, hierarchies, processes, leading personalities, and potentially social utilities like money.

Before presenting my outline of a theory of money, however, I first intend to leave no doubt that I have taken stock of the state of the art in current anthropological theories of money. I do so by reviewing in some detail the account presented by anthropologist David Graeber in his 2011 book *Debt: The First 5,000 Years*.[26] After describing several fatal shortcomings of Graeber's theory, I propose a theory of money that I believe is better grounded in the historical and ethnographic evidence.

25. David Graeber, *Debt: The First 5,000 Years* (Brooklyn, NY: Melville House, 2015).

26. Graeber, *Debt*.

An Outline of the Theory

Anthropology and Economics: A Forestalled Conversation

The conversation about money between anthropologists and economists arguably ended with Jacques Melitz's synthesis of anthropological and economic theories of money in 1974.[27] Since then, the discussion has become more of an impasse in which anthropologists and economists, if they address one another at all, largely speak two different scholarly languages. Value is, of course, one of the central and inaugural concerns of the anthropological discipline. It is also the singular preoccupation of economists. Bringing anthropological and economic methods and insights into dialogue therefore has the potential to shed light on the nature of a foundational social phenomenon.

This requires bridging a methodological divide that is also often a moral and political one. In the previous section, I indicated some of the moral prejudices that some anthropologists have against economics as a discipline. But there is also a profound disagreement between the fields over the extent to which human behavior is determined by socialization and social structures as opposed to individual agency. This can be described as a tension between two somewhat caricatured methodological approaches. The first, methodological *collectivism*, suggests that the primary social actors and units of social analysis are *institutions* and *systems*. These include kinship (with theories including descent or unilineal, segmentary, cognate, and affinal), social groups playing roles in stratified social systems (namely, the state, the firm, classes, castes, racial hierarchies, gendered and sexual positions, elders and the young, slaves and nonslaves), myth and narrative, language and symbols (as in structuralism and symbolic interactionism), spheres and modes of economic production and exchange (e.g., gift, precapitalist, or premarket versus capitalist or market economies), and the *world system* with its centers and peripheries, colonizing and colonized peoples, to name a few. Culture often functions as a kind of master concept uniting these

27. Jacques Melitz, *Primitive and Modern Money: An Interdisciplinary Approach* (Reading, MA: Addison-Wesley Publishing Company, 1974).

various collectives and collective modes of analysis, particularly for anthropologists. Methodological *individualism*, by contrast, takes the *individual* as the fundamental social actor and unit of analysis in social theory; it seeks to explain collective phenomena by beginning with individual motivation and behavior.[28] Examples of individualist methods include price theory, game theory, and contract theory.

So-called collectivist and individualist methods often contain assumptions about how social subjects are bounded and motivated. The grounding of those assumptions can slip from the empirical to the ontological and back again in ways that mirror the normative and political commitments of anthropologists and economists respectively. Methods can therefore inspire significant emotional attachment—and a vacillation between ignoring the other discipline and attacking it.

Anthropologists' criticisms of economic assumptions about the nature of human motivation and processes of production and consumption have stressed the collective aspects of social existence, but their methodological approaches have taken a number of forms throughout the history of the discipline. In addition to a strong lineage of Marxist thought and critique, perhaps the clearest anthropological criticism of economics crystallized within the debate between formalists and substantivists arising out of the work of Karl Polanyi in the mid-twentieth century.[29, 30] *Formalists* took the position that modern economic methods of formal modeling could be fruitfully applied to all human societies with relatively little modification. *Substantivists*, by contrast, adopted the view that human economic activity is so profoundly embedded in social institutions—particularly within allegedly nonmarket societies—that what many economists understand as economic motivation, or the self-interested maximization of utility, cannot be meaningfully discerned therein.

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28. See, for example, Peter Boettke, "Methodological Individualism and the Austrian School of Economics," in *Handbook of Methodological Individualism* (May 12, 2023), 1–17, https://ssrn.com/abstract=4450077.

29. Marxist anthropologists frequently depart from Marx's own analyses of both value and money, and thus their views should not be taken as straightforwardly indicative of Marx's own theoretical approach to these topics.

30. Karl Polanyi, *The Great Transformation: The Political and Economic Origins of Our Time* (Boston, MA: Beacon Press, 2001).

Marxist and substantivist anthropologists (there is substantial overlap between the two) have consistently argued that the discipline of economics is mostly an extended apologia for capitalism, which they deem a culturally parochial economic system whose main contribution to human civilization has been the introduction of novel forms of exploitation and alienation. While there is no consistent definition of the term "capitalism" in this tradition—it tends to slip between private ownership of the means of production, wealth concentration, the alliance of the state with powerful corporations and wealthy individuals, and the exploitation of labor—this view continues to dominate within both cultural anthropology more generally and economic anthropology more narrowly.[31, 32] Anthropologists working in this lineage are in general agreement that one of the key tasks before their discipline is disproving or debunking a number of assumptions about human beings and their social lives that, in their view, naturalize capitalism through the discipline of economics. Such assumptions include the individual as the fundamental social agent, the pervasiveness of self-interest in human social life, the human being as a rational maximizer of utility, economic exchange as originating in barter, and market exchange as a domain separate from other social institutions. As Marshall Sahlins, one the most influential anthropologists of the past century, has recently stated, "Economics, as constituted, is an anti-anthropology."[33]

But, as sociologist Mark Granovetter has pointed out, the two sides of the formalist/substantivist debate—and by extension, the individualist/collectivist debate—risk both undersocializing and oversocializing human behavior.[34] Human beings are neither atomized individuals

31. Maurer, "The Anthropology of Money."

32. Daniel Souleles, Matthew Archer, and Morten Sørensen Thaning, "Introduction to Special Issue: Value, Values, and Anthropology," *Economic Anthropology* 10, no. 2 (June 1, 2023): 162–68, https://doi.org/10.1002/sea2.12285.

33. Marshall Sahlins, "On the Culture of Material Value and the Cosmography of Riches," *Hau: The Journal of Ethnographic Theory* 3, no. 2 (June 1, 2013): 167, https://doi.org/10.14318/hau3.2.010.

34. Mark Granovetter, "Economic Action and Social Structure: The Problem of Embeddedness," *American Journal of Sociology* 91, no. 3 (Nov. 1985), 481–510.

operating from a culture-neutral matrix of values that describe a universal utility nor sheer conformists to cultural norms and institutional processes and demands. Indeed, the discipline of sociology has been shaped by a number of foundational thinkers—Émile Durkheim, Talcott Parsons, Anthony Giddens, and Robert Merton, to name a few—keen to elaborate a rapprochement between methodological collectivism and individualism—or at the very least, to ensure that their methods are not hostile to either approach. Parsons's theory of social action, for example, stresses "the indispensability of the human individual as an agency of performance" while observing that "there are essential limits, not only to what a given individual can do, but to the effectiveness with which individuals can co-operate."[35] For Parsons, it is the *limits* of agency for both individuals and social collectives that give rise to social systems at various scales and with varying levels of internal complexity and role definition.[36]

Likewise, the social philosophers and economists who pioneered methodological individualism—primarily emerging from the traditions of the Scottish Enlightenment and Austrian economics—were certainly not "methodological atomists," as some of their critics have alleged.[37] David Hume, Adam Smith, Joseph Schumpeter, Carl Menger, Ludwig von Mises, and Friedrich Hayek (to name only a few prominent individualist theorists) all emphasized the coordinating role of institutions, which define the "legal, political and social 'rules of the game'" and serve as carriers and transmitters of information across space and time.[38] In other words, as economist Peter Boettke has pointed out, "Society . . . is a composite of the actions of individuals, and not some disembodied entity that acts with some mysterious collective purpose. . . . Social

35. Talcott Parsons, "An Outline of the Social System [1961]," in *Classical Sociological Theory*, 2nd ed., ed. Craig Calhoun, Joseph Gerteis, James Moody, Steven Pfaff, and Indermohan Virk (Malden, MA: Blackwell Publishing, 2007), 432.

36. Parsons, "An Outline of the Social System."

37. Peter Boettke, "Methodological Individualism and the Austrian School of Economics," in *Handbook of Methodological Individualism*, 1–17, May 12, 2023, https://ssrn.com/abstract=4450077, 3.

38. Boettke, "Methodological Individualism."

order [is] a *result of human action, but not of human design*."[39] During the twentieth century, some economists built on the work of early methodological individualists to establish new traditions, including the New Institutional Economics and public choice theory, to further investigate and describe the role of institutions in ordering economic and political life.[40, 41]

Many more examples of such synthetic approaches within social theory could be elaborated, but that is beyond the scope of this paper. I now return to an element of individual motivation that is particularly relevant for a theory of money: The principle of economy.

The Principle of Economy

Economist Ronald Coase, founder of the New Institutional Economics, has reimagined the economizing individual as *cost minimizing* rather than *utility maximizing*:

> The rational utility maximizer of economic theory bears no resemblance . . . to any man (or woman). . . . There is no reason to suppose that most human beings are engaged in maximizing anything unless it be unhappiness, and even this with incomplete success. . . . In the meantime, however, whatever makes men choose as they do, we must be content with the knowledge that for groups of human beings, in almost all circumstances, a higher (relative) price for anything will

39. Boettke, "Methodological Individualism," 5.

40. See, for example, Kenneth J. Arrow, *Social Choice and Individual Values*, 2nd ed. (New York: Wiley, 1963); James M. Buchanan and Gordon Tullock, *The Calculus of Consent: Logical Foundations of Constitutional Democracy* (Ann Arbor: University of Michigan Press, 1962); Ronald H. Coase, *The Firm, the Market, and the Law* (Chicago: University of Chicago Press, 1988); Janet T. Landa, *Trust, Ethnicity, and Identity: Beyond the New Institutional Economics of Ethnic Trading Networks, Contract Law, and Gift-Exchange* (Ann Arbor, MI: University of Michigan Press, 1994).

41. For more recent work highlighting the role of institutions in the development of money specifically, see Nick Szabo, "Shelling Out: The Origins of Money," Satoshi Nakamoto Institute, 2002, https://nakamotoinstitute.org/shelling-out/, and Lyn Alden, *Broken Money: Why Our Financial System Is Failing Us and How We Can Make It Better* (Timestamp Press, 2023).

> lead to a reduction in the amount demanded. This does not only refer to a money price but to price in the widest sense.[42]

While this may appear to be a superficial change of emphasis, it is in fact a more precise articulation of the principle of economy. This principle is foundational for all biological and social sciences and is analogous to the concept of entropy in thermodynamics. Another way of describing the principle of economy is that human beings *in aggregate* respond to the finitude (scarcity) of material resources at their disposal by seeking their ends, whatever those may be, using the least costly available means. As emphasized above, the principle of economy does not account for the motivation that directs the *selection of ends*; rather, it describes the motivation behind the *aggregate selection of means* to achieve those ends.

Anthropologists are in a curious position with regard to the principle of economy. Marshall Sahlins, for example, has recently appeared to deny that scarcity is a material constraint that exceeds immediate human control (calling it a "function of value rather than the other way around"). Nevertheless, he invokes "human finitude" as the condition of possibility for culture writ large:

> The positive aim of this exercise in economic critique . . . is to argue that cross-culturally, life and death powers are generally situated in transcendent cosmic realms, whence come objectifications of such otherworldly powers in the form of the "magical property" or "prestige goods" that comprise the monies of life-giving, status-endowing, and society-making transactions. I do the cosmological economics of human finitude—in which scarcity is a function of value rather than the other way round, inasmuch as the value of things is a function of their provenience in the external realms on which human existence depends.[43]

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42. Ronald H. Coase, *The Firm, the Market, and the Law* (Chicago: University of Chicago Press, 1988), 3–4.

43. Marshall Sahlins, "On the Culture of Material Value and the Cosmography of Riches," 171.

Here, Sahlins effectively reinterprets "finitude" as a function of "otherness"—specifically, divine or religious otherness—then posits that the symbolic overcoming of this otherness through cultural practices of separation and unification is the mechanism by which human life is sustained. This relegates political economy almost entirely to the domain of worldview, suggesting that cosmologies are more relevant for human material provision than are the sources and technologies of material production and consumption.[44] On this point, Sahlins may have done well to heed social anthropologist Edmund Leach's observation that the ideal behavior, normal behavior, and actual behavior of individuals and social groups frequently differ significantly from one another; as a result, what anthropologists call social structure, or the ideal representation of a particular social cosmology, is often an ideological or narrative gloss that does not conform to how people actually live their lives.[45]

Better yet, Sahlins may have just heeded himself. In his 1972 classic, *Stone Age Economics*, Sahlins invokes economist A. V. Chayanov's observation that peasant household production in tsarist Russia functioned from the principle of economy: "In the community of domestic producing groups, the greater the relative working capacity of the household the less its members work."[46] Otherwise stated, there is a "standard" or "norm of livelihood" that "does not adapt to maximum household efficiency but settles rather at a level within reach of the majority, so wasting a certain potential among the most effective. At the same time,

44. As the theory of money I elaborate here suggests, the frequent provenience of ancient monies from foreign places may have less to do with cosmological considerations and more to do with the fact that geographic distance functions as a constraint on production, and therefore creates scarcity, a critical condition for money to hold its value.

45. "I have stressed the distinction between the ideal and the normal pattern of behaviour. I suggest that the kinship terminology bears a specific relationship to an idealized form of the social order, but that there is no such obvious relationship between the kinship terminology and the social order as manifested in actual behaviour." In Edmund Leach, *Rethinking Anthropology, London School of Economics Monographs on Social Anthropology, No. 22* (New York: Humanities Press, 1971), 51.

