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Ecological Economics Beyond Markets

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ABSTRACT

Non-market practices and institutions make up much of every economy. Even in today's most developed capitalist societies, people produce things that are not for sale and allocate them through sharing, gifts, and redistribution rather than buying and selling. This article is about why and how ecological economists should study these non-market economies. Historically, markets only emerge when states forcibly create them; community members do not tend to spontaneously start selling each other goods and services. Markets work well for coordinating complex industrial webs to satisfy individual tastes, but they are not appropriate for governing the production or distribution of entities that are non-rival, non-excludable, not produced for sale, essential need satisfiers, or culturally important. Moreover, we argue, markets do not serve justice, sustainability, efficiency, or value pluralism, the foundations of ecological economics. We sketch an agenda for research on economic practices and institutions without markets by posing nine broad questions about non-market food systems and exploring the evidence and theory around each. By ignoring and demeaning non-market economies, researchers contribute to creating markets' dominance over social life. Observing, analyzing, theorizing, supporting, promoting, creating, and envisioning non-market economies challenges market hegemony.

1. Introduction

The Covid-19 pandemic has revealed the importance of economic practices and institutions without markets. Communities can more effectively slow the spread of the virus if masks, tests, treatment, news, and scientific information are available freely to all (Berger et al., 2020; Chan and Yuen, 2020; OECD, 2020). If people can access food and shelter in ways other than purchasing them, they have less need to sell their labor for wages and thus can more easily endure the necessary economic slowdown without foregoing basic needs.

As entire industries have stopped and hundreds of millions have lost their jobs and incomes, new non-market economies have emerged and existing ones have expanded. Staff and volunteers have rapidly reorganized food banks to receive massive amounts of product grown for now-closed restaurants and distribute it to the swelling legions of unemployed workers, all while trying to maintain two meters of distance between people (Carson, 2020). Activists have formed mutual aid collectives to gift groceries and supplies to neighbors in need (Milstein, 2020). Tenants unions have instigated rent strikes to stop paying for market housing while still occupying it (Vilenica et al., 2020). People have sewn millions of masks in their own homes, largely without compensation, to be given for free to others who need them (Zhou, 2020).

Markets are but a subset of the economy. Ecological economists generally recognize this. Sometimes we add an interior “markets” sphere to the familiar economy-in-society-in-nature diagram, as in Fig. 1. But in our research, we often ignore that there is more to the economy than what is produced for sale and exchanged through buying and selling. The economy consists of all institutions that pertain, wholly or partly, to the satisfaction of human material wants, through social interactions between people and ecological interactions between people and the rest of nature (Mellor, 2006; Polanyi, 2014a). This includes markets—the physical spaces, shared rituals, and sets of norms for buying and selling—and production for sale in markets. It also includes many activities, relationships, projects, places, rules, customs, and associations outside of markets. These non-market practices and institutions are of interest to ecological economists. Gerber and Gerber (2017) have argued in this journal that immunizing people from market dependence—decommodification—should be a foundation of ecological economics.

People in all places and time periods have produced things for sharing, gifting, and personal consumption. Non-market institutions of sharing, reciprocity, and redistribution govern the allocation of many goods and services in every society ever. Think of traditional gift

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Fig. 1. Economy-in-society-in-nature diagram that acknowledges economies beyond markets.

ceremonies, clothing donation charities, free public feasts, or tool sharing between neighbors. Feminist scholars have studied domestic economies (Dalla Costa and Dalla Costa, 1999; Federici, 2012); anthropologists have studied the economic institutions of non-market societies (Gudeman, 2016; Sahlins, 1974); and critical geographers have studied non-market economic activity in capitalist societies (Gibson-Graham, 2008; Murton et al., 2016). Ecological economists have much to learn from and add to this body of research. Likewise, economies beyond markets have much to teach us about ecological economics.

This article is about why and how ecological economists should study non-market economic practices and institutions, what we are calling non-market economies. Non-market economies encompass production not intended for sale and transfers other than buying and selling. They are economies without money. In Section 2, we demonstrate the ubiquity and importance of non-market economies, and review what markets are and are not good for. In Section 3, we lay out a research agenda for studying non-market economies, structured around a set of questions relating to non-market food systems. These questions correspond to important themes for ecological economics beyond markets. This manuscript includes subsections on five themes: distribution, governance, power, values, and ecology. To fit within this journal's word limit, we have created a separate text, available as "supplementary material" online, with subsections on four more: scale, transformation, utopia, and resilience. (A preprint version of the unabridged article is available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3655676.) We acknowledge that these nine themes do not cover every subject that ecological economists study, but together they offer the roots from which a comprehensive research program on non-market economies can grow.[1] In Section 4, we conclude by drawing attention to the social processes through which research contributes to constructing reality. We argue that reallocating research attention toward non-market practices and institutions can help unmake markets' dominance.

[1] We note, for instance, the conspicuous absence well-being, an important topic for ecological economics research in general and also a promising matter of investigation within the study of non-market economies.

2. Why to Study Non-Market Economies

Ecological economists should research non-market practices and institutions for two set of reasons. First, because they are ubiquitous and indispensable in any economy. Historically, markets have taken hold only where elites impose conditions on ordinary people that make market relations imperative. Second, we argue that markets are inappropriate institutions in the contexts that matter most to ecological economists. Markets are better than any other institution for coordinating complex, dispersed, diverse networks to satisfy individual tastes, yet they frequently fail to fulfill the normative ends that ecological economics is founded on. We elaborate each of these points—the importance of non-market economies and the critique of markets—in turn.

2.1. Non-Market Economies are Vital

Above, we stated rather emphatically that non-market production and transfers play fundamental roles in every economy. It is widely accepted that markets have been marginal institutions for most of human history. Most societies around the world have reserved market relations for dealing with foreigners and foes (Graeber, 2009; Sahlins, 1974). Like with stealing or violence, market transactions require almost no interpretive work and therefore facilitate exchange between strangers (Bowles, 1998; Graeber, 2006). After all, swapping things while trying to get the best deal is the way people interact with others they do not care about or expect to see again (Graeber, 2011). People from the same community or culture, by contrast, usually transfer goods and services through more complex institutions of sharing, reciprocity, or redistribution (Mauss, 1967 [1925]; Polanyi, 1944). Granted, these are generalizations. However, if they are generally true, how did markets come to dominate economic life in so many societies?

Different thinkers offer different explanations for markets' emergence and rise to supremacy. Formalist economists assume that humans are innately self-regarding rational calculators, such that institutional development toward market society was a mere refining of preexisting propensities to trade in pursuit of gain. This assertion is not substantiated and its premises are faulty (Kahneman, 2011; Levine et al., 2015; Sober and Wilson, 1998; Urbina and Ruiz-Villaverde, 2019). Substantivist economists, on the other hand, hold that social organization and ecological context shape economic systems. For them, people make market (and non-market) institutions to meet their needs within, and in response to, political and biophysical processes (Kapp, 1954). Ecological economics is largely substantive economics (Gerber and Scheidel, 2018).[2]

Those who, in this substantive tradition, trace markets' origins to the dynamics of history tend to find that elites create conditions that coerce common people to construct and participate in markets. Heinsohn (2009); Heinsohn and Steiger (2013) argues that indebtedness forces property owners, whose titles are on the line as collateral, to start selling things in order to pay back principle plus interest. Where formal property rights are absent, he notes, so are markets. David Graeber (2011) writes that markets materialized as early empires expanded. City-states would requisition grain or produce it on royal estates to feed their militaries, conscripted labor, and palace complexes (Polanyi, 2014b; Scott, 2017), but in far-flung occupied territories this became administratively difficult. So, states started paying their armies in, say, silver and then demanding that conquered subjects pay a tax in silver. This turned whole colonized economies into machines for

[2] Gerber and Scheidel, 2018 recently argued that ecological economics was well-positioned to construct substantive economic theory. Clive Spash (2019) criticized their contribution for mixing up economies and the study of them—economics—but did not disagree with the premise that ecological economists should, and largely do, study the economy in kind, or substantively.

provisioning soldiers via markets (Graeber, 2011). These accounts emphasize different parts of the same story: ordinary people, left to their own devices, do not seem to spontaneously establish or exchange in markets.

Once markets exist, Karl Polanyi (1944) teaches us that they remain regulated and auxiliary, subordinated to—or "embedded" in—other social institutions that govern economic life, until states forcibly turn land and labor into commodities through enclosure and dispossession. It is only when states take away people's means to produce their own necessities and destroy non-market institutions for distributing them that propertyless people must work for wages with which to purchase their basic needs (Murton et al., 2016). Powerful actors who stand to gain from markets' existence have enacted policy to grow them from non-existent to marginal to dominant economic institutions.

Intellectuals have contributed to creating this market society (Polanyi, 1944). Political and economic theorists omitted the existence of non-market economies from their accounts of human nature and history (Goodfellow, 1939; Hobbes, 1651; Smith, 1776). They urged the establishment of markets for land and labor in order to discipline the poor and organize society in service of industry (Malthus, 1798; Ricardo, 1821). In theorizing and promoting an all-encompassing self-regulating market system, classical economists began the formalist tradition of studying the economy as if were to consist only of production for and exchange in markets. Much neoclassical economics continues this tradition today.

Ecological economists and our predecessors have focused attention on the extra-market processes from which the market economy extracts work and onto which it exudes waste, namely ecosystem functions and the unpaid labor of women, slaves, and colonies (Kapp, 1950; Martínez-Alier, 2002). Yet in the first 30 years of ecological economics, we have not systematically studied the non-market economies that form the fabric of material existence for human societies outside of capitalism. Nor have we often studied non-market economies in capitalist societies as legitimate economic institutions in their own right. If we care about justice and sustainability (Daly and Farley, 2004), it matters that the most egalitarian (Graeber and Wengrow, 2018; Power, 2018) and lowest-throughput (Haberl, 2001) societies we know of do not have markets. One might hypothesize that people in modern societies are more likely to treat each other as equals or distribute goods and bads fairly in non-market relationships, or that we tend to act with ecological frugality in non-market production. We elaborate each of these points with evidence and research questions in Sections 3 and 4.

Non-market economies could support the goals of ecological economics as an intellectual project. But we have to study to them to know where and how so.

2.2. Markets are of Limited Value

Moreover, markets rarely align with ecological economics' goals. In this section, we first enumerate several categories of goods and services for which markets fail to organize allocation justly, sustainably, efficiently, or in ways that respect value pluralism. Then we acknowledge the advantages of markets—satisfying tastes, coordinating complexity, and transacting across difference and distance. Lastly, we show the ways in which all markets contradict justice, sustainability, and pluralism.

2.2.1. What Markets are Not Good For

Even formalist economists, who tend to like markets more than most do, admit that markets only function for goods and services that are rival and excludable (Mankiw, 2018; Samuelson, 1954). Yet within that realm, too, markets can create problems when the commodities traded are not produced for sale, meet basic needs, or have cultural importance. Here we explain why markets are not suitable for these types of things. Going forward, we use the term entities as a shorthand for goods, services, and resources.

2.2.1.1. Non-Rival Entities. Markets make no sense for things that one can use without diminishing them for others. Nobody but the profiteer would be made better off by charging an entrance fee to view a sunset, were that feasible. Knowledge in fact gets *more* valuable as more people access and interact with it. Information is anti-rival. Not only does it not get used up or worn out, it can actually improve with use (Kubiszewski et al., 2010). All the media on the internet, for example, can serve society best when it is freely available to everybody. Market allocation limits the benefits everybody receives even from rival goods if they provide non-rival public benefits, like the viral protection offered by face masks in a pandemic. Non-market institutions might better allocate goods that can benefit many people at once, such as by rewarding good ideas without limiting access to information.