46. Marshall Sahlins, *Stone Age Economics* (Chicago: Aldine & Atherton, 1972), 87.

this means that no compulsion to surplus output is built into the DMP [domestic mode of production]."[47]

Sahlins calls this Chayanov's rule: The principle that a self-provisioning household will align on a standard of living that requires the least amount of aggregate labor from its members. This standard is intractable and enduring because changing it would "[put] into question the existing family organization."[48] In other words, early in his career, Sahlins—an avowed substantivist—nevertheless engaged in dialogue with economists that led him to the significant observation that human social groups are organized around the minimization of discretionary effort. Perhaps Sahlins intended this observation to undercut the naive presupposition, held by some ideologically motivated proponents of market economics, that *homo economicus* is always seeking to maximize economic output. Of course, as I have shown, the maximization of economic output is only one end among other ends that human individuals and communities may choose to pursue. If their values do motivate them to seek that end, however, the principle of economy predicts that they will seek it *at the lowest possible cost*. Sahlins seems to have missed that foundational insight. Like many of his colleagues, he eventually departed from economic reasoning altogether, succumbing to the fashionable preoccupation with cosmologies and ontologies that gripped anthropology at the beginning of the twenty-first century.

Importantly, the "standard of livelihood" that becomes the lowest common denominator for household effort is not just difficult to raise through discretionary effort; it also functions as a floor below which household effort rarely falls. Economists have observed, for example, that the number of market hours worked by households in the United States has barely changed since 1880: On average, married men worked approximately sixty-nine hours a week in 1880, while married women largely did not work outside the home. By 2020, married men were working fewer hours per week, while married women worked significantly more, averaging about sixty-seven hours per household per

47. Sahlins, *Stone Age Economics*, 91.
48. Sahlins, *Stone Age Economics*, 87.

week.[49] The two hours of market-labor time savings were established by 1965 and have remained constant since.[50] Clearly, US households are calibrating the amount of marketable labor they perform with reference to *contemporary* standards of living, not the standards of living of the past. This again suggests that the *ends* sought by economically productive individuals and groups are to a large extent determined by the *values* prevalent in their social environment, which include the norms encoded in material standards of living as well as social expectations around leisure, social legibility, ostentation, and so forth.

Some anthropologists have gestured toward an accommodation of, if not the principle of economy, then at least the individual motivation to acquire wealth and status. Marcel Mauss's 1925 magnum opus *The Gift* is perhaps the most sustained ethnographic survey of status-seeking behavior in all of anthropology.[51] But Mauss's political commitments as a socialist have often overdetermined later interpretations of his work by similarly committed anthropologists, who have read his thesis as an exposition on a kind of supposed precapitalist altruism rather than the co-implication and inextricability of self- and other-oriented motivations for exchange in human societies.

More recently, Maurice Bloch and Jonathan Parry—two of Mauss's leading interpreters—have argued that noncapitalist societies "have to make . . . some ideological space within which individual acquisition is a legitimate and even laudable goal; but . . . such activities are consigned to a separate sphere which is ideologically articulated with, and subordinated to, a sphere of activity concerned with the cycle of long-term reproduction."[52] Despite their recognition that individuals may

49. Jeremy Greenwood, Nezih Guner, and Ricardo Marto, "The Great Transition: Kuznets Facts for Family-Economists," *NBER Working Paper Series* (National Bureau of Economic Research, April 2021), 22, https://www.nber.org/system/files/working_papers/w28656/w28656.pdf.

50. Mark Aguiar and Erik Hurst, "Measuring Trends in Leisure: The Allocation of Time Over Five Decades," NBER Working Paper 12082 (National Bureau of Economic Research, March 2006), http://www.nber.org/papers/w12082.

51. Marcel Mauss, *The Gift: Expanded Edition*, trans. Jane I. Guyer (Chicago: Hau Books, 2016).

52. Maurice Bloch and Jonathan Parry, "Introduction: Money and the

occasionally solve for their own advantage, however, Bloch and Parry reject the idea that money could have been adopted as a result of the advantages it reliably offers to economically transacting individuals.[53] Their refusal to countenance what they call "technological determinism" is part of a broader refusal by anthropologists to understand the historical transition to money-mediated exchange and capitalist economic forms as anything other than a product of domination by powerful collectives—whether the (primarily colonial) state, the profit-driven corporate firm, or capitalist culture writ large.[54, 55, 56]

Reviewing Graeber's Theory of Money

The refusal by many anthropologists to imagine that social technologies that facilitate economic exchange could enjoy bottom-up adoption is on full display in the most detailed anthropological treatment of money to date, David Graeber's theory as outlined in his 2011 book *Debt: The First 5,000 Years*.[57] Graeber was a student of Marshall Sahlins, who supervised his doctoral dissertation at the University of Chicago and with whom he enjoyed a long and rich intellectual collaboration.[58] Like Sahlins, Graeber has been highly influential within the field of anthropology, and many of his theoretical assumptions and conclusions are widely shared.

Unlike most academic anthropologists, however, Graeber is also a successful popularizer of anthropological theories and concepts. In addition to numerous academic monographs, he has published several academic trade volumes that have garnered a wide readership.[59]

Morality of Exchange," in *Money & the Morality of Exchange*, ed. Maurice Bloch and Jonathan Parry (Cambridge University Press, 1989), 26, https://doi.org/10.1017/CBO9780511621659.

53. Bloch and Parry, "Introduction," 16.

54. Bloch and Parry, "Introduction."

55. Raymond T. Smith, "Anthropology and the Concept of Social Class," *Annual Review of Anthropology* 13 (1984): 467–94.

56. Graeber, *Toward an Anthropological Theory of Value*.

57. Graeber, *Debt*.

58. See, for example, David Graeber and Marshall Sahlins, *On Kings* (London: Hau Books, 2017).

59. In addition to *Debt*, which is discussed extensively here, see also David

Accordingly, Graeber is the only anthropologist that many outside the discipline will ever read. For this reason, there is a danger that his own views will be taken as definitive for what the discipline of anthropology or anthropologists as such have conclusively found. This article, therefore, seeks to add to the public record a response to Graeber's theory of money that reflects a different anthropological view.

A useful point of entry into Graeber's theory of money is a debate that occurred between him and computer scientist Nick Szabo on the social media platform Twitter (X as of this publication) in 2018. In response to a question on Twitter, Szabo dismissed Graeber's account of money for being too narrow.[60] This prompted a sparring match between the two, which drew in several other participants. The encounter ended without rapprochement or resolution. In order to better understand what assumptions motivated Graeber to engage in the debate the way he did, I sketch the outlines of the tradition on which he is drawing and the analysis from which he operates.

In the process, we discover that Graeber is committed to the standard premises of credit and state theories of money: First, the ontological claim that money is credit (or debt); second, the historical claim that "abstract systems of accounting" preceded commodity money; and third, the claim that "true" money is always a creation of the state. He argues that money is an arbitrary political convention largely controlled by powerful creditors—wealthy individuals and groups acting in concert with the state—who manipulate both the definition and value of money in order to oppress and dominate the vast majority of people. Graeber concludes *Debt* by calling for the abolition of both money and state, which he believes will bring about "human economies" characterized by higher levels of mutuality and respect.

As he makes these arguments, Graeber engages in a strong polemic against the discipline of economics, whose premises he sometimes

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Graeber, *Bullshit Jobs: A Theory* (New York: Simon & Schuster, 2018); David Graeber, *Pirate Enlightenment, or the Real Libertalia* (Farrar, Straus and Giroux, 2023); and David Graeber and David Wengrow, *The Dawn of Everything: A New History of Humanity* (New York: Farrar, Straus and Giroux, 2021).

60. Nick Szabo (@NickSzabo4), Twitter, April 3, 2018, https://twitter.com/NickSzabo4/status/981175760265256967.

misunderstands and distorts, while at other times relying on the work of specific economists—primarily Alfred Mitchell-Innes, Georg Friedrich Knapp, and John Maynard Keynes—to buttress his own theoretical claims. Graeber's analysis therefore reads as another entry in the ledger of partisan tit-for-tat between credit and commodity theorists of money rather than as a synthetic account of money as a social technology that arose to solve specific problems in human societies. These theoretical errors have potentially grave political implications: They give rise to a project of monetary abolition that is not only impracticable but would have catastrophic effects for human societies if attempted.

In response, I propose a theory of money that I believe has more empirical and theoretical support.

A Theory of Money

Money is a social institution that is also a social technology. Social institutions facilitate human cooperation to achieve explicit or implicit outcomes by imposing formal or informal constraints that increase both the benefits of cooperation and the costs of defection. Technologies are durable and improvable solutions to problems. Social institutions can thus function as social technologies that solve specific coordination problems.

Money functions to settle debts reliably and cheaply by solving a problem of coordination in the domain of exchange: The problem of the double coincidence of wants. This is the problem in which one counterparty to an exchange (A) wants to trade something they have (X) for something their counterparty (B) has (Y), but B either does not want X or whatever amount of X A is willing to part with for Y.

The double coincidence of wants is a problem that occurs in *direct* exchange, in which a certain amount of one good or service is traded directly for a certain amount of another. The likelihood is quite low that the needs and wants of both parties to a direct transaction will correspond at any given moment. This makes direct exchange, of which barter is a typical example, costly—and the settlement of debts difficult. The high cost of direct exchange has ensured that it has been rare. Money replaces the higher costs of direct exchange with the much lower costs

of indirect exchange, facilitating the settlement of a wide variety of debts and dramatically increasing the volume of exchange.

Medium of Exchange

Money solves the problem of the double coincidence of wants by acting as a third good that can be used for *indirect* (or *intermediate*) exchange: A and B can now trade for money and then use money to trade for whatever else they want or need. The use of money for indirect exchange makes it a *medium of exchange*. A medium of exchange is a *means of payment* that results in *final settlement*: The psychological process by which creditors are *satisfied* that the debt to themselves has been paid.

Payment versus Settlement

Here it is critical to make a distinction that has been underemphasized in the social scientific literature: Payment and settlement are two different social processes. While payment describes the *process of paying* a debt, settlement describes the process by which that payment is *accepted as satisfactory by the creditor* to eliminate the debt from their psychological ledger. Accordingly, there is always the possibility that a debt may be paid but not settled. While payment is a process often defined by convention, settlement—or *satisfaction*—is a *moral sentiment* that exceeds the force and terms of that convention. In other words, the legal or normative determination of what satisfies a debt might not satisfy any particular creditor.

The difference between payment and settlement clarifies why every transaction holds within it the possibility of violence. One of the main functions of the rule of law is to contain the violence of unsatisfied creditors by bringing to bear the greater force of the community to ensure final settlement. In situations in which communal violence is too weak to achieve this, or trust in the institutions implementing that violence is too low to ensure broad acceptance of the terms of settlement, the settlement of debts devolves to smaller units of social organization (for example, families and individuals). The vendetta and blood feud are examples of settlement protocols frequently resorted to in stateless societies or societies in which the rule of law is weak. War is a typical protocol for the settlement of debts between groups.

Store of Value

For a medium of exchange to reliably satisfy creditors, it must have sufficient *value* to inspire the creditor's confidence that it can be *exchanged in the future to secure provision*. The kernel of value is *collateral*—objects with *use value* (this may be simply aesthetic enjoyment but extends to any kind of economic utility) and *scarcity*, characteristics that enable them to retain or grow that value over time.

Of course, most forms of collateral do not end up circulating as media of exchange. This is largely because they are too expensive to repeatedly use for a wide variety of transactions: They may be cumbersome to store and move, fragile, nonfungible, or too rare or unique; or their quality may be difficult to appraise and verify, among other costs. As the demand for economically transacting in a society grows, the individual and collective costs of securing, replacing, transferring, verifying, measuring, and otherwise managing and administering collateral increasingly encumber the capacity of its participants to transact.

Entropy: Money as the Cheapest Valuable

Here the principle of economy acts over time and at scale to generate a solution: People are, in aggregate, motivated to "settle a debt or transaction with the cheapest means of payment," as Robert Mundell has observed.[61] Thus money is a kind of chimera: It is the cheapest valuable that is both sufficiently *useful* and *scarce* to retain its value and sufficiently *easy* to acquire, move, store, precisely subdivide, and verify. These material properties, or technical parameters, of money combine to generate an emergent property of money that is often referred to as *liquidity*—the ease (or low cost) with which one asset can be converted into another.

The tension between scarcity and liquidity is what gives money *currency*—that is, the social charge and momentum that allows it to *circulate*. In other words, the *closure* constituted by scarcity is the condition of possibility for money's functioning as a cybernetic system, or a system of circular causal feedback, while liquidity represents the bandwidth for

61. Mundell, "Uses and Abuses of Gresham's Law."

transacting with that money in a particular market.[62] Money therefore displays the properties of information entropy: It is the least costly way of increasing the probability of settlement (creditor satisfaction) under defined social conditions of exchange (markets).[63]

Unit of Account

As money becomes cheaper and more liquid—that is, more durable, portable, fungible, available, and verifiable—it also begins to serve as a notation for price, or a *unit of account*. Price notation enables far greater *precision* in transacting, and it therefore facilitates a much wider range of transactions in terms of size and scope. This contributes to the liquidity of money.

Written price notation first emerged to document commercial transactions in ancient Mesopotamia, but the advent of what some anthropologists have called *repeatable objects* with standardized material composition and shape occurred many tens of thousands of years earlier. Shell beads are particularly durable examples of early repeatable objects, and a growing number of discoveries periodize their manufacture as early as the Middle Stone Age. It is therefore quite possible that humans were reckoning price in terms of physical units of account long before the first written ledgers. These objects also likely functioned as stores of value and media of exchange because of their use value and scarcity.

Definitions of Money and Markets

Money can therefore be defined as *the cheapest valuable that reliably satisfies creditors that it can be exchanged in the future to secure precise levels of provision in a given market*. The qualifier "in a given market" is key: Different markets have different social characteristics, which means that the conditions for settlement, or creditor satisfaction, within them differ as well. As a result, there is not one type of money that functions as the cheapest means of payment in all markets.

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62. W. Ross Ashby, *An Introduction to Cybernetics* (London: Chapman & Hall, 1957).

63. C. E. Shannon, "A Mathematical Theory of Communication," *Bell System Technical Journal* 27 no. 3 (October 1948), 379–423.