2.2.1.2. Non-Excludable Entities. Markets encourage the degradation of resources that anyone can exploit. Fishers benefit individually from each fish they catch while everybody bears the cost of depleted fish stocks. If one can sell fish for money, they can continue to benefit beyond the limits of what they can consume with family and share with community, thus increasing pressure on fish populations. This "tragedy of the open-access resource" can occur whenever people stand to gain from overharvesting living beings, polluting the environment, or otherwise diminishing things that everyone relies on. Collectives and governments can make market fisheries sustainable by setting rules about who can take how much (Ostrom, 2010, 1990). Excludability is thus a question of enforcement. Even a sunset is excludable with enough policing power to lock non-paying people in rooms without west-facing windows. Markets cannot exist unless an authority enforces property rights with violence or the threat of violence.[3] Non-market institutions might govern common resources with less coercion.

2.2.1.3. Fictitious Commodities. Markets cause harm when used to allocate things that were not produced for them. Sunsets were not made to be sold. Neither is land, labor, or money. Polanyi (1944) called these "fictitious commodities" and argued that governing them entirely with markets would destroy society and nature because human beings and ecosystems have needs that the market system cannot account for. For instance, labor markets do not care that people need income to pay for market shelter and food, much less that they need meaningful, dignified work in humane conditions (Yeoman, 2014). Thus people and non-human nature fight back against full subjection to markets (Block, 2008). Yet many efforts to govern common resources involve making new fictitious markets for ecosystem services or the right to harvest organisms like fish (Farley et al., 2015; Tietenberg and Lewis, 2015), thus reducing these living beings to their quantifiable characteristics that humans find useful. Non-market institutions might better recognize and meet the interdependent, incommensurable needs of beings that were not made for sale.

2.2.1.4. Essential Entities. Markets cannot fairly distribute necessities because they send goods toward money, not need. Some people cannot afford to meet their basic nutritional needs while others pay to overeat, throw food away, and direct edible crops to livestock and biofuel production. Markets for healthcare, childcare, shelter, water, energy, and ecosystem services similarly create want amid waste (Farley et al., 2015). Markets for human organs and blood rightly provoke outrage (Hansmann, 1989; Titmuss, 1971). When a good is essential, the price mechanism fails; a price increase might deprive the poor of their basic

[3] In principle, a community in which everyone respects everyone else's property rights could have markets without police. In practice, members of such communities do not tend to buy and sell with one another, as explained in section 2.1. Self-organized groups can and do cooperate in market activity, but typically their members transact with outsiders, in markets subject to state enforcement (Ostrom, 1990).

needs but will not necessarily induce the rich to consume less. Moreover, markets for everyday essentials might hardly exist without the fictitious commodification of things that people do not produce for sale. As explained in Section 2.1, people produce everyday rival, excludable goods like food for sale almost exclusively in societies where labor and land are sold in markets.[4] Non-market institutions might better ensure everyone's needs are met.

2.2.1.5. Culturally Important Entities. Markets, by expressing worth in monetary terms, demean the non-instrumental values that make certain entities sacred or relationships precious. Some feminists oppose prostitution and pornography partly for this reason (and not just for the violence that frequently accompanies such markets; Whisnant and Stark, 2004). Anarchist punks see selling music as selling out (Gosling, 2004). Indigenous communities sometimes refuse to sell spiritual artifacts (Kimmerer, 2014; Paper, 1988). Your grandmother might never think to sell her hand-knit sweaters. Buying friendship might not be possible. One can imagine that people would engage in much more non-market production and distribution if they did not need money to purchase essential resources. Non-market institutions might better honor the weakly comparable values of beings and relationships that support surviving and thriving.

We have argued that markets are not adequate institutions for governing the production or allocation of information, foraged goods, land, labor, ecosystem services, food, shelter, healthcare, sacred stuff, cherished relationships, or the categories to which these things belong. Markets also do not work as theorized when there are transaction costs, impacts on third parties, unequal power relations, or imperfect or asymmetrical access to information—things that are virtually always present (Coase, 1937; Kapp, 1950; Bowles, 1991). Where possible, regulated markets or fictitious markets are proposed to remedy these efficiency issues. But here, too, non-market institutions might be desirable if they better serve justice and sustainability, which ecological economists prioritize over efficiency (Daly and Farley, 2004).

2.2.2. What Markets are Good For

Are there any cases where markets *are* okay for organizing production and exchange? There would seem to be few important members of the class of rival, excludable, non-fictitious, non-essential, profane goods for which markets are appropriate according to Section 2.2.1. If markets are only good for television sets, roller skates, and massages, then they are hardly worthy of ecological economists' attention except to document and resist the suffering they cause when applied elsewhere. But markets do offer some benefits, which may in some cases outweigh the disadvantages that make them generally inappropriate for categories like essential or non-excludable resources.

Markets are good for satisfying subjective desires, since they direct resources toward those willing to pay for them (Mankiw, 2018). In conditions of economic inequality, though, they fulfill the fantasies of the rich while neglecting the needs of the poor. Still, markets are probably unmatched for gratifying individual tastes.

Markets are good for coordinating complex economies because of this same mechanism. Ecological economists write, “Many of the basic goods that serve everyday needs are produced through multi-level, spatially fragmented industrial processes, which cannot be controlled within bioregions or organized through mutual voluntary contracts. [Markets] help things by simplifying exchange and reducing the time spent in constant deliberations” (Kallis et al., 2013, p. 101). Price signals serve well to transmit information about supply and demand through decentralized networks (Daly and Farley, 2004). Much information about the conditions and effects of production is lost along the way (Princen, 1997), and there are strong arguments in favor of a less complex economy (Alexander, 2013; D'Alisa et al., 2014), but intricate products like our laptop computers would be challenging to make without markets.