Some anthropologists have described markets as spheres of exchange: These are social fields of transacting with characteristic stakes (game conditions), actors, and processes of settlement. Examples include the marriage market, international trade, capital markets, the Kula ring, the payment of taxes and tribute, a county fair, and countless others that vary widely in scale and scope. Some of these markets are highly circumscribed and typed: Within them, only specific individuals can exchange specific valuables for specific outcomes. Others are far more open to participation and accommodate a wider variety of transactions. Markets have more or less fluid boundaries and evolve over time. The historical and anthropological records are replete with evidence that human societies generate many kinds of markets and therefore also many kinds of money.

Credit and commodity monies are two general types of money that evolved for use in two broadly distinct categories of markets. Credit money is cheaper to use under conditions of *high trust* and enduring social relationships, in which all parties to a transaction are confident enough that the money eventually can be redeemed for something of satisfactorily equivalent use value. (What "satisfactory" means is, of course, conditional on the cultural and game conditions of the market.) Commodity money, by contrast, settles debts most cheaply under conditions of *low trust* and short periods of relating. Individuals who do not trust each other or may never encounter each other again, and who cannot count on the violence of social institutions to defend their interests, prefer to immediately redeem the full value of their transactions. This is easiest to do with a good that has a known and concrete use value: A commodity.

As individuals and collectives regularly transact under both high- and low-trust social conditions, attempts to eliminate either credit or commodity money are bound to fail. Human beings will inevitably continue to generate the social situations—the markets—in which one type of money or another is cheaper. In short, because markets are not flat, frictionless, and infinite, but rather have different social topographies, the character and currency of any type of money is a socially bounded phenomenon adapted to a particular market or markets. Therefore, while monies exhibit greater or lesser degrees of generality, *there is no*

such thing as a perfect or universal money; every money tends toward entropy (the cheapest means of settlement) for a specific type of market transacting.

Technologies Do Not Require the State

By dramatically lowering the cost of settlement, money solves the problem of the double coincidence of wants and facilitates exchange. The material benefits generated by exchange over time incentivize social actors to engage in it, generating positive feedback that in turn spurs the adoption of money. In this way, money can be considered a *technology* that is routinely invented and adopted from the bottom up, without need for compulsion from social authorities.[64]

Accordingly, money can be, but is not necessarily, issued by the state.[65] Archaeological evidence demonstrates the adoption of standardized commodity monies long before governments got into the business of minting coins, and many societies with and without states have produced nonstate monies well into the modern period.[66] Even where the state issues money or declares a money legal tender, it cannot control the market value, or purchasing power, of that money. The state can create incentives and disincentives that motivate demand for a particular type of money—for example, by declaring the nominal (face) value of money and enforcing that through controlled violence (that is, in courts of law), or by manipulating the money supply and the relative price of money. Ultimately, however, the state cannot fully control the

64. Warmke and Bailey, "What Satoshi Did."

65. Joshua Hendrickson, "The Treasury Standard: Causes and Consequences," in *The Satoshi Papers: Reflections on Political Economy after Bitcoin*, ed. Natalie Smolenski (Washington, DC: Bitcoin Policy Institute, 2025), 167–246.

66. See, for instance, George Selgin, *The Theory of Free Banking: Money Supply Under Competitive Note Issue* (Totowa, NJ: Rowman & Littlefield, 1988); George Selgin, *Good Money: Birmingham Button Makers, the Royal Mint, and the Beginnings of Modern Coinage, 1775–1821* (Oakland, CA: Independent Institute, 2008); Nick Szabo, "Conflict and Collectibles among the Yurok," *Unenumerated*, February 23, 2017, https://unenumerated.blogspot.com/2017/02/conflict-and-collectibles-among-yurok_87.html; and Satoshi Nakamoto, "Bitcoin: A Peer-to-Peer Electronic Cash System," 2009, https://bitcoin.org/bitcoin.pdf.

conditions under which creditors are reliably satisfied within its jurisdiction—and the purpose of money is reliably satisfying creditors. As aggregate creditor dissatisfaction rises, the state has to use a growing amount of violence to ensure compliance with its nominal definitions of settlement. Eventually, the costs of this violence are no longer sustainable by the state, and the social system undergoes a structural transition.

In aggregate, the principle of economy suggests that it is cheaper to motivate people by giving them something they want than by forcing them to accept something they do not. Money—in all its forms—is the ever-evolving social answer to the question of what people *want* in settlement of debts.

While this is necessarily an introductory sketch to some of the key concepts informing a theory of money, my hope is that it can lay to rest some of the polemics that have prevented fruitful interdisciplinary dialogue between economists and anthropologists so that social scientists of all disciplines can go about the business of developing more rigorous and comprehensive theories of both money and value.

The Debate

In 2018, in response to a now-deleted tweet by Ethereum founder Vitalik Buterin on the social media platform X (formerly Twitter), journalist Michael Casey tweeted, "Vitalik is absolutely right here. So many 'digital gold bugs' in crypto need to read up on what anthropologists have learned about how money developed. It began as a record-keeping device to enable gift exchange and debt-clearing. MoE [money's function as a medium of exchange] preceded SoV [money's function as a store of value]!"[67, 68]

Veteran Bitcoiner and computer scientist Nick Szabo quickly responded, "If they (and you) read up on what travelers, missionaries, & ethnographers actually witnessed & recorded of recently

67. Michael J. Casey (@mikejcasey), Twitter, April 3, 2018, https://twitter.com/mikejcasey/status/981141578285805569.

68. In the recounting of the debate that follows, I preserve all misspellings and colloquialisms as presented by the authors of cited tweets. Mis-spacings have been corrected for readability.

contacted cultures, you will find that SoV & medium of wealth transfer long preceded record-keeping. See https://twitter.com/NickSzabo4/status/954225789129469952 & refs in the linked articles."[69]

Rick Pardoe, a software engineer and cofounder of Liquity Protocol, asked Szabo, "So you disagree with [anthropologist David] Graeber's history of debt?"[70]

Szabo replied, "Graeber used a very narrow definition of 'money' that did not include a huge variety of well-documented stores of value and media of wealth transfer."[71]

This prompted Graeber to weigh in. "Really?" he asked. "What are some money-like objects that I ignore that either 1. Arise from barter or 2. Act differently than the forms of money I discuss & describe?"[72]

Szabo replied, "Why are you raising the topic of 'barter'? I'm talking about stores of value and media of wealth transfer, neither of which need to have anything to do with barter (especially not in the narrow sense in which you use that word)."[73]

Meanwhile, Bitcoiner and computer scientist Elaine Ou also picked up Graeber's question. In a quote tweet, she wrote, "As long as people define money using a list of observed roles, anyone can rewrite the history of money to suit any agenda. 'Money must serve as a medium of exchange, unit of account, and standard of deferred payment—therefore money originated as debt!'"[74]

This prompted a sparring match between Graeber and Ou. In the exchange that ensued, Graeber insisted, "you're talking to an anthropologist. No anthropologist defines 'any enduring valuable' as 'money' even

69. Nick Szabo (@NickSzabo4), Twitter, April 3, 2018, https://twitter.com/NickSzabo4/status/981169950927630336.

70. Rick Pardoe (@rick_liquidity), Twitter, April 3, 2018, https://twitter.com/rick_liquity/status/981173791739985921.

71. Nick Szabo(@NickSzabo4), April 3, 2018, https://twitter.com/NickSzabo4/status/981175760265256967.

72. David Graeber (@davidgraeber), Twitter, April 4, 2018, https://twitter.com/davidgraeber/status/981680064390664193.

73. Nick Szabo(@NickSzabo4), April 5, 2018, https://twitter.com/NickSzabo4/status/981761456512221184.

74. Elaine Ou (@eiaine), Twitter, April 4, 2018, https://twitter.com/eiaine/status/981698924569214976.

if not used to measure or exchange other things because to do so would bring absurd results for reasons I already pointed out."[75] He added, "No anthropologist thinks Sungir beads were 'money' just because they're durable & were (presumably) considered valuable."[76]

In response, Ou pointed out that in a 2001 book, *Toward an Anthropological Theory of Value*, Graeber had argued that a large preponderance of ancient currencies were also seen as valuable collectibles. She quoted him:[77]

> It is remarkable how many of the things adopted as currency in different parts of the world have been things otherwise used primarily, if not exclusively, as objects of adornment. Gold and silver are only the most obvious examples: One could equally well cite the cowries and spondylus shells of Africa, New Guinea, and the Americas, the feather money of the New Hebrides, or any number of similar 'primitive currencies'. For the most part, money consists of things that otherwise exist only to be seen.[78]

Outraged, Graeber shot back, "you think this CONTRADICTS my later argument about social currencies???? God where would I even start? The arrogance of some people is just extraordinary."[79]

Szabo replied, "This thread isn't about your theories of social currencies."[80]

This comment prompted historian Enrique Martino to come to Graeber's defense. Martino quipped at Szabo, "nor is it about your vision of world history and compounding fallacies; you can't just pillage

75. David Graeber (@davidgraeber), Twitter, April 5, 2018, https://twitter.com/davidgraeber/status/981883921389572099.

76. David Graeber (@davidgraeber), Twitter, April 5, 2018, https://twitter.com/davidgraeber/status/981910535275982849.

77. Elaine Ou (@eiaine), Twitter, April 5, 2018, https://twitter.com/eiaine/status/981914485307817984.

78. Graeber, *Toward an Anthropological Theory of Value*, 92.

79. David Graeber (@davidgraeber), Twitter, April 5, 2018, https://twitter.com/davidgraeber/status/981920050247557127.

80. Nick Szabo (@NickSzabo4), Twitter, April 5, 2018, https://twitter.com/NickSzabo4/status/981924413145628679.

the ethnographic record to create a Misesian diagram, over and over again."[81]

Szabo: "That's not what I'm doing, but even if it was why could I not? The record of traveler, missionary, and ethnographic accounts is not and should never be considered the monopoly of only certain specific academic ideologies."[82]

Martino: "true, respekt, but 'unforgeable costliness and trust minimization' don't 'explain the unique two-collectible kula cycle', programmatic language is 'costly' analytically. our only supposition is that society is social, not based on 'good contracts' between 1:1 all the way up&down."[83]

Szabo replied, "'Society is social' wow there's a theory you can really pin down. '-)'"[84] He added, "They ['unforgeable costliness,' 'trust minimization', and 'good contracts'] do go quite far towards explaining it [the Kula cycle], actually."[85]

Martino responded, "theres 100x rich social theories to choose from, form marx's social relations to Mauss's social contracts to latour's association of collectives, what's impoverishing and damaging is asocial or asi theory; atomism, self-preservation and paranoia."[86]

Szabo countered, "In fact, trust minimizing institutions and technologies are crucial to expanding human relationships beyond the clan level. Much of this moral primitivism you cite, when applied to much larger societies, would or have lead to barbarity, e.g. of communist states."[87]

Martino objected again, "like exogamic marriage, always already interclan, it was about giving gifts to the inlaws, gifts that at some point

81. Enrique Martino (@opensorceguinea), Twitter, April 5, 2018, https://twitter.com/opensorceguinea/status/981925489249005573.

82. Nick Szabo (@NickSzabo4), Twitter, April 5, 2018, https://twitter.com/NickSzabo4/status/981926302469914625.

83. Enrique Martino (@opensorceguinea), Twitter, April 5, 2018, https://twitter.com/opensorceguinea/status/981929974163795970.

84. Nick Szabo (@NickSzabo4), Twitter, April 5, 2018, https://twitter.com/NickSzabo4/status/981935407439921152.

85. Nick Szabo (@NickSzabo4), Twitter, April 5, 2018, https://twitter.com/NickSzabo4/status/981937356436418560.

86. Enrique Martino (@opensorceguinea), Twitter, April 5, 2018, https://twitter.com/opensorceguinea/status/981938690128777216.

87. Nick Szabo (@NickSzabo4), Twitter, April 5, 2018, https://twitter.com/NickSzabo4/status/981940997973147648.

after capitalism included commodities, like beads from liverpool. on moral primitivism' and intellectual bankruptcy see the bruce lee meme: https://youtube.com/watch?v=yWfOACOe3Fg."[88] (The YouTube link Martino cited opens to a video titled "When the Right Tries to Argue Against an Actual Leftist," in which Bruce Lee, labeled "Leftist," decimates a cadre of "right-wing"-labeled antagonists.)

Szabo and Martino went back and forth a few more times about the merits of describing various forms of exchange not mediated by price as "gifts." Finally, venture capitalist Alexander Pak jumped in. "FYI @davidgraeber is also critical of the gift theory. My general takeaway from his book is that money, like debt, originated as a material and quantifiable formalization of trust relationships. So not really sure how it's different from your view at a high level."[89]

Szabo concluded the exchange by saying, "Good to hear. Our disagreements are likely 1) how seriously we take small definitional distinctions, (2) role of evolution, 3) moral & political lessons we draw, 4) he doesn't know what my theories actually are & is attacking strawmen (I'm no big expert on his theories either)."[90]

Graeber's Theory of Money

While the debate above could easily be dismissed as yet another Twitter scuffle, it is noteworthy for what it reveals about Graeber's theory of money. Graeber's theory, by extension, provides a view into certain widely accepted notions of money within cultural anthropology. Graeber makes the case that "No anthropologist defines 'any enduring valuable' as 'money' even if not used to measure or exchange other things because to do so would bring absurd results."[91] This suggests

88. Enrique Martino (@opensorceguinea), Twitter, April 5, 2018, https://twitter.com/opensorceguinea/status/981943110065324037.

89. Alexander Pak (@alpackaP), Twitter, April 5, 2018, https://twitter.com/alpackaP/status/981949258977849344.

90. Nick Szabo (@NickSzabo4), *Twitter*, April 5, 2018, https://twitter.com/NickSzabo4/status/981953606403342337.

91. David Graeber (@davidgraeber), Twitter, April 5, 2018, https://twitter.com/davidgraeber/status/981883921389572099.

that, like anthropologists Paul Bohannan and Karl Polanyi, Graeber understands money at minimum to be a unit of account and a medium of exchange.[92, 93] (But, as we shall see below, Graeber's book *Debt* largely withdraws even the medium-of-exchange function from the definition of money.) Nick Szabo and Elaine Ou would certainly agree that money fulfills these functions. So, what is the contention about?

In his next sentence, Graeber argues that Sungir beads cannot be considered money simply because they were durable and valuable.[94] Of course, Ou and Szabo clearly do not consider durability and value *sufficient* conditions for a commodity to become money, either. They would likely, however, consider these to be *necessary* conditions for a commodity to become money. By stressing money's function as a store of value, Ou and Szabo are taking issue with Michael Casey's original claim, which he imputes to Graeber but which Graeber would likely not agree with: That money had to first become a medium of exchange before it could become a store of value. In fact, Graeber argues (dubiously, as I explain below) that money was a unit of account long before it served as a medium of exchange. He is largely uninterested in, perhaps even in denial of, its function as a store of value principally because the kind of value implied in the term "store of value" is *use* value—a concept that would take Graeber into the realm of price theory, an economic methodology whose premises he has refused on principle.

Elaine Ou points to ethnographic evidence—cited by Graeber himself—indicating that early forms of money were durably valuable objects. Graeber reacts by emphasizing that currencies are *social*. This gets to the heart of the impasse: Graeber's theory of value is that it is at bottom nothing but a social—by which he largely means *political*—agreement. This argument is laid out, although not straightforwardly, in Graeber's 2011 book *Debt: The First 5,000 Years*.[95] In that work,

92. Paul Bohannan, "The Impact of Money on an African Subsistence Economy," *Journal of Economic History*, 19, no. 4 (1959): 491–503, http://www.jstor.org/stable/2115317.

93. Polanyi, *The Great Transformation*.

94. David Graeber (@davidgraeber), Twitter, April 5, 2018, https://twitter.com/davidgraeber/status/981910535275982849.

95. Graeber, *Debt*.

he is forced to admit, based on overwhelming historical evidence, that commodities can be *used* as money—and that this happens particularly frequently in environments characterized by low social trust, like military conflicts. But he makes two subsequent points that, while they do not follow from this observation, form the cornerstone of his theory of money: First, that the only function of commodities used as money is to serve as units of account to measure debt; and second, that these commodity units of account do not, in fact, have any *use value*. On what basis, then, can their value be used to measure the value of debt? Enter "the social": The agreement between people that, in Graeber's view, fully determines what things are worth.

Let us examine Graeber's argument more closely. He writes, "There is an unresolved debate between those who see money as a commodity and those who see it as an IOU. So which one is it? By now the answer should be obvious: It's both."[96] At first, this appears to be a promising opening for Graeber to reconcile commodity and credit theories of money. However, elsewhere in *Debt*, Graeber definitively picks a side in the debate:

> Units of currency are merely abstract units of measurement, and as the credit theorists correctly noted, historically, such abstract systems of accounting emerged long before the use of any particular token of exchange. The obvious next question is: If money is just a yardstick, what then does it measure? The answer was simple: Debt. A coin is, effectively, an IOU. Conceptually, the idea that a piece of gold is really just an IOU is always rather difficult to wrap one's head around, but something like this must be true, because even when gold and silver coins were in use, they almost never circulated at their bullion value.[97]

In short, Graeber does not deny that commodities can and do *act* as money, but he claims that commodity money is just another form of credit money. He cites the 1913 and 1914 essays of Alfred Mitchell-Innes, the canonical elaborator of the credit theory of money, to support

96. Graeber, *Debt*, 104.
97. Graeber, *Debt*, 67–68.

his claim.[98] Indeed, like Graeber, Mitchell-Innes saw himself as offering a corrective to popular economic histories in which barter supposedly led to the discovery of commodity money and was only later followed by credit systems. Mitchell-Innes argued that, in fact, credit preceded the existence of material units by which it could be measured and that credit, not money, is the universal means of payment. (Credit theorists of money were, of course, not the only economists pointing out that credit, which is simply a promise to pay, preceded physical methods of accounting for that credit. So were economists of the Austrian school, particularly Carl Menger, but Graeber omits that fact as part of a larger mischaracterization of Menger's thinking.[99])

Graeber's argument that all money, *even commodity money*, is *really* credit carries the logical implication that commodities themselves cannot be used to settle debts. This must mean that commodities have no use value—that there is no relationship between their material properties and how they are valued by individuals and markets. Graeber eventually makes this explicit: "A gold coin is not actually useful in itself. One only accepts it because one assumes other people will. In this sense, the value of a unit of currency is not the measure of the value of an object, but the measure of one's trust in other human beings."[100] Here, Graeber seems to fully oppose social convention and use value—if value has a conventional element, then it cannot also have use value. This either/or logic does not hold.

The claim that gold (in this case, in the shape of a coin) "is not actually useful in itself" is, of course, prima facie incorrect. Gold functions as a commodity precisely because of its nonmonetary use value. Gold is used for all kinds of things, from the adornment of persons and objects to the development of advanced technological hardware. Its reliable use value is what has caused it to retain its exchange value (that is, its purchasing power) remarkably well across millennia of human history.[101]

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98. L. Randall Wray, ed., *Credit and State Theories of Money* (Edward Elgar, 2004), https://econpapers.repec.org/bookchap/elgeebook/3204.htm.

99. George Selgin, "The Myth of the Myth of Barter," Cato Institute, March 15, 2016, https://www.cato.org/blog/myth-myth-barter.

100. Graeber, *Debt*, 70.

101. Alden, *Broken Money*.

This should illustrate that while the process of valuing any substance is of course subjective, humans inhabit natural and social environments in which certain substances give them more traction—more *purchase*—to do and benefit from things they otherwise could not. But this line of reasoning leads us into the realms of both a theory of technology as a bottom-up vector of social change, which, as indicated above, many anthropologists mistrust, and of price theory, the "gateway" to economics, which Graeber clearly intends to avoid.

Graeber's next observation, that commodities acting as money circulated at prices different from their bullion value, is not proof that commodities are merely credit, as he claims, but evidence of the discrepancy between the *market price* of the bullion and the *nominal value* (or face value) of the coins minted from that bullion.[102] The market prices of commodities, and of the coins made from them, are of course functions of supply and demand, and therefore always fluctuating.[103] Nominal values, by contrast, are regulated by law or convention.

Governments have generally attempted to set the nominal values of currencies for three main reasons: (i) to ensure the stability of the units of account used within their jurisdictions; (ii) to benefit from the profits of seigniorage (to earn revenue from minting coins); and (iii) to temporarily increase their own spending power by declaring the nominal values of certain coins lower or higher. But governments' ability to declare the value of the money they issue has never been fully free; it is everywhere constrained by the market prices and purchasing power of that money.

This limit to state power was put on display in a 1605 court case in early Jacobean England. *The Case of Mixt Monies (Gilbert v. Brett)* arose when an English creditor, Gilbert, sued his debtor, Brett, because the value of their contract had plummeted after the English Crown debased

102. Selgin, *Good Money*.

103. In addition, when commodity monies circulated at a value *above* their bullion value, that could evince that a monetary premium had accrued to the commodity. A monetary premium is the difference between the nonmonetary use value of a commodity and the monetary use value of a commodity, or the price of the same commodity that will be used *as money*. In other words, markets distinguish between, and therefore price differently, different use cases of the same natural substance.

the Irish currency.[104] Brett paid the face value of the sum he contractually owed Gilbert in the newly debased currency, which Gilbert refused to accept. The case was heard by the Privy Council, England's highest legal body, which ruled that the law can only enforce the nominal (face) value of contracts, not the purchasing power of the units of account in which they are denominated. This decision established the principle of *monetary nominalism* in the English common law of obligations.[105] Monetary nominalism is the principle that a creditor cannot legally refuse money tendered in repayment of a debt if the sum corresponds to the *face value* of the debt. In the process, however, the court was forced to admit that the state had no control over the *purchasing power* of the currency it issued.

The tension between the market price and the nominal value of money has given rise to a number of observable social effects, including a phenomenon known as Gresham's law. As described above, Gresham's law is often summarized as the tendency for "bad" (overvalued) money to drive out "good" (undervalued) money.[106, 107] However, economist Robert Mundell has reframed this definition in light of the application of the principle of economy to monetary theory: "Bad money drives out good *if they exchange for the same price*" (emphasis added).[108] This is because, as Mundell reiterates, "we settle a debt or transaction with the cheapest means of payment";[109] that is, we "pay with that which involves the least sacrifice."[110] For example, a person in possession of two silver coins that both settle the same debt but have different contents of silver will usually choose to spend the coin with a lower silver content and save the coin with a higher silver content. He pays with

104. D. Fox, "The Case of Mixt Monies: Confirming Nominalism in the Common Law of Monetary Obligations," *Cambridge Law Journal* 70, no. 1 (March 2011), 144–74.

105. Although we do not know what Gilbert's sentence was, the typical sentence for violating the Crown's legal tender proclamations in this era was imprisonment and a fine.

106. Selgin, *Good Money*.

107. Mundell, "Uses and Abuses of Gresham's Law."

108. Ibid.

109. Ibid.

110. Ibid.

the coin that settles the debt more cheaply and keeps the coin that he perceives as having more purchasing power in the future.

Currencies are considered expensive, or *undervalued*, when either their nominal value or their market value in a particular jurisdiction is perceived to be lower than their future market value.[111] Such a currency is potentially worth more in the future than in the present, so it tends to be saved (or hoarded, depending on one's perspective). By contrast, when the nominal or market value of a currency is perceived to be higher than its future market value, a currency is considered cheap, or *overvalued*. It is viewed as worth more in the present than in the future, so it tends to be spent.

Persistent undervaluation of a currency within a market can dramatically reduce its circulation as people stop spending it. Nevertheless, it will continue to circulate in some quantity so long as it helps fulfill the overall demand for money.[112] However, currencies that are undervalued in a particular market reliably prove valuable for transacting *across market boundaries*—for example, in international trade. Their utility in international trade is often the very reason why scarce, valuable monies disappear from domestic markets. International trade is a paradigmatic example of *low-trust transacting*, and valuable commodity monies are the cheapest way of settling debts under such conditions. Accordingly, the historical record has demonstrated repeatedly that even as "good monies" have been "driven out" of certain jurisdictionally demarcated markets, they have been *adopted as standards* in cross-border markets.[113] Examples include the Persian daric, the Greek tetradrachm, the Macedonian stater, the Roman denarius, the nineteenth-century pound sterling, the twentieth-century US dollar, and the florins, ducats, and sequins of medieval Italian city-states.[114]

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111. A commodity's actual market value (that is, its exchange value) is, of course, the shifting confluence of subjective assessments of that commodity's value by all of the participants exchanging that commodity in that market. This subjective and indeterminate process of valuation is expressed as the evolving convention of price.

112. Mundell, "Uses and Abuses of Gresham's Law."

113. Ibid.

114. Ibid.

Let's return to Graeber's claim that "one only accepts [a gold coin] because one assumes other people will." To support this claim, Graeber cites German economist Georg Friedrich Knapp's *The State Theory of Money*, a 1905 treatise in which Knapp argues that because the state defines which means of payment it accepts to discharge debts against itself, money is necessarily "a creature of law."[115] By "law," Knapp means "the political action of the state"—not legal jurisprudence.[116] In other words, because the state, through sovereign decision, determines the means of payment and the units of value that satisfy all debt obligations within its jurisdiction, it is also the *source of all money*, whether that be credit or commodity money, and has overriding power in *determining the value* of that money. For this reason, Knapp claims that in the era of state-defined money, even a commodity-backed money is chartal money, or fiat money—that is, money whose value is ultimately determined by the state. Chartal money is both an asset *and* a liability (of the central bank)—in other words, it is debt. We can now understand the genealogy of Graeber's argument that "a piece of gold is really just an IOU."[117]

Like both Mundell and Graeber, Knapp acknowledges that commodity monies facilitate trade in low-trust environments. Specifically, Knapp indicates their importance for international trade—that is, trade with strangers across jurisdictional and currency regimes.[118] To reassure "the public man"—that is, the political man—Knapp reiterates several times that the German state should not depart from the gold standard that was in place when he was writing. He also acknowledges "the undisputed fact of the existence of autogenic money," or money that emerges from the bottom up, *not* as a result of declaration by any authority. This kind of money satisfies obligations based on its own *use value*, a process he calls autometallism. However, Knapp sees autogenic money as an obsolete technology that has now been definitively

115. Georg Friedrich Knapp, *The State Theory of Money*, trans. H. M. Lucas and J. Bonar (London: Macmillan, 1924), 1.

116. Dirk H. Ehnts, "Knapp's State Theory of Money and its reception in German academic discourse," Institute for International Political Economy Berlin Working Paper No. 115 (Institute for International Political Economy Berlin, 2019), 4.