Relatedly, markets are good for enabling transfers across cultural difference and physical distance, since they require so little mutual interpretation. People who do not speak the same language can trade if both parties understand how markets work. And it seems intuitive that the interdependence of trade would reduce the risk of violent conflict between groups, though models and history suggest that when many groups trade with one another, as in a globalized economy, the probability of war can actually increase because the parties are interconnected through competition but not necessarily reliant on specific others (Martin et al., 2008). Moreover, communistic sharing and reciprocal gifting strengthen social bonds in ways market transactions do not (Bowles, 1991; Jaeggi and Van Schaik, 2011; Neely et al., 2014). But buying and selling can work where non-market transfers are not possible.

To review: markets are good for satisfying tastes but not needs. They are good for transmitting some information but not allocating it to everyone. They are good for creating connections but not strengthening them. Thus, as long as society has strong non-market institutions for meeting everybody's needs, defending the environment, ensuring transparency, and protecting sharing and gifting practices, markets may be harmless. This is the thesis of Polanyi (1944) as applied to ecological economics: subordinate markets to other social institutions that pursue values like justice and sustainability, and everything will be okay (see Daly, 1992).

2.2.3. Markets do Not Serve Justice, Sustainability, Efficiency, or Plurality

Yet even in these cases where markets might seem appropriate, there are general reasons to prefer non-market alternatives where possible, or a diversity of institutions that includes coexisting market and non-market practices. In short, markets do not support ecological economics' foundational goals of justice, sustainability, efficiency (Daly and Farley, 2004), and value pluralism (Martínez-Alier et al., 1998).

Markets do not promote distributive justice because they allocate goods toward preferences backed by purchasing power, not according to needs, equal shares, or contributions to society.[5] They generate behavior that would be considered unethical in non-market settings (Falk and Szech, 2013; Kirman and Teschl, 2010; Shleifer, 2004; Strutton et al., 1994; Vohs, 2015; Vohs et al., 2006) because they force people to try to maximize what they get and minimize what they give in environments of anonymity, self-regard, mobility, independence, isolation, and calculation (Bowles, 1991). Since what people do influences who they become, markets create humans who are more likely to perpetuate and tolerate injustice (Graeber, 2011).

Markets work against sustainability because they reward shortsighted and selfish behavior. Markets compel producers to shift costs onto others (Kapp, 1950) and replace human labor and ecological processes with fossil fuels and other inputs. To the extent that market competition promotes efficient resource use, the resultant economic

[4] Fellow ecological economists have defended markets for rival and excludable goods like food because, “Following Polanyi's scheme, some commodities are not fictitious; they are produced for sale and exchange. There is no problem with valuing tomatoes with money” (Kallis et al., 2013, p. 101). We consider this uncritical thinking; tomatoes are valued with money only because land and labor are fictitiously commodified. Another problem with valuing tomatoes with money, is that some people have much more money than others.

[5] These are the three most typical principles of distributive social justice: need, equality, equity (Folger et al., 1995). Note that in a fully market economy that functions perfectly according to formalist theory, individuals' purchasing power could reflect their contributions to society. But such a social setting has never occurred and there is reason to believe that it never could (see Polanyi, 1944). In real market economies, initial endowments are highly unequal and tend to become more unequal over time in the absence of fast economic growth or wealth redistributions that violate assumptions of the market model (Piketty, 2014).

growth leads to more resource use overall (Jevons, 1865; Magee and Devezas, 2017; Ostwald, 1909; Polimeni et al., 2008), eventually pushing human environmental pressures past critical thresholds of sustainability. Yet market prices rarely signal unsustainability.

Markets, therefore, do not necessarily promote efficiency either. This should not surprise us. If the premises of formalist economics are wrong, why would its conclusions be correct? Proto-ecological economist Otto Neurath argued that, since decisions involving unknowable futures cannot reasonably be based on today's prices, they should be made outside of markets, via what we now call deliberation and democratic planning (Martínez-Alier, 2019, p. 149).

Markets thwart pluralism by organizing economies in pursuit of monetary exchange value at the expense of all other social, spiritual, moral, aesthetic, environmental, and use values. Market prices can never fully represent these weakly comparable values as single pieces of quantitative information (Martínez-Alier et al., 1998; Vatn and Bromley, 1994).

But can non-market practices and institutions do better? How? When? Where? Which ones or what types? And for whom? Ecological economists should study non-market economies with these questions in mind.

3. How to Study Non-Market Economies: The Case of Food

Studying non-market economies is difficult because little data exists. Data from transactions involving money make up much of the information available about the economy. People tend to record sales and researchers tend to track market production and exchange. Typically, no one writes down or even measures the quantities of non-market production and transfers. To study these economic interactions, ecological economists must collect data through field observations, surveys, interviews, experiments, documents, and other media. Much of the relevant information will be qualitative. Ecological economists can learn and adapt the methods of other social and natural sciences as well as create novel methods fit for exploring research questions like the ones we propose below.

Similarly, standard economic theory does not apply to non-market economies. Supply, demand, externalities, equilibrium, and other economics concepts have little to offer the study of economies without markets. Deductive reasoning from general laws does not work well to explain social phenomena anyway (Lawson, 1997; Spash, 2012). Ecological economists can instead endeavor to discover the structures and mechanisms behind empirical observations. Where falsifiability is not feasible, ideas must pass through a gauntlet of criticism before becoming theory (Bromley, 2008). Ecological economics beyond markets will draw on frameworks and concepts from diverse disciplines to synthesize new understandings of the overlapping institutions within which humans interact with each other and ecosystems. The economy must be understood as one aspect of an integrated whole made of nature, culture, social organizations, and supernatural beings (Cavalcanti, 2002).

The empirical methods and critical theories needed to study non-market economies uncover the political nature of research. Researchers and the researched cocreate all data. They fashion reality as they study it (Law, 2004). Theories, too, not only represent the world but also shape it, especially in the social sciences. *What* to study is a political decision as well; by drawing academic attention to non-market economies, researchers bring them into being in the minds of their participants and give them legitimacy in society (Berger and Luckmann, 1966; Mol, 1999). Researching non-market economies can mean actively making, supporting, and advocating them. The case for studying non-market economies presented above suggests that promoting practices and institutions without markets might further the goals of ecological economics as a normative endeavor.