117. Graber, *Debt*, 68.

118. Knapp, *State Theory of Money*.

superseded by chartal money.[119] In Knapp's view, the state is a social technology that has decisively *won*. It is perhaps the ultimate irony that within a decade of the publication of Knapp's thesis, the German government suspended the gold standard to finance a war, which it lost. As a result, the reichsmark underwent historic hyperinflation and fully collapsed as creditors refused to accept it in settlement of debts.[120]

Knapp's argument was essentially recapitulated by John Maynard Keynes, arguably the most influential economist of the twentieth century, at the beginning of his *Treatise on Money*. Keynes was instrumental in arranging the translation of Knapp's work into English, which was published in 1924.[121] In a passage also cited by Graeber,[122] Keynes argues that state money represents the highest form of "civilized money":

> The State, therefore, comes in first of all as the authority of law which enforces the payment of the thing which corresponds to the name or description in the contract. But it comes doubly when, in addition, it claims the right to determine and declare what thing corresponds to the name, and to vary its declaration from time to time—when, that is to say, it claims the right to re-edit the dictionary. This right is claimed by all modern States and has been so claimed for some four thousand years at least. It is when this stage in the evolution of Money has been reached that Knapp's Chartalism—the doctrine that Money is peculiarly a creation of the State—is fully realized. . . . Today all civilized money is, beyond the possibility of dispute, Chartalist.[123]

Graeber summarizes the credit theory of money as follows:

> Credit Theorists argued that a banknote is simply the promise to pay *something* of the same value as an ounce of

119. Ibid.

120. Fritz K. Ringer, ed., *The German Inflation of 1923* (New York: Oxford University Press, 1969).

121. Ehnts, "Knapp's State Theory of Money."

122. Graeber, *Debt*, 78.

123. John Maynard Keynes, *A Treatise on Money* (London: Macmillan, 1930), 30.

> gold. But that's all that money ever is. There's no fundamental difference in this respect between a silver dollar, a Susan B. Anthony dollar coin made of a copper-nickel alloy designed to look vaguely like gold, a green piece of paper with a picture of George Washington on it, or a digital blip on some bank's computer.[124]

In other words, if all money—even commodity money—is really credit (debt), Graeber argues, then the IOU it represents is *whatever the creditor decides*. In other words, money is nothing but a *political* decision made by creditors, who in Graeber's account are strongly motivated by the desire to subjugate debtors. Moreover, the state is a unique kind of creditor in that it is also the largest debtor in its jurisdiction; it requires that its own debt be the thing—the credit—that everyone within that jurisdiction must demand, or want, in repayment of debts.[125] In response to what he perceives to be the fundamental injustice of this situation, Graeber articulates a political project that effectively calls for the abolition of money: "In the largest scheme of things, just as no one has the right to tell us our true value, no one has the right to tell us what we truly owe." As we shall see, however, this vision not only reveals itself to be impracticable, but it also denies the possibility that victims of injustice could themselves be creditors and decide to "settle scores."

The credit theorists on whom Graeber relies to make the claim that money is debt—Knapp, Mitchell-Innes, and Keynes—make the argument that chartal (state credit) money is a superior *technology* to both commodity money and commodity-based credit money and should therefore replace them. Here it is worth underscoring that Knapp, Mitchell-Innes, and Keynes were making a motivated historical argument whose objective—solidifying the state monopoly over money—has been so successfully achieved that whatever nuance they brought to their argumentation has largely been lost. They were writing during the early twentieth century, when *fiat* currencies, or credit monies that are not convertible into anything, were being introduced by nation-states in

124. Graeber, *Debt*, 68.

125. Graeber, *Debt*, 536. Here we see the strong parallels between Graeber's theory of money and what has been called Modern Monetary Theory.

a systematic and enduring way. The value of these currencies needed to be justified to populations who were used to thinking of all bank notes as redeemable for useful commodities. Accordingly, all three theorists served as influential apologists for their governments' move to eliminate the convertibility of their currencies. This happened first through government promises to pay *something* of more or less the same value as the previous commodity standard but transitioned relatively quickly to the vague promise that fiat currencies are backed by the "full faith and credit" of the state.

Later interpreters of state-credit theories of money, including Graeber, suggest that the transition to fiat money was a kind of mask-off moment which simply revealed what money always was—nothing but a social agreement between powerful social actors, backed by the state and imposed by coercion on everyone within its jurisdiction. However, this argument obscures the move to consolidate power that governments around the world *actually* made during the early twentieth century: By limiting the definition of legal tender to the fiat currencies they themselves issued, and then eliminating the convertibility of those currencies, governments expanded their control over the spheres of economic exchange within their jurisdictions. The state-credit theory of money, as elaborated by Knapp, Mitchell-Innes, and Keynes, threw a veneer of metaphysical inevitability over what was in fact a series of political decisions. Graeber appears to have fully accepted and internalized this metaphysics.

Graeber rounds out his theory of money by explaining that its function as a unit of account is really the only one that matters:

> The reason why anthropologists haven't been able to come up with a simple, compelling story for the origins of money is because there's no reason to believe that there could be one. Money was no more ever "invented" than music or mathematics or jewelry. What we call "money" isn't a "thing" at all; it's a way of comparing things mathematically, of saying one of X is equivalent to six of Y. As such it is probably as old as human thought.[126]

126. Graeber, *Debt*, 75.

The purpose of money, then, is not to solve the problem of the double coincidence of wants but to "measure debt": "What is the difference between a mere obligation, a sense that one ought to behave in a certain way, or even that one owes something to someone, and a *debt*, properly speaking? The answer is simple: Money. The difference between a debt and an obligation is that a debt can be precisely quantified. This requires money."[127]

I revisit the fact that value cannot be measured in any essential sense in my discussion of money as a unit of account, below. For now, I simply note that Graeber is notably laconic about how the *prices* of X and Y—their exchange value in *terms* of money—are determined. Instead, he launches into a polemic against the market—the setting for exchange in which prices are negotiated, and which in his telling is always already a creature of the state—and the "calculation" that pervades it. Before treating Graeber's antimarket polemic in more detail, however, let us arrive at Graeber's definition of money: *Money is credit denominated in terms of a unit of account that measures value (specifically, debt), a measurement that is determined by the agreement of powerful social actors*. This is indeed a narrow definition of money, as Szabo indicated in the Twitter debate.

Graeber's theory of money therefore follows essentially unchanged the major contours of both the credit and state theories of money: First, the ontological claim that money is credit (or debt); second, the historical claim that "abstract systems of accounting" preceded commodity money; and third, the claim that "true" money is always a creation of the state. Unlike Knapp and Keynes, however, Graeber does not see state money as a good thing. In Graeber's narrative, money undoes the possibility of genuine human community for two reasons: First, it is issued by the state primarily to finance the waging of war, which destroys entire social groups and ways of life; second, its issuance creates markets, which are bad because transacting economically alienates people from each other. Where there is no state-issued money, according to Graeber, war is at best a small-scale affair, and there also is no market. For this reason, in Graeber's view, those who believe that

127. Graeber, *Debt*, 37.

anything like a bottom-up market, let alone a free market, could exist are at best cloaking practices of domination with a palatable fiction:

> [There is a] great embarrassing fact that haunts all attempts to represent the market as the highest form of human freedom: That historically, impersonal, commercial markets originate in theft. . . . It was only in the hands of soldiers, fresh from looting towns and cities, that chunks of gold or silver—melted down, in most cases, from some heirloom treasure, that like the Kashmiri gods, or Aztec breastplates, or Babylonian women's ankle bracelets, was both a work of art and a little compendium of history—could become simple, uniform bits of currency, with no history, valuable precisely for their lack of history, because they could be accepted anywhere, no questions asked. And it continues to be true.[128]

The dual evils of war and markets, Graeber argues, destroy social bonds and communities by establishing equivalencies of value between things that should never be compared.[129] It is the violence of *commensurability*—what he calls "calculation"—that is offensive to Graeber: Of unlike things coming into contact, whether in war or economic exchange, and establishing shared languages of intelligibility that necessarily exclude the full hermeneutic richness of the worlds in which those previously incommensurable things originated. Graeber is now well positioned to launch into the venerable tradition of moral polemic against the rationalization of economic exchange as such, which extends throughout the anthropological tradition of substantivism and even further into older theological criticisms of commercial life.[130]

Graeber's hostility to math and measurement also appears in other works, where it is expressed as a profound mistrust of science and technology. In *Toward an Anthropological Theory of Value*, for example, he introduces his "action-oriented theory of value" by exposing the supposed Western fallacy of attempting to measure the world—and the

128. Graeber, *Debt*, 529.
129. Graeber, *Debt*.
130. Bloch and Parry, "Introduction: Money and the Morality of Exchange."

resulting hubris of scientific progress.[131] He labels this the "Parmenidean" approach, referring to the debate between Parmenides and Heraclitus that, in his telling, inaugurated the history of Western philosophy. Graeber states simply that Heraclitus won the debate with his claim that because all of reality is in constant flux, precise measurement is an illusion.[132] Graeber later suggests that this Heraclitean tradition, despite its supposed correctness, has been largely ignored by subsequent Western philosophers, with the alleged exceptions of Hegel and Marx, whom Graeber also happens to count as political ancestors.[133] This cartoonish summation of thousands of years of philosophical and scientific production across the violently diverse and divided continent of Europe then becomes the foundation for Graeber's moral polemic against the Parmenidean strawman he has constructed.

What is Graeber's alternative to societies pervaded by economic measurement? He calls them "human economies," and in such societies, people use "social currencies"—forms of money that "create, maintain, or sever relations between people rather than . . . purchase things."[134] Graeber clearly has in mind the gift economies described by anthropologist Marcel Mauss in his 1925 magnum opus, *The Gift*.[135] But unlike Mauss, Graeber insists that people using social currencies in human economies are not motivated by the accumulation of wealth or other forms of self-interested (that is, "economic") calculation.[136] Rather, as he suggests in *Toward an Anthropological Theory of Value*, they are motivated by "the creation of people."[137] Throughout *Debt*, Graeber morally opposes "the creation of people" with "economic calculation"; he argues that the advent of money and price led to the intensification and entrenchment of capitalist exploitation, of which slavery is allegedly the archetypal manifestation. Yet his ethnographic examples of slavery come from both "market" (that is, "capitalist") and so-called "human"

131. Graeber, *Toward an Anthropological Theory of Value*, 48–54.
132. Ibid.
133. Ibid.
134. Graeber, *Debt*, 217.
135. Mauss, *The Gift*.
136. Graeber, *Debt*, 180.
137. Graeber, *Toward an Anthropological Theory of Value*, 142.

economies: In both, people create themselves and their social relationships with reference to the social prestige and wealth they accumulate. That wealth includes the people—slaves, women, children, subjects, and so on—over whom they exercise dominion. While Graeber acknowledges that so-called human economies are "not . . . necessarily in any way more humane"[138] than market economies, he refuses to allow this observation to complicate the moral binary he has constructed.

Mauss follows the ethnographic evidence more closely. He observes that the accumulation of both material and social forms of abundance is embedded in institutions of gift exchange, which function as "total social facts" precisely because they do not differentiate between what we would today call economic motivations and familial, religious, and political aims.[139] Mauss, like Graeber, was a committed socialist, but unlike Graeber, he also saw himself as a scientist with a responsibility to describe as objectively as possible the domain of what he and his uncle, the sociologist Émile Durkheim, called "social facts." For Mauss, the construction of persons always occurs with reference to a complex set of layered motivations that include, but are not reducible to, desires for material gain and social advantage. Central to Mauss's argument is the observation that only in modern societies do "economic" motivations become separable from other motivations, with an attendant morality of a "pure gift" in which there is no obligation on the part of the recipient to reciprocate.[140] The fact that "the economy" did not exist as a separate sphere of exchange in precapitalist societies does not mean, for Mauss, that "economic" motivations were absent; rather, they were folded into every social institution, inextricably imbricated with other motivations.

While Graeber would agree with Mauss that there is an expectation of reciprocity in what Graeber calls human economies, he places that reciprocity entirely outside the process of economic "calculation." In Graeber's telling, people in "human economies" are not only *not* motivated by economic self-interest; they also supposedly do not engage

138. Graeber, *Debt*, 179.
139. Mauss, *The Gift*.
140. Ibid.

in market exchange, take accounts, or measure debt.[141] But if there is no calculation, how does a logic of reciprocity work in human economies? Graeber attempts to square this circle by asserting that while there is no debt in human economies, there are "favors."[142] What is the difference? He writes, "The difference between owing someone a favor and owing someone a debt is that the amount of a debt can be precisely calculated. Calculation demands equivalence."[143] Calculation, in turn, can only be an artifact of violent coercion: "Any system that reduces the world to numbers can only be held in place by weapons, whether these are swords and clubs, or, nowadays, 'smart bombs' from unmanned drones."[144] Finally: "What is a debt, anyway? A debt is just the perversion of a promise. It is a promise corrupted by both math and violence."[145]

Graeber ends *Debt* by asserting that once the coercion of the state-market is removed, the world will once again see the emergence of human economies: "Markets, when allowed to drift entirely free from their violent origins, invariably begin to grow into something different, into networks of honor, trust, and mutual connectedness."[146] Here we see the re-emergence of the virtues which Graeber's value-laden anthropology posits lie at the root of all "true" human sociality and which allegedly militate against "economic", or self-interested, motivations and actions. Since, for Graeber, the state is the very origin of war, measurement, markets, and money, all of which are institutions which ostensibly lie at the root of the moral corruption of human societies, it seems clear that here he is calling for the abolition of all of them. But a call for such abolition now places us in the realm of pure conjecture. Graeber offers no historical examples of state collapse being followed by a decrease in the frequency or intensity of warfare, not to mention the replacement of money and markets with "networks of honor, trust, and mutual connectedness." Graeber only insists that this invariably happens.

141. Graeber, *Debt*, 177–82.
142. Graeber, *Debt*, 27–28, 528.
143. Graeber, *Debt*, 528.
144. Graeber, *Debt*, 529.
145. Graeber, *Debt*, 536.
146. Graeber, *Debt*, 530.

Whatever the merits of a project of state abolition may be, Graeber's imagination of that project inhabits the realm of eschatology, not social theory. Further, the empirically documented "autometallic" origins of money—to use Knapp's term—should make clear that abolition of the state in no way results in an abolition of money, but only—potentially—of state-issued money. As Graeber himself demonstrates, however, even state-issued monies are liable to be used as units of account long after the demise of the state if there are no better alternatives at hand.[147] Intentional monetary abolition is, quite simply, an impossible proposition.

In the final analysis, despite its mastery of the anthropological literature about money and value and the accessibility of its prose, Graeber's theory of money as elaborated in *Debt* is a deeply flawed entry into the ledger of ideological debate between chartalists and metallists on the back of a moralizing, utopian project. It also indicates something more troubling: The victory of the state in demarcating the horizons of imaginable political possibility even among the most supposedly radical academics. Graeber, after all, has a strong popular and scholarly reputation as an anarchist anthropologist. The fact that the state-credit theory of money has so thoroughly captured his political imagination demonstrates how effective the state has been in eliminating alternatives to its power, even in the realm of social theory. While Graeber rails against the state in *Debt*, he does not countenance the possibility that money and markets—indeed, *the moral sentiment of debt itself*—could and indeed do exist without it. Instead, he lumps all of his political foes into the same phenomenal bucket, which gives him a clear polemical target to strike, but at the expense of both a theory that holds true *and* the possibility of justice for the many millions of poor creditors throughout human history who have been forced to live their lives *unsatisfied*.

In the section that follows, I outline a theory of money that is descriptive rather than prescriptive and, in my view, accounts more fully for the historical and ethnographic evidence.

147. Graeber, *Debt*, 58.

Toward an Anthropological Theory of Money

Money: Social Institution and Social Technology

Money is a social institution that facilitates exchange—that is, the settlement of debts.[148, 149, 150, 151] Institutions, following Douglass North, "are the humanly devised constraints that structure political, economic and social interaction. They consist of both informal constraints (sanctions, taboos, customs, traditions, and codes of conduct), and formal rules (constitutions, laws, property rights)."[152] Institutions are purposeful; they arise to facilitate human cooperation directed toward specific ends that may be explicit or implicit.[153] They achieve this by increasing both the benefits of cooperation and the costs of defection with regard to a common objective.[154] In this way, institutions help human beings solve problems that can only be solved by cooperation. Technologies, in turn, are durable and improvable solutions to problems. The genesis of institutions in solving problems suggests that they can be fruitfully conceived as *social technologies*.

Money facilitates a particular type of human cooperation—economic exchange—by dramatically lowering the costs of settling debts. It does so by solving the problem of the double coincidence of wants. This is the problem in which counterparty A to an exchange wants to trade something they have (X) for something their counterparty B has (Y), but B does not want X—or will not accept however many Xes A is

148. Carl Menger, *On the Origins of Money* (Auburn, AL: Ludwig von Mises Institute, 2009).

149. Paul Samuelson, *Economics: The Original 1948 Edition* (New York: McGraw Hill, 1948), pp. 57–59.

150. Paul Einzig, *Primitive Money: In Its Ethnological, Historical and Economic Aspects*, 2nd ed. (London: Pergamon Press, 1966).

151. Peter J. Boettke, Alexander William Salter, and Daniel J. Smith. *Money and the Rule of Law: Generality and Predictability in Monetary Institutions* (Cambridge: Cambridge University Press, 2021).

152. Douglass North, "Institutions," *Journal of Economic Perspectives* 5, no. 1 (Winter 1991): 97.

153. North, "Institutions."

154. Ibid.

willing to part with for Y.[155, 156, 157, 158] The problem of the double coincidence of wants describes the high transaction costs of *direct exchange* (X for Y). These are really two types of costs: (i) search costs (matching a buyer with a seller) and (ii) transfer costs (the costs of moving a good with minimal deterioration and of verifiably transferring ownership of that good).[159]

The high costs of direct exchange—specifically, of search costs—are often illustrated in the economic literature with the example of barter.[160] Some of this literature—particularly Adam Smith's account in *The Wealth of Nations*, which became paradigmatic for the discipline of economics[161]—has been interpreted by some economists to mean that a historical stage in which barter predominated as the primary mode of exchange preceded the historical stage in which exchange became mediated by money. Anthropologists, including Graeber, have repeatedly emphasized that a historical stage in which barter predominated between friends and neighbors is a myth; the ethnographic record shows that barter is typically reserved for economic exchange between strangers, and usually between collectives of strangers.[162, 163] Some anthropologists have used the empirical rarity of barter as alleged proof that Smith—and by extension economists in general—misunderstand exchange and are largely not to be taken seriously.

However, a close reading of Smith suggests that the standard anthropological account of barter is actually fairly close to the account that he describes. Let us quote Smith at length here:

155. Menger, *On the Origins of Money*.

156. Einzig, *Primitive Money*, 486.

157. Landa, *Trust, Ethnicity, and Identity*.

158. Melitz, *Primitive and Modern Money*.

159. Melitz, *Primitive and Modern Money*, 57–60.

160. Ludwig von Mises, *The Theory of Money and Credit*, trans. J. E. Batson (Auburn, AL: Ludwig von Mises Institute, 2009).

161. Adam Smith, *An Inquiry Into the Nature and Causes of the Wealth of Nations*, ed. R. H. Campbell, A. S. Skinner, and William B. Todd (Carmel, IN: Library of Economics and Liberty, 2000).

162. Graeber, *Debt*.

163. Graeber, *Toward an Anthropological Theory of Value*.

When the division of labour has been once thoroughly established, it is but a very small part of a man's wants which the produce of his own labour can supply. He supplies the far greater part of them by exchanging that surplus part of the produce of his own labour, which is over and above his own consumption, for such parts of the produce of other men's labour as he has occasion for. Every man thus lives by exchanging, or becomes in some measure a merchant, and the society itself grows to be what is properly a commercial society.

But when the division of labour first began to take place, this power of exchanging must frequently have been very much clogged and embarrassed in its operations. One man, we shall suppose, has more of a certain commodity than he himself has occasion for, while another has less. The former consequently would be glad to dispose of, and the latter to purchase, a part of this superfluity. But if this latter should chance to have nothing that the former stands in need of, no exchange can be made between them. The butcher has more meat in his shop than he himself can consume, and the brewer and the baker would each of them be willing to purchase a part of it. But they have nothing to offer in exchange, except the different productions of their respective trades, and the butcher is already provided with all the bread and beer which he has immediate occasion for. No exchange can, in this case, be made between them. He cannot be their merchant, nor they his customers; and they are all of them thus mutually less serviceable to one another. In order to avoid the inconveniency of such situations, every prudent man in every period of society, after the first establishment of the division of labour, must naturally have endeavoured to manage his affairs in such a manner, as to have at all times by him, besides the peculiar produce of his own industry, a certain quantity of some one commodity or other, such as he

> imagined few people would be likely to refuse in exchange for the produce of their industry.[164]

Smith says that until the advent of money, trade was "very much clogged and embarrassed in its operations"—in other words, barter *could not have occurred* with any meaningful frequency. His illustration of the butcher and the baker is therefore likely not describing a discrete historical stage preceding the invention of money, but rather illustrating a human predicament—the problem of the double coincidence of wants—using examples of the division of labor that were comprehensible to his contemporary readers.[165] Similarly, in *The Theory of Moral Sentiments*, Smith recognizes that kin and small-scale affinity groups are critical for the provision of both security and material needs in noncommercial societies.[166, 167] It is only as a society *becomes* commercial (that is, with a sufficient level of price-mediated exchange), which itself requires the establishment of the rule of law, that kin-based networks of credit and gift exchange can increasingly give way to money-mediated exchange between strangers.[168] This transition is never complete. Networks of small-scale, intimate credit arrangements persist even in commercial societies. They just get smaller and less relevant for the provision of people's needs and desires.[169]

In short, by solving the problem of the double coincidence of wants, money does in fact accelerate the development of commerce—not by replacing alleged barter between kin and neighbors, which rarely happens, but by facilitating all sorts of transactions between relative *strangers* who increasingly specialize their labor to profitably meet the needs of the market in exchange for money.[170] The emer-

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164. Adam Smith, "On the Origin and Use of Money," in *An Inquiry Into the Nature and Causes of the Wealth of Nations*, ed. R. H. Campbell, A. S. Skinner, and William B. Todd (Carmel, IN: Library of Economics and Liberty, 2000), https://www.econlib.org/library/Smith/smWN.html?chapter_num=7#book-reader.

165. Selgin, "The Myth of the Myth of Barter."

166. Smith, *Theory of Moral Sentiments*.

167. Selgin, "The Myth of the Myth of Barter."

168. Smith, *Theory of Moral Sentiments*.

169. Ibid.

170. Strangers who transact with money can, of course, also transact by

gence of price-mediated markets has been an indispensable accelerant of the growth of economic productivity beyond what both Marshall Sahlins and Ludwig von Mises have described as the domestic mode of production.[171, 172]

Money solves the problem of the double coincidence of wants by acting as the most salable or marketable good within a market (a *medium of exchange*)—that is, the good most market participants, each of whom is at some point a creditor, are likely to readily *want*. In order for a commodity to become the most salable good, it must have *value*—creditors must have confidence that it will reliably settle *their* debts in the future.[173] The kernel of such value is *collateral*. I describe the characteristics of collateral in more detail below, but for now it suffices to note that collateral has two primary characteristics: Use value and scarcity. However, collateral is often impractical to use as money; it may be difficult to access, price, subdivide, transport, secure, store, or verify. Accordingly, commodities adopted as money have additional characteristics that lower the costs of transacting with them. These characteristics include availability, durability, portability, fungibility, and verifiability. As human communities begin using more available, durable, portable, fungible, and verifiable commodities to mediate exchange, they discover that these commodities can also be used as abstractions to *notate price*—as units of account. This enables greater *precision* and *scalability* in transacting, which in turn further increases the volume of exchange. I examine each of these functions and characteristics of money in more detail in the sections that follow.

For now, I wish to emphasize that money must demonstrate two seemingly opposed characteristics: It must be both sufficiently *scarce* (that is, limited in supply and expensive to replace)[174] to retain or grow

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barter, but this is generally a more onerous route, and therefore, again, relatively rare.

171. Sahlins, *Stone Age Economics*.

172. Mises, *Theory of Money and Credit*.

173. William Warrand Carlile, *The Evolution of Modern Money* (London: Macmillan, 1901).

174. Nick Szabo, "Measuring Value: A Crucial Issue in Transaction Costs Economics," *Satoshi Nakamoto Institute*, 1997, https://nakamotoinstitute.org/measuring-value/.

value over time and sufficiently *available* that it is the most liquid asset to trade for any other good or service within a market.[175] As George Simmel notes:

> Scarcity can only become significant above a considerable volume, without which these metals [that are used as money] could not serve the practical demand for money and consequently could not acquire the value they possess as money. . . . a certain proportion between scarcity and nonscarcity, and not scarcity itself, is the condition of value [for money].[176]

This tension between scarcity and liquidity is what gives money *currency*—that is, the social charge and momentum that allows it to *circulate*. In other words, the *closure* constituted by scarcity is the condition of possibility for money's functioning as a cybernetic system, or a system of circular causal feedback.[177] Cybernetic systems are systems of control that display self-organizing properties because their outputs become inputs within the same system. Communication, or information, systems are types of cybernetic systems. They include language, mathematics, and all kinds of semiotic systems.

Money can be understood as a specific type of information system that communicates settlement—that is, it lowers the probability of the *absence* of settlement—at the lowest possible cost. In this sense, it displays the properties of information entropy, or Shannon entropy. In information theory, entropy describes the amount of information communicated in a message as a function of a probability calculation. A message that communicates everything has maximum entropy (that is, white noise), while a message that communicates nothing has zero entropy (that is, silence). In both cases, the outcome is certain. In order for information to be communicated, however, entropy must be somewhere between zero and one—in other words, the message must carry a

175. Melitz, *Primitive and Modern Money*.

176. George Simmel, *The Philosophy of Money*, 3rd enlarged ed., ed. David Frisby, trans. Tom Bottomore and David Frisby (London: Routledge, 2004), 69–70.

177. W. Ross Ashby, *An Introduction to Cybernetics* (London: Chapman & Hall, 1957).

level of uncertainty or surprise. Messages are communicated using material means (an *encoding*), such as images, sound waves, bits, or physical taps, that are transmitted over channels, such as airwaves, the visual light spectrum, fiber-optic cables, or the human body. Information entropy is a mathematical function that describes the *least* amount of encoding required to transmit a message without loss. Similarly, money can be described as the *cheapest valuable* that serves to settle debts within a particular market.

Payment versus Settlement

What does it mean to settle a debt? Some economists and anthropologists have proposed that one of the functions of money is to act as a *method of payment*—that is, a medium of debt settlement.[178, 179, 180] While payment does facilitate the settlement of a debt, however, payment and settlement are in fact two different social processes. Payment describes the process of *rendering* something of value toward the discharge of a debt, while settlement is the process by which the creditor in a transaction *determines that a debt has been paid*. In other words, settlement is the process in which *a payment is accepted as final*, and, as a result, the debt disappears from the creditor's *psychological* ledger.

The root of final settlement in the psychological state of the creditor makes it an indeterminate process that always contains the possibility of violence: A creditor *might not be satisfied* even if full payment is rendered. Accordingly, human societies frequently establish norms and conventions that provide socially objective (that is, intersubjective) guidelines for determining that a debt has been settled. These norms function as social constraints—pressure, including the violence of social ostracism or physical coercion—if a creditor does not accept a conventional payment as satisfying a debt. For example, today the Bank for International Settlements, a "bank of banks" that sets binding policy for all participating financial institutions worldwide, defines final settlement as "the irrevocable and unconditional transfer of an asset

178. Maurer, "The Anthropology of Money."
179. Bohannan, "The Impact of Money on an African Subsistence Economy."
180. Melitz, *Primitive and Modern Money*.

or financial instrument, or the discharge of an obligation by the FMI [Financial Market Infrastructure] or its participants in accordance with the terms of the underlying contract. Final settlement is a legally defined moment."[181, 182]

Despite the undeniable force of law—and the violence of the state or community that backs it—in enforcing contracts, however, the institution of debt is more fundamental than the institutions of both law and money. Debt has a moral dimension that exceeds concretization in terms of either statute or price. A frequently used synonym for "settlement" is "satisfaction," which evokes moral finality.[183, 184] In other words, the institutions of law and money depend upon the preexisting moral construct of debt, which is itself a way of conceptualizing social reciprocity. Adam Smith notes in *The Theory of Moral Sentiments*:

> We are delighted to find a person who values us as we value ourselves, and distinguishes us from the rest of mankind, with an attention not unlike that with which we distinguish ourselves. To maintain in him these agreeable and flattering sentiments, is one of the chief ends proposed by *the returns we are disposed to make to him*. . . . What chiefly enrages us against the man who injures or insults us, is the little account which he seems to make of us, the unreasonable preference which he gives to himself above us, and that absurd self-love, by which he seems to imagine, that other people may be sacrificed, at any time, to his conveniency or his humour. . . . To bring him back to a more *just sense of what is due to other people*, to make him *sensible of what he owes us*, and of the wrong that he has done to us, is frequently the principal end

181. Bank for International Settlements, "Final Settlement," *Glossary*, April 2012, https://www.bis.org/cpmi/publ/d00b.htm?&selection=30&scope=CPMI&c=a&base=term#:~:text=final%20settlement,terms%20of%20the%20underlying%20contract.