Below, we suggest five themes for studying non-market economies. This article's supplementary text contains four more. These themes, while not exhaustive, are important areas of research for ecological economics as a whole. For each, we propose a guiding question related to non-market food systems, review the extant literature on the topic, draw attention to the real-world consequences, and highlight some important avenues for future ecological economics enquiry and action. We focus on food for several reasons.

First, because it exemplifies our general arguments from Section 2. Non-market food practices are ubiquitous, even in the cores of neoliberal capitalism where seemingly everything is for sale. Think of home-cooked meals, family fridges, balcony container gardens, potluck parties, soup kitchens, food pantries, the woman fishing from a pier, the man picking apples from an urban tree. People all over the world grow, hunt, forage, and glean food they will not sell. Food sharing is a universal human trait (Gurven and Jaeggi, 2015). Humans share food within families more than any other mammal and between unrelated individuals in complex patterns unique among all organisms (Kaplan and Gurven, 2005). Collaborative hunting and food sharing likely coevolved with human cooperation (Gurven, 2004). Non-market food systems thus contributed to making humans the social beings we are (Jaeggi and Gurven, 2013).

Moreover, markets inhibit progress toward justice, sustainability, efficiency, and plurality in food systems (Bliss, 2019a). In today's market-dominated food production and allocation regime, agriculture drives species extinctions, climate breakdown, and the surpassing of critical thresholds of earth-system sustainability (Campbell et al., 2017; Godfray, 2011; Vermeulen et al., 2012) while undernutrition and overnutrition together harm the health of as much as half of humanity (Chappell, 2018; Hickel, 2016). Creating regulated and local "embedded" markets faces steep barriers and can only partially remedy the ways in which food markets contradict the normative foundations of ecological economics (Bliss, 2019a).

Clearly, food systems without markets are crucial for ecological economics research (Bliss, 2019a). Yet ecological economics research has hardly noticed them. A meticulous online search yielded just 23 articles about non-market food systems published in *Ecological Economics*.[6] For comparison, 927 articles in the journal have "food" or "agriculture" in the title, abstract, or keywords. We focus on non-market food practices and institutions in part to incite research in an understudied area.

[6] Using Web of Science, we searched for *Ecological Economics* articles that had both the topic "food" and at least one other topic keyword associated with non-market economies: "non-market" (1 result); variants of the words "gift" (gift*, 1); variants of "sharing" (shar*, 23); "subsistence" (13); "informal" (1); "reciprocity" (1); "home garden" (1); "self-reliance" (2); and several other search terms that returned zero results. We then read article abstracts to determine which focused primarily or partially on non-market food systems. We discarded duplicates and research whose only contribution was to place imaginary monetary values on non-market things. This yielded ten articles (Bekele and Drake, 2003; Calvet-Mir et al., 2012; Delang, 2006; Franzen and Eaves, 2007; Michelini et al., 2018; Napitupulu et al., 2018; Nielsen et al., 2018; Poe et al., 2015; Roessler et al., 2008; Sierra et al., 1999). A Web of Science search using only the topic "subsistence" (54 results) yielded five more articles about non-market food systems (Berman and Kofinas, 2004; Faasen and Watts, 2007; Halimani et al., 2010; Luckert et al., 2000; Zhang et al., 2007). We identified three more articles via Google Scholar with the search terms "ecological economics," "food," and "gift" (Generoso, 2015; Reyes-García et al., 2015; Trosper, 2002). Searching for "ecological economics," "food," and "sharing" produced one more (Barthel and Isendahl, 2013). An Elsevier search of *Ecological Economics* articles with "food" in the title yielded 66 articles, 4 of which focused wholly or partly on non-market food (Church et al., 2015; Lysenko and Schott, 2019; Paudel, 2018; Schulp et al., 2014). Of the 23 total articles identified, 12 focus on the Global South, 9 on the Global North (two of which study Indigenous communities in the arctic), and 2 on past societies. Twelve look at wild-harvested food, 8 at agriculture and husbandry, and 3 include some of both. Sixteen are empirical papers, 5 are reviews or historical research, and 2 are modeling studies.

With or without markets, food is a critical object of study for ecological economists because it is a physiological necessity, foods are organisms that come from ecosystems, and all human cultures have rituals around food. We focus on food supposing that its production and allocation share some characteristics with those of other essential, biological, and culturally important resources. Much of what we will say about non-market food systems probably applies to many important non-market economies, and we encourage other ecological economists to create and pursue research agendas like this one for other goods and services, especially those for which we argued markets are inappropriate in Section 2.2.1. We propose this research agenda not as a blueprint but as a starting point from which ecological economists can expand their attention beyond markets over the next 30 years.

3.1. Distribution

According to what logics do non-market food systems allocate? Charities tend to distribute food based on need. Rationing systems treat everyone as equals. Solidarity-based activist groups like Food Not Bombs give food in public spaces to anyone who accepts it (Routledge and Heynen, 2010). Within households, people share much of their food openly, as a joint possession to which anyone can help themselves (Belk, 2010; Gudeman, 2016). Food sharing norms and practices vary substantially across cultures (Gurven, 2004). In many societies, institutionalized sharing customs involve intricate rules about offering food to guests and how producers must distribute what they have hunted, fished, foraged, or raised (Berking, 1999). Other food sharing is discretionary. Between households, non-obligatory sharing often follows patterns that mimic the evolutionary forces that explain human food sharing: people choose sharing partners based on relatedness, reciprocity, need, proximity, social status, and potential fitness as a mate or collaborator (Nolin, 2012, 2010; Smith et al., 2019). People also share food in communal meals, according to both volition and tradition.