182. Bank for International Settlements, *Principles for Financial Market Infrastructures*, 2012, 64, https://www.bis.org/cpmi/publ/d101a.pdf.

183. Melitz, *Primitive and Modern Money*, 39.

184. Nick Szabo, "Artifacts of Wealth: Patterns in the Evolution of Collectibles and Money," *Unenumerated*, July 31, 2016, https://unenumerated.blogspot.com/2016/07/artifacts-of-wealth-patterns-in_15.html.

> proposed in our revenge, which is always imperfect when it cannot accomplish this.[185]

Sentiments and corresponding concepts of debt and satisfaction exist even in societies without money or law. Graeber's theory of money as debt (and debt as a function of money) is therefore exactly backward: People were "keeping score" and "settling scores" long before those scores were notated using conventional units of account. Moreover, history is riddled with examples of currency collapse: moments when creditors began refusing, *en masse*, to accept a legally-defined method of payment to settle debts. The experience of Germany during its hyperinflation in 1923 is only one historical example of market participants deciding to no longer accept a worthless, state-issued currency in exchange for their products, services, or labor.[186] Instead, German farmers, businesses, and workers increasingly resorted to barter—a much more expensive and onerous form of exchange, which naturally decreased its frequency—or simply stopped selling or working altogether.[187] The law had lost its force to compel Germans to accept a government-issued money that no longer functioned as a store of value.

But transaction refusal is only one of the possibilities that always hangs over the indeterminate process of settlement; the other is violence. Violence over unsettled debts can take a number of forms, including the blood feud, vendettas, revolutions, and wars. These violent feedback loops are themselves institutionalizations of a circuit of ledger entries that can have infinite value in the eyes of their creditors—priceless human lives that can never be repaid.[188] One of the functions of law has been to bring to bear a violence greater than that of feuding individuals and small groups—the violence of a larger community—to put an end to the destructive cycle of violent ledger entries by forcing a person or group to accept final settlement when they are not inclined

185. Smith, *Theory of Moral Sentiments*, 80; emphasis added.

186. Ringer, *The German Inflation of 1923*.

187. Ibid.

188. See, for example, E. E. Evans-Pritchard, *The Nuer: A Description of the Modes of Livelihood and Political Institutions of a Nilotic People* (Oxford: Oxford University Press, 1940).

to do so.[189] This larger community may be expressed in a state, in an international treaty between states, in the decentralized social enforcement of norms and laws, in the will of superhuman forces interpreted by shared dogma or religious authorities, or in some combination of these. Indeed, forestalling or ending the institutions of blood feud, vendetta, revolution, and war is arguably the primary purpose of what we now call the rule of law.

But the mere exercise of collective force does not guarantee the outcome it seeks. Not only is violence expensive, but its use may motivate the creditors it seeks to compel to simply add more debts to their psychological ledgers. As American General James Mattis observed, "You may want a war over. You may declare it over. You may even try to walk away from it. But the bottom line is the enemy gets a vote."[190] The exercise of collective violence by a community of law is only effective—to the limited extent that it is—so long as it is accepted psychologically as on the whole an acceptable trade-off by the aggregate of individuals, families, states, and other human groups constituting that community of law.

In other words, generalized confidence in the integrity and balance of the wider social ledger is the indispensable condition for what is called political legitimacy, and by extension the relative stability of the social order. Where that confidence collapses, so does the power of law. As a result, so does the value of any money whose acceptance is highly contingent upon that power. Chartal money (credit money issued by the state) is particularly vulnerable to this kind of collapse.

Having established the difference between payment and settlement, I now turn to the functions and technical characteristics of money that enable it to readily settle debts at low cost.

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189. For an ethnographic account of how nation building emerges in part as a response to the institution of blood feud, see Keith Brown, *The Past in Question: Modern Macedonia and the Uncertainties of Nation* (Princeton, NJ: Princeton University Press, 2018).

190. Greg Myre and Steve Inskeep, "Jim Mattis: 'Nations With Allies Thrive, Nations Without Allies Wither,'" *Morning Edition*, National Public Radio, September 2, 2019, https://www.npr.org/2019/09/02/756681750/jim-mattis-nations-with-allies-thrive-nations-without-allies-wither.

Medium of Exchange: The Most Salable Good

As is by now clear, money lowers the cost of settling debts in part by acting as the *most salable good* in a market: The good most market actors *want* and seek to accumulate in order to exchange it for future provision.[191, 192] The most salable good can emerge from the bottom up, as when a valuable commodity becomes established over time as the most ready medium for discharging a wide variety of debts, or from the top down, as when a government decrees that a particular type of money is legal tender within its jurisdiction. The willingness of others to accept money as a means of payment leads participants in economic transactions to rely upon it as a *medium of exchange*.

The use of a medium of exchange enables *indirect* (or *intermediate*) exchange, in which the parties to a transaction first each exchange their goods and services for money and then exchange money for the specific goods and services they want or need in the exact quantities they want or need.[193] In this way, money significantly reduces the friction (costs) of exchange and thereby increases its volume and velocity.

As Adam Smith observed, money is primarily used to transact economically with strangers. Thus, one of the most important social effects it produces is what anthropologists Andrew Shryock and Daniel Lord Smail call a "release from proximity": The ability to transact across wide distances and social boundaries in environments of low trust.[194] One of the characteristics that enabled money to perform this function is "repeatability," or similarity in form and composition:

191. Menger, *On the Origins of Money*.

192. Carlile, *Evolution of Modern Money*.

193. Jacques Melitz reminds us that money exchange is not the only type of indirect exchange. Triangular exchange and more complex geometric forms of exchange are also possible and do occur. However, although they might involve fewer goods overall, these forms of exchange generally carry higher transaction costs than money-mediated exchange.

194. Andrew Shryock and Daniel Lord Smail, *Deep History: The Architecture of Past and Present* (Berkeley, CA: University of California Press, 2011), 235.

> The quality of repeatability has been found from the beginning of the Upper Paleolithic. It was an important feature of the ceramics, temple forms, and other objects manufactured during the Bronze and Iron Ages. To this extent, the mass production and circulation of repeatable objects is something that can emerge in any political ecology where there has been a release from proximity, where individuals have developed far-flung connections and networks defined by goods and kinship. The repeated object itself is a crucial feature of this release, as it can travel across considerable distances, carrying with it threads of connection by virtue of its sameness.[195]

If a "repeated object" is in fact to be useful in transactions across such distances, however, it must have a perceived value that is highly evident without the need for many shared social conventions, including language, religion, kinship model, or social and political values. Therefore, if a type of money is to function as a medium of exchange over wide stretches of social space and time, it must have a highly evident *use value*. It must also be *scarce* enough that most creditors in a market are likely to want more of it at any given time. It is therefore an object's *use value* and *scarcity* that make it a *store of value*. I now turn to this critical function of money.

Store of Value: Money as Collateral

How does a commodity become the most salable good in a market? One answer is straightforward: When a type of money is declared legal tender by a government, the force of law can indeed serve as a powerful impetus for people to adopt and use that money. Its use value is, in effect, the legal compulsion to accept it as a medium of exchange. But, as Jacques Melitz notes:

> Continuous coercion is never the mainstay of the monetary habit. Imitative behavior and conformity to an agreement to use money, even when voluntary, are not significantly

195. Shryock and Smail, *Deep History*, 235.

> self-rewarding, at least not for very long. . . . Monetization implies costs, and therefore if uncoerced, must be correspondingly rewarded. . . . Whatever the manner in which [money] takes root there must come a point when the elements of self-interest . . . assume the fundamental role.[196]

Melitz observes that self-interest emerges in the principle of economy: People hold money "in significant measure in order to economize on transaction costs in the activity of trading a variety of other types of goods."[197] In other words, people seek to cheaply secure future provision. As economist William Warrand Carlile noted in 1901, "The commodity best adapted for securing future provision becomes money. . . . As the division of labour progresses, the commodity which is most to be relied on to secure the services of others forms the best provision for the future."[198] In other words, money must retain its *purchasing power* while remaining sufficiently *cheap* to economize on transaction costs. If people begin to perceive that storing and transacting with a particular form of money will cost them more than the future provision it will provide them, they will abandon the money.

Critically, money carries costs not only for the individual holding and using it but for the social collectives that administer and maintain it: Issuing, reissuing, circulating, storing, securing, transferring, accounting, verifying, and preventing counterfeiting of money all carry costs.[199] These costs are distributed across many types of social actors: The mint issuing the currency, the individuals and organizations who secure it from theft and destruction, the entities monitoring and punishing counterfeiters, the experts who verify its authenticity, the lawyers who administer contracts denominated in the currency, the administrators of social violence who enforce the disbursement of funds in settlement of claims, and the accountants who notate price in its terms and translate it into other price notations.[200] The threshold of value that money must clear to offer net positive returns for the *aggregate* of social actors

196. Melitz, *Primitive and Modern Money*, 115.
197. Melitz, *Primitive and Modern Money*, 77.
198. Carlile, *Evolution of Modern Money*, xvii.
199. Melitz, *Primitive and Modern Money*, 60–64.
200. Ibid.

using it is usually unknown with any specificity, but it is judged implicitly in the adoption and abandonment of particular forms of money.

The purchasing power of money, if it is to remain money, therefore must be on net greater than the individual and aggregate costs of its issuance and maintenance *over time*. The broad adoption and circulation of money is impossible in the absence of the widespread social conviction that it will be exchangeable for goods and services *in the future*.

Carlile observes that the monies that met this criterion most often across time and place were those that served the purpose of ornamentation.[201] In his account, early humans were largely nomadic, and mobility was critical for their survival. Accordingly, they were averse to saving; the less encumbered they were by things, the more they enjoyed the adaptive advantage of mobility.[202] The motivations that eventually overcame the early human aversion to saving included a shared capacity for aesthetic enjoyment, desire to accumulate social prestige, and need to plan for future provision. Humans began to display and collect ornaments made from beautiful and scarce commodities, which signaled social status and other morally valorized qualities. In the process, they discovered that the capacity for aesthetic enjoyment and the association of beauty with prestige were reliably shared by the strangers they encountered.[203] As a result, beautiful and scarce commodities, often shaped into jewelry and other ornaments, were adopted as temporally enduring forms of wealth in geographically dispersed early human societies.[204] Nick Szabo refers to these types of "proto-money" as collectibles.[205]

As indicated in the context of the Graeber-Szabo debate above, many economists and anthropologists would not consider early valuables money or even proto-money, mainly because the transactions in

201. Carlile, *Evolution of Modern Money*.

202. Elements of this account are echoed in Marshall Sahlins's *Stone Age Economics*; in David Graeber's *Toward an Anthropological Theory of Value*; and in Nick Szabo's "Shelling Out."

203. While Carlile differentiates between "ornamental" value and other "utility," I hold that aesthetic enjoyment and prestige signaling are in fact also types of use value. Enduring use value underpins enduring exchange value for money and other commodities.

204. Szabo, "Artifacts of Wealth."

205. Szabo, "Shelling Out."

which they were used were more akin to the *posting of collateral* than to price-mediated purchases. Early humans exchanged valuables to pay significant moral debts or to secure long-term contracts for services that involved high levels of risk. Paradigmatically, these transactions included "the tribute, the bride-price, and the 'blood price'"[206] as well as inheritance.[207, 208] This is why Mauss framed his study of gift economies as a study of "the regime of contract law and . . . the system of economic prestations (*prestations*) amongst the various sections and subgroups that make up so-called primitive societies, and also those societies that we could define as archaic."[209]

In all societies, the execution of contracts is conditional upon a high degree of ceremony and involves, either implicitly or explicitly, representatives from important social institutions. Historian of money Paul Einzig writes, "In every instance primitive money is closely linked with the peculiar social institution which forms the centre of the political, social and economic life of the community concerned. In many instances the monetary objects are valued because of their prestige value."[210] The historical and ethnographic evidence therefore suggests that prior to all further differentiation of function, the origin of money lies in *collateral*: A scarce thing with enduring use value that can be used to reliably settle debts and therefore also to cement social contracts.

Some of the commodities used in ornamentation, especially shells, beads, and precious metals, proved especially adept at "securing future provision" over long periods and across wide swathes of space.[211, 212] This is likely because they functioned most reliably as the "cheapest means of payment," following Mundell. The qualifier "cheapest" implies certain technical advantages: A commodity substrate that is sufficiently available, durable, portable, fungible (easily subdivided into repeatable units), and verifiable that it is less costly to use than the other available

206. Melitz, *Primitive and Modern Money*, 39.
207. Einzig, *Primitive Money*.
208. Bohannan, "The Impact of Money on an African Subsistence Economy."
209. Mauss, *The Gift*, 57.
210. Einzig, *Primitive Money*, 494.
211. Carlile, *Evolution of Modern Money*.
212. Graeber, *Toward an Anthropological Theory of Value*, 92.

alternatives. It is these *cheap valuables* that were most likely to evolve into and endure as media of exchange.

As my discussion of Gresham's law above suggests, however, the cheapest means of payment in one context is not necessarily the cheapest in another. For example, under conditions of high trust, credit money is often cheaper, all things considered, while under conditions of low trust, commodity money is usually cheaper to use. This is because users of credit money can rely on social institutions to absorb some of the costs of value redemption when needed, while users of commodity money do not or cannot rely on social institutions for that purpose. The context in which exchange takes place now leads us to consider the concept of a market, which can be described as a social field of transacting, or what some anthropologists refer to as a sphere of exchange.

Markets: Spheres of Exchange

A sphere of exchange can be understood as a realm of commensurability in which certain categories of goods are more readily exchangeable for one another. This economic grouping of goods is also a moral grouping; different spheres of exchange articulate different moral registers within a society. These moral registers describe different *stakes* in the game conditions that structure each sphere of exchange. Differing stakes lead societies to restrict the types of social actors who can participate in different spheres of exchange and constrain the processes of transacting within those spheres.[213] A sphere of exchange is therefore one way of describing a market—the set of all actors who are able to address one another in the communicative act of exchange using conventionally defined media and processes of exchange.

One axis along which spheres of exchange have typically been demarcated in human societies is the moral boundary between *prestige* and *mundane*.[214] Prestige transactions tend to have much higher stakes: They are weighty invocations of social responsibility that include marriage, business ventures, political alliances or treaties, inheritance, and legal judgments. Transactions in prestige spheres of exchange have usually

213. Ibid.

214. Bohannan, "The Impact of Money on an African Subsistence Economy."

been solemnified with the exchange of collateral, which in some times and places evolved into commodity monies like shell beads, bronze axes, copper rods, feathers, brasses, bolts of cloth, cattle, women, or slaves. Participants in prestige transactions often take great pains to morally differentiate these transactions from sales. By contrast, mundane exchange involves smaller-value items with less symbolic significance that reflect the relatively lower stakes of transacting with them: They may include purchases for cooking, household maintenance, hedonic consumption, and gambling. Media of exchange and units of account used in prestige spheres are often not accepted in mundane spheres of exchange, and vice versa.

In practice, however, drawing a strict boundary between different spheres of exchange often proves difficult. For example, there have been long-standing debates in societies around the world about whether the practice of paying a bride-price constitutes a form of trafficking in women: Is it a sale of a woman or a more subtle type of social contract? When the moral valence of a particular type of exchange spans different spheres of exchange, human communities may seek to resolve the dissonance either by legally prohibiting that type of exchange or by reframing it as a gift or a free decision—ostensibly placing it outside the logic of economic transacting altogether.

The in-group/out-group distinction is another paradigmatic axis along which different spheres of exchange are defined. The social phenomenon sometimes described as Gresham's law is an illustration of the interplay between foreign and domestic spheres of exchange: "Good money" frequently comes to be used as a standard for international (that is, cross-border, or out-group) transacting, while "bad money" dominates for most domestic (that is, in-group) transacting.[215] This is because members of an in-group generally enjoy higher levels of trust and shared social institutions, which they can rely upon to enforce the collection of debts. This enables the extension of the period of final settlement, perhaps indefinitely, as a function of ongoing relating. By contrast, relationships with members of an out-group tend to be fleeting and unprotected by the norms and violence of shared institutions.

215. Mundell, "Uses and Abuses of Gresham's Law."

As a result, the need to settle transactions quickly becomes more pronounced. Money that is self-settling—that is, valuable in and of itself—therefore becomes the cheapest form of settling debts with members of an out-group.

Anthropologists sometimes refer to societies in which different spheres of exchange use different monies as *multicentric*.[216] The prevalence of multicentric economies in the historical and ethnographic record, down to the present day, demonstrates that money, like other social institutions, is strongly adapted to the social settings in which it is used. Different types of monies evolve to serve as the cheapest means of exchange for different categories of transactions, which in turn constitute different markets: They are characterized by different stakes, different temporalities, and therefore different types of participants and goods.

Money, like any social technology, is vulnerable to disruption when more efficient solutions to the coordination problems it solves emerge.[217] Because money and markets are adapted to one another, the introduction of new forms of money also transforms the character of markets: It can affect who can transact, with what, when, where, and how. For example, the introduction of general-purpose money has broken down the social barriers between different spheres of exchange in many societies worldwide.[218] General-purpose money has expanded the scope of commensurable goods and services that previously would not have been exchangeable for money, or for certain types of money, reshaping markets and societies in the process.[219] This has predictably given rise to moral consternation and even moral panic in some cases, including reactions against money and money-mediated exchange itself. To say that this has created single-centric economies in which there is only one market would, however, be incorrect. There is no universal market in which all things are commensurable and in which any social agent may transact any thing at any time; there are only markets of greater or lesser generality, always bounded by the logics of group belonging,

216. Ibid.
217. Bailey and Warmke, "What Satoshi Did."
218. Bohannan, "The Impact of Money on an African Subsistence Economy."
219. Simmel, *The Philosophy of Money*.

convention, and social reciprocity that give rise to them in the first place. Along these lines, *general-purpose* money (always a relative term) is not *all-purpose* money.

Technology is not neutral in its social effects; the character of the solutions to specific coordination problems adopted by a society influences the nature of its other social institutions. It is therefore futile to speculate, as Graeber does, on whether money or markets preceded one another. Rather, they evolved—and continue to evolve—together.

Unit of Account: Measuring Price

Early valuables and media of exchange were often not standardized in size, shape, or use value. There is no such thing, for example, as a perfectly standard cow.[220] Historically, this hampered the *precision* with which goods and services could be exchanged even in indirect exchange. The need to conduct exchanges of various transactional sizes and levels of complexity across different timeframes drove the standardization of *units of account* over time.

Importantly, a unit of account does not "measure value."[221, 222] Rather, it is a common *notation of price*, which is sometimes referred to as *exchange value*, that enables parties to a transaction to more quickly come to an agreement about how much of X they are willing to part with for Y (the buy side) and how much X they expect in exchange for Y (the sell side). It is this ever-evolving agreement by an indeterminate number of actors within a market that constitutes *price, the thing money measures*.

Contra Graeber, early price notations did not themselves give rise to market exchange; they arose to help humans mentally reckon and eventually document in writing exchanges that were already underway. In other words, prices were being calculated in terms of ideal units of account long before people started writing those calculations down. Indeed, as suggested above in our discussion of "repeated objects," we have archaeological evidence that the standardization of media of

220. Melitz, *Primitive and Modern Money*.
221. Mises, *Theory of Money and Credit*.
222. Selgin, "The Myth of the Myth of Barter."

exchange into relatively fungible units of account may have begun very early. The earliest record of humans producing shell beads as personal ornamentation currently dates to approximately 142,000 BCE as part of the Aterian Middle Stone Age tool industry that stretched across North Africa.[223] The Aterian culture used the *Tritia* mollusk to produce remarkably consistent (in size, type, and shape) shell beads that were used from Morocco to Egypt, and possibly as far as Oman, over approximately 80,000 years.[224] Other types of shell beads were also in use in northwest Africa by the early Holocene period (beginning approximately 11,700 years ago).[225] Likewise, a trove of Upper Paleolithic shell beads discovered at Üçağızlı Cave in Turkey suggests that such beads were continuously used there for approximately 10,000 years.[226] Paleoanthropologists Mary Stiner, Steven Kuhn, and Erksin Güleç propose that "beads were the most irreducible and conservative elements of more complex design traditions."[227] Shell beads therefore seem to have functioned as highly reliable stores of value over long stretches of human history and large geographic areas. Standardization of their material composition and form suggests that they also could have served as denominations of price—units of account—in certain spheres of exchange.

Because units of account can be mental representations of valuable, repeatable objects used to reckon price, their actual transfer between transacting parties has often been unnecessary to settle debts. Instead, units of account have functioned as a kind of *translation layer* to settle

223. Sehasseh et al., "Early Middle Stone Age Personal Ornaments from Bizmoune Cave, Essaouira, Morocco," *Science Advances* 7, no. 39 (September 24, 2021), https://doi.org/10.1126/sciadv.abi8620.

224. Sehasseh et al., "Early Middle Stone Age Personal Ornaments from Bizmoune Cave."

225. Rainer Hutterer, Oskar Schröder, and Jörg Linstädter, "Food and Ornament: Use of Shellfish at Ifri Oudadane, a Holocene Settlement in NE Morocco," *African Archaeological Review* 38, no. 1 (October 9, 2020), 73–94, https://doi.org/10.1007/s10437-020-09409-3.

226. Mary C. Stiner, Steven L. Kuhn, and Erksin Güleç, "Early Upper Paleolithic Shell Beads at Üçağızlı Cave I (Turkey): Technology and the Socioeconomic Context of Ornament Life-Histories," *Journal of Human Evolution* 64, no. 5 (May 1, 2013): 380–98, https://doi.org/10.1016/j.jhevol.2013.01.008.

227. Stiner et al., "Early Upper Paleolithic Shell Beads," 380.

accounts by exchanging other goods. There is ample historical evidence for monies that were used as units of account but not as media of exchange in particular markets; economists Luigi Einaudi and Carlo Cipolla refer to them as "imaginary monies" or "ghost monies."[228, 229] Such units of account, as Graeber himself points out, often survive the disappearance of the actual monetary media they represent.[230] After the collapse of the Roman and Carolingian Empires, for example, people continued keeping accounts in the old imperial currencies for hundreds of years, although they no longer circulated.[231] Indeed, one could argue that the digital fiat currencies that constitute the vast majority of money issued worldwide today are a type of ghost money because they are only representations of money on a digital ledger; they are not convertible into anything and are primarily used as units of account. Yet even if a ghost money is not exchanged in particular markets, it could only have become ghost money in the first place if it had at one time functioned as a medium of exchange *somewhere*. In other words, humans can use their capacity for symbolic reasoning to reckon price ad infinitum, but that reckoning must have some common denominator that is a thing of value whose exchange results, or resulted, in final settlement.

The imaginary function of units of account as symbolic notations for price made them ideally suited to be represented in physical media, including writing. The earliest forms of protowriting—small clay objects called *tokens*, used for keeping accounts—emerged around 10,000 years ago in ancient Mesopotamia.[232] These tokens were symbolic representations of commodities that could be traded in place of the commodities

228. Luigi Einaudi, "The Theory of Imaginary Money from Charlemagne to the French Revolution," in *Enterprise and Secular Change: Readings in Economic History* (Homewood, IL: Richard D. Irwin, Inc., 1953), 494.

229. Carlo Cipolla, "Ghost Moneys," in *Money, Prices and Civilisation in the Mediterranean World* (Princeton: Princeton University Press, 1956), 38–51.

230. Graeber, *Debt*, 58.

231. Ibid.

232. Massimo Maiocchi, "Writing in Early Mesopotamia: The Historical Interplay of Technology, Cognition, and Environment," in *Beyond the Meme: Development and Structure in Cultural Evolution*, ed. Frederic C. Lane and Jelle C. Riemersma (Minneapolis, MN: University of Minnesota Press, 2019): 395–424.

themselves. Before long, temple accountants discovered that the efficiencies of transacting symbolically could be realized even more fully by drawing representations of the tokens on clay tablets. This gave rise to the earliest ledgers, featuring standardized visual representations of commodities that eventually became the cuneiform alphabet. The earliest full writing system—that is, a symbolic system able to visually represent the fullness of a human language—emerged approximately 5,500 years ago, or around 3,500 BCE, out of this ledger system.[233]

Like many technological innovations, the proximate motivation for the development of units of account resulted in a solution that had radical and unforeseen social effects: The origin of writing. The continued technological development of money likewise holds promise for giving rise to new species-level capabilities that cannot be predicted in advance.

Conclusion

Money facilitates exchange by acting as "the cheapest means of payment that settles a transaction."[234] Here, "cheapest" means "that which involves the least sacrifice."[235] The terms *settlement* and *sacrifice* are of course profoundly contextual, involving not only strictly material considerations but also *moral sentiments* such as prestige, status, honor, and integrity—that is, *values*. The differently patterned ways in which the processes of settlement and sacrifice are interpreted by human aggregates in light of values over time constitute *markets*, or spheres of exchange. Markets circumscribe ideal—although porous—limits to particular forms of exchange. They function as imprecisely bounded social fields that engender different interpretations of the principle of economy, which over time selects for the *cheapest valuable*—or medium of exchange—to settle debts in each market.

Markets are defined and bounded in large part by the *stakes*—the game conditions, which include the material and social *significance* of

233. Maiocchi, "Writing in Early Mesopotamia."
234. Mundell, "Uses and Abuses of Gresham's Law."
235. Ibid.

particular acts, actors, and objects—of the transacting that takes place within them. Different stakes necessarily engender different interpretations of both settlement and sacrifice, which in turn give rise to different media of exchange, each uniquely adapted to the stakes of a particular market. Paradigmatic market types may be described in terms of imprecise binaries of stakes such as prestige or mundane, foreign or domestic, and high trust or low trust.

The cheapest medium of debt settlement in a market is a function not only of the stakes and moral sentiments pervading that market but of the material and *technological* characteristics of the medium of exchange itself: Its ability to *retain or grow value* over time builds confidence that it can be used to secure provision in the future; its ability to *communicate value across the social boundaries* of language, religion, social norms, jurisdiction, and time renders it a useful diplomatic tool and technology of the border; and its ability to *notate price* with precision enables it to facilitate transacting at various scales and levels of complexity across various timeframes. All of these properties of money are parameters that can be improved upon, resulting in disruptive new monetary technologies that alter the types of transactions that can occur in the markets in which they are used.

The adoption and usage of a particular currency within a market lowers the costs of using it within that market while raising the costs of using alternatives. These constraints make money a social *institution*. Social institutions are by definition difficult to modify, and their persistence and scale inspire individuals to confer upon them social *authority*. That authority may derive from, overlap with, and partake of the authority of other social institutions, including the state. Ultimately, however, social authority alone is not a sufficient condition for money to retain its value and remain in circulation. Money that does not serve its purpose as a low-cost way of securing future provision by reliably satisfying creditors will cease to circulate; it will be replaced by more effective forms of money. This determination is not made by any one social actor but by the aggregate of actors transacting in a market over time.

A transaction is settled when the creditor is *satisfied*. While money may be the cheapest way of reliably settling most debts within a market, neither money nor any other form of payment is ultimately *guaranteed*

to satisfy any particular creditor in any particular transaction. This is because satisfaction is a moral sentiment that exceeds monetary and legal forms of accounting. The general balance of the *moral ledger* between individuals and between social aggregates is therefore an indispensable precondition for peaceful exchange. Unsatisfied creditors may refuse future transactions or resort to violence to recover what they perceive as owed them.

The moral ledgers in the minds of an aggregate of creditors within a market can accommodate widely elastic, but not infinite, debt balances. Once a sufficient number of creditors decide to collect on their debts, their collective action has inexorable force. These are moments of rupture and refounding—and often, the introduction of new forms of social organization and new forms of money.

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