How people distribute food in non-market food systems determines whether they can guarantee food security for vulnerable populations, especially in times of shortage. In unequal societies with or without markets, elites eat first, even as others starve (George, 1977). Most research on food sharing patterns has been conducted in relatively egalitarian and homogenous societies like fishing villages and foraging tribes. In unequal, diverse societies such as those of most cities and developed nations, non-market food systems might replicate the unjust outcomes of markets if people share predominantly with others who are like them in terms of wealth, class, race, or status (see Jehlička and Daněk, 2017). In any society, contingent direct reciprocity might not ensure food security for individuals less able to produce (Gurven, 2004). Social network analysis can reveal the extent to which food sharing relationships exhibit homophily, reciprocity, and other patterns, and thus suggest how well non-market systems actually contribute to community food security. The measurement of food security itself, which assumes money is the unique key to food access, must be changed to adequately reflect non-market institutions and factors (Barrett, 2010; Mares, 2019) Ecological economists should work together with communities to imagine, design, and create food systems that make sure no one goes hungry. Furthermore, food systems distribute not just nourishment but ecological goods and bads, too (Martínez-Alier, 2002). Ecological economics research and action must focus on constructing non-market economic institutions that distribute multiple domains of benefits and costs equitably across societies' various classes, races, genders, abilities, occupations, as well as sexual, religious, political, and other identities and groups.

3.2. Governance

Through what institutions do communities manage non-market food systems? In many non-market societies, tradition governs much food production and distribution (Berking, 1999). Hunting groups often have a leader who has the power to make quick decisions. In market societies, statutory law and government agencies regulate where it is okay to garden, how many deer one can hunt, when fishing is allowed, what types of plants are legal to forage from a city park, and even how long prepared food can sit out before it can no longer be donated and must instead get thrown away. Within these constraints, individuals create non-market food systems autonomously by simply growing, collecting, preparing, and sharing food. Yet social norms, power dynamics, and self-organized institutions pretty much always play a role. Even community gardens comprised of individually managed plots often have collective governance structures for allocating water, controlling pests, divvying space, and acquiring shared resources. Sometimes these decisions come from outside the community, such as when city officials manage community gardens in public parks. Food banks and soup kitchens typically have hierarchical structures, while activist groups tend to make decisions by consensus in assemblies.

How groups govern non-market food systems determines whether they can achieve food sovereignty for their participants. Food sovereignty is the ability of producers and consumers to shape the systems that feed them (Forum for Food Sovereignty, 2007). Democratic non-market food systems require that communities govern things like seeds, water, knowledge, and land as “commons”—resources that groups of people manage collectively, in common (Bliss, 2019b; Vivero Pol et al., 2019). Those studying the governance of food production and distribution without markets would do well to familiarize themselves with the work of Elinor Ostrom (2010, 1990) on commons regimes and the social-ecological systems framework that she and colleagues have developed (see Ostrom, 2009). This research should begin in the field because, as Ostrom's Law states, governance systems that work in practice can work in theory (Fennell, 2011). Ecological economists can embody democratic principles by collaborating with participants to imagine, design, and create non-market governance mechanisms that give everyone a fair say in decisions that affect them.

3.3. Power

In what ways do non-market food systems perpetuate or counteract domination in society? It is noteworthy that societies whose food systems have no internal markets tend to be more egalitarian, though this does not imply causation. In market societies, non-market systems feed marginalized groups who struggle to access market food because they lack money (Vansintjan, 2014), nearby grocers (Morton et al., 2008), or even the freedom to appear in public (Mares, 2019). Some people feel ashamed to get food from non-market sources like food banks (Garthwaite, 2016; Purdam et al., 2016) and foraging (Johnson, 2017), since market culture considers purchasing food the dignified way to obtain it. Yet those who share food often receive social status for doing so. In egalitarian societies, reputational rewards motivate production for the group and sharing with others (Gurven, 2004). In Western capitalist societies, by contrast, food sharing might give status to those who already have it—able individuals who have time and resources to produce food. On both the giving and receiving ends, non-market food systems in unequal market societies might deepen existing inequalities and power imbalances. Then again, producing food autonomously and sharing it with one's community can be empowering (Mies and Bennholdt-Thomsen, 1999; Murton et al., 2016). Organizing to feed each other outside of markets builds a counterpower against the corporations and states that control the dominant commodity food system (Argumedo and Pimbert, 2010; Pimbert, 2006).

How non-market food systems interact with societies' power structures shapes the ways in which they reinforce or mitigate broader systems of oppression. Institutions of food production and distribution coevolve with social and political organizations (Holt-Giménez, 2017). Non-market food systems must sustain themselves with resources other than revenue from sales, which they do not generate. If foundation funding, government grants, or private donations finance the creation

of non-market food systems, then rich people have the power to shape them just as in market food systems. If, by contrast, collectives create commons structures to steward the resources that sustain these systems, then it is those communities that build power. Research on non-market approaches to address hunger, land degradation, animal cruelty, and other food-related problems must examine how these strategies affect power relations in food systems and in society. More importantly, researchers can employ Indigenous (Chilisa, 2012) and feminist (Hammersley, 1992; Perkins, 2009) methodologies to amplify the voices of the oppressed. They create non-market food systems by actively analyzing their situations, addressing their problems, and taking action. Researchers can include participants in posing questions, designing methods, and even establishing ethics. Through participatory action research (Méndez et al., 2017), ecological economists can empower communities to create and nourish emancipatory economies without markets.

3.4. Values

What do participants in non-market food systems consider important? In non-market societies, people share food for reasons of reputation, because it is their custom, to avoid sanctions, and as a signal of their difficult-to-discern qualities or intentions (Gurven, 2004). In market societies, non-market food practices cannot be neatly divided into coping mechanisms and hobbies; people choose to participate for diverse reasons (Alber and Kohler, 2008; Schupp and Sharp, 2012). Non-market food systems can potentially embody and evoke more plural values than market food systems, which privilege instrumental values (Bliss, 2019a; Vivero Pol et al., 2019). Economies without markets tend to rely on solidarity, empathy, generosity, and care, which are not scarce or rivalrous resources but muscles that strengthen with use (Sandel, 2013). We hypothesize further that non-market food systems are more apt than markets at promoting relational values—values that concern the relationships and responsibilities that connect givers to receivers, herders to livestock, foragers to landscapes, sharing partners to one another, and eaters to the ecosystems their food inhabits and comprises (Muraca, 2016). The non-market food systems of Indigenous and traditional rural peoples often operate according to relational values based on reciprocity between people, non-humans, and parallel spirit worlds (Descola, 2005; Grim, 2001; Kimmerer, 2014; Westman, 2016).

The values that underlie and emerge from non-market food systems shape the societies they feed and the environments from which they harvest. Other-oriented relational values may make social life more harmonious. Many societies root their identities, notions of the good life, and well-being in relationships. Relational values might be good for the environment, too. Overemphasis on conserving biodiversity (nature's intrinsic value) and ecosystem services (nature's instrumental value) marginalizes the plural, mostly relational values that motivate people around the world to protect ecosystems (Arias-Arévalo et al., 2017; Cooper et al., 2016; Himes and Muraca, 2018; Klain et al., 2017). Relational values integrate and invigorate intrinsic and instrumental values into an environmental ethic fit for addressing the twenty-first century's crises; it is the orchardist's relationship to the orchard that makes it both sacred and satisfying to her (Muraca, 2016). Ecological economists studying cultural ecosystem services already investigate people's values, especially relational values (Gould et al., 2015; Klain et al., 2017). People know why they produce and share food outside of markets; researchers need only listen carefully. Ecological economists can both design macro-scale institutions that liberate communities to create non-market economies and then work with those communities to construct economic institutions that align with and nourish the values they hold dear.

3.5. Ecology

How do non-market food systems perform with respect to environmental sustainability? Non-market societies that produce and consume food from the environments they inhabit have the strongest possible incentive to do so sustainably. They tend to produce food with low levels of material and energy throughput (Haberl, 2001), maintain high-biodiversity ecosystems (Alcorn, 1993; Gadgil et al., 1993; Toledo, 2001), center their cultural traditions on ecology (Descola, 2005; Grim, 2001; Parajuli, 1998), and defend nature from extracting and polluting industry (Martínez-Alier, 2002). Coevolutionary processes can bring about human culture and ecology that coexist sustainably in a tenuous balance (Comberti et al., 2015; Gómez-Baggethun and Reyes-García, 2013; Kallis and Norgaard, 2010). In market societies, much non-market food comes from the waste stream of market food systems through donations, gleaning, and dumpster diving. If this recovered, edible-but-not-sellable food replaces market food in people's diets, it precludes the environmental damage associated with new production altogether. Moreover, some evidence suggests that not-for-market food production in the Global North performs better ecologically than its commercial counterparts. Home gardens contribute to maintaining agrobiodiversity (Taylor and Lovell, 2014), have higher species richness than market farms (Taylor et al., 2017), emit less carbon than conventional food production (Cleveland et al., 2017; Vávra et al., 2018), and are typically grown with organic fertilizer or no fertilizer (Jehlička and Daněk, 2017). Since non-market production systems lack a revenue stream with which to purchase inputs, one might hypothesize that they tend to rely on seed saving, tool sharing, rainwater harvesting, human-waste composting, and traditional knowledge. In principle, non-market producers can make decisions to a greater extent based on environmental conditions and traditional ecological knowledge alongside considerations of financial viability. Yet, removing the financial disciplining of markets can work the other way, too. For some, producing one's own nourishment is just another kit to purchase (see Garcés, 2016, 163–66). A well-off gardener might need all the right market products to produce his non-market tomatoes: commercial seeds, grow lights, bagged compost, liquid fertilizers, specialized tools, aesthetic mulches, manufactured supports for trellising, plastic rainwater harvesters, and expensive hoses (Alexander, 2007). Non-market producers, free from some cost considerations and environmental regulations, are to an extent free to help or harm ecosystems as they please.

How non-market food systems interact with ecosystems determines the ways in which their proliferation can influence ecological conditions and contribute to addressing the environmental crises caused in part by modern market food systems. Small-scale gardens and subsistence fishing are not automatically better for the environment than industrial food production. Multiple indicators must be measured and modeled using methods from ecology, agronomy, forestry, and other environmental sciences. Groups of researchers can draw on a disciplinarily diverse toolkit from the social and natural sciences to assess how non-market economic institutions relate to these ecological outcomes. Ecological economists can use the resultant knowledge to advise communities in the creation of food systems, and economies, that care for non-humans and the web of life.

3.6. Scale, Transformation, Utopia, and Resilience

How do non-market food systems foster or impede biophysical degrowth at the macroeconomic level? How can they facilitate or hinder a transition beyond capitalism? How do they align with fictional and theoretical visions of desirable societies? How do non-market food systems affect societies' capacity to resist and recover from shocks? We have created a supplementary document, available online, that includes Subsections 3.6 through 3.9 exploring the evidence, theory, stakes, and agendas for research and action regarding each of these questions. Our general arguments hold with or without this additional text. We

recommend reading it here, before Section 4, if at all.

4. Concluding Remarks: The Social (De)Construction of Market Society

The arguments we have presented suggest normative propositions for our field. Ecological economists should study non-market economies. This research should focus first on resources that are non-rival, commonly accessible, not produced for market, essential to meeting human needs, or culturally important. It should examine the entire spectrum from centralized (state-based, authoritarian) to decentralized (self-organized, informal) institutions. It should be relevant, useful, comprehensible, and ideally of interest to those who create and benefit from non-market economies. In the case of self-organized non-market economies, participants, not policy makers, should be the most important audience for research products. Researchers can learn from participants, address their needs, respond to their problems, account for their values, and embrace their diverse worldviews. At the same time, researchers should reflect on their own positions. Empirical investigation of non-market economies should involve or support action. It should be transdisciplinary, drawing on multiple ontologies, epistemologies, and methodologies, scientific and otherwise. Yet it should also pursue the construction of theory, which should adhere to consistent philosophical frameworks. This body of ecological economics scholarship should acknowledge that it is always inescapably *political* ecological economics. Research on non-market economies should, paraphrasing Marx, seek to understand the world in service of transforming it. We use "should" here not to imply that no one is doing these things, but to endorse those who are and urge others to join us in this research agenda. Many of these propositions could be, and have been, applied to ecological economics scholarship in general. So why do we emphasize their relevance to non-market economies?

Markets dominate not just the world economy but also the official versions of reality experienced by much of the world's population. Insofar as market institutions privilege buying and selling over other behaviors, self-interest over other attitudes, gain over other values, maximization over other goals, and the forces of supply and demand over other mechanisms for determining outcomes, economies follow market "laws" that appear to originate outside of society. Journalists give "the market" agency and obfuscate the fact that humans create markets. Narratives of self-made men and the lazy poor naturalize the unequal outcomes that markets generate. Most adults in developed societies buy food and other things nearly every day; our identification with market roles further disguises that these institutions are human creations like any other, just one of many possible ways to organize production and distribution. Non-economists tend to live in the common-sense mythology of the market and its invisible hand (Goddard et al., 2019). Economists mathematically theologize about the goodness of these gods. In the social constructivist vocabulary of Berger and Luckmann (1966), ordinary people reify markets pretheoretically while elites fabricate conceptual machineries that maintain the symbolic universe lending legitimacy to market society's institutional order. Ecological economists contribute to this project when we ignore economies without markets.

The existence of non-market economies threatens market society because they present alternate symbolic universes that deviate from the official definitions of reality. Beyond simply disregarding non-market economies, scholars work as custodians of market society's sanctioned stories about the world when they study non-market economies almost exclusively in non-market societies, as if these institutions were to exist only at an earlier point on the linear, one-way journey of development from primitivism to capitalism. Researchers treat non-market food activities in market societies in congruently delegitimizing ways: household food preparation and sharing are non-economic domestic work, further marginalizing reproductive labor; gardening, hunting, foraging, potlucks, and the like are leisure activities or hobbies; and recovering unsellable food for hungry people through gleaning, dumpster diving, community meals, and food pantries are merely fixes to remediable errors in the functioning of markets. Moreover, even scholars who are not formalists often theorize non-market economies as buying and selling disguised in primeval or informal arrangements. Anthropologists have written of gift economies in ways that emphasize rational self-interest and exchange, assuming that giving a gift always incurs a debt that must be reciprocated (most famously Mauss, 1967 [1925]). Positing non-market economies as embryonic institutions on the inevitable path toward establishing competitive markets nihilates the notion of non-market systems as legitimate economic institutions. Together, these lines of research function as "therapy" for deviants who consider straying from market society (Berger and Luckmann, 1966). As ecological economists, we call for examining, describing, discussing, debating, analyzing, theorizing, narrating, encouraging, nurturing, promoting, propagating, experimenting with, and participating in economies beyond markets in order to counter markets' supremacy.

In summary, we tend to consider things "economic" only if there is money involved, but the economy is our material relationships with each other and the rest of the mesh of existence. Non-market economies provide greater possibilities for creating relationships of care, love, solidarity, generosity, and reciprocity, while markets tend to engender relationships of extraction, exploitation, and self-interest. That is our argument for paying more attention to non-market practices and institutions.

We are not, however, arguing for the abolition of markets, nor for abandoning the study of them entirely. Karl Polanyi, on whose work we have drawn heavily in this article, maintained that markets are harmless when they remain peripheral to social life. It is the market economy, the institutional order that makes all other institutions subsidiary to markets, that we advocate extinguishing in service of the public good. Elites coercively created and now vigorously maintain this market system at least in part because they benefit from it. This maintenance happens both by force and through the power-laden social construction of reality we just described. Together, these projects create market hegemony, the subjugation of societies to the universalizing logic of markets. Research that aims to fix the failings of the market economy without questioning its existence or underpinning worldview contributes to the reproduction of the dominant market system. So does research that renders invisible non-market institutions, as we have explained. When a group of actors forcibly maintains an ecological or economic system, the system will tend to become more spatially homogenous and less resilient over time (Farley and Voinov, 2016; Holling, 1995). The maintenance of the market economy reifies market institutions' claim of superiority over non-market institutions. This inhibits institutional diversity, which leads directly to human society's codependence with a single global economic system that is increasingly vulnerable to shocks, whether financial, geopolitical, environmental, or viral. What is needed then is plurality in institutions that serve to meet human needs. In the absence of market hegemony, diverse and context-specific economic practices would have space to re-emerge and strengthen. Societies can create economies comprised of coexisting, impermanent market and non-market institutions that over time draw greater adaptive capacity from the ecosystems within which they are embedded (Becker and Ostrom, 1995).

A patchwork of market and non-market economic institutions can better serve the public good than any universal solution. Return to the case of food systems. Communities can distribute food to those who most need it via non-market institutions, strengthening social ties in the process, while markets make it easier for people to exchange food with different, distant others. Societies with multiple institutions governing food production and allocation can flexibly scale them in response to change and shocks, creating networks of overlapping food systems that are more sustainable and resilient than any single structure. Markets and gifts can both direct food to where extreme weather or violent conflict has wiped out production. With real food sovereignty, those

who grow, gather, process, transport, prepare, share, exchange, and eat food will construct institutions with and without markets according to their needs and values. Capitalist societies already have diverse economic institutions (see Gibson-Graham, 2006, 2008) that are waiting for us to stop making market hegemony so they can bloom, bear fruit, and drop seeds.

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Declaration of Competing Interest

None.

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Appendix A. Supplementary Material

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