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Markets, Nature, and Society: Embedding Economic & Environmental Sociology

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Abstract

Social scientists have drawn on theories of embeddedness to explain the different ways legal, political, and cultural frameworks shape markets. Often overlooked, however, is how the materiality of nature also structures markets. In this article, I suggest that neo-Polanyian scholars, and economic sociologists more generally, should better engage in a historical sociology of concept formation to problematize the human exemptionalist paradigm their work upholds and recognize the role of nature in shaping markets and society. Unearthing nature in the work of Karl Polanyi, I develop a theory of embeddedness that more closely accounts for the economic, the social, and the ecological. In doing so, I provide a way for scholars to conceptualize both how market societies shape nature and how nature shapes market societies.

Keywords

embeddedness, Polanyi, materiality, ecology, socionatural

Over the past three decades, sociologists have sought to revitalize the work of Karl Polanyi to disprove the assumptions underpinning liberal economic ideology that naturalize markets and market behavior. For Polanyi and those drawing on his work, markets are socially constructed. They are created within and governed by societal norms, institutions, and laws. However, in this effort to demonstrate how markets are anything but natural, sociologists often neglect how Polanyi conceptualized the natural.

In this article, I seek to unearth nature in Polanyi's work by making two key arguments. First, I argue that while Polanyian-inspired economic sociologists have recently overcome the Parsonian pitfall of separating the economy from society, they have not escaped the trap of seeing nature as separate from the economy and society. As a result, economic sociologists continue to be constrained by the legacies of mid-twentieth-century sociology—that is, their interpretation of Polanyi upholds an anthropocentric worldview, or what some call the "human exemptionalist paradigm" (see Catton and Dunlap 1978). Second, I argue that

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Polanyi himself did not hold such a worldview. While neo-Polanyian scholars tend to privilege labor as the most important of Polanyi's fictitious commodities, and thus as the primary factor spurring movements against liberal market institutions, Polanyi saw both labor and nature as fictitious commodities and as active elements in double movements. Polanyi recognized not only that market societies shape nature but that nature shapes market societies.

To make these arguments, I first provide an overview of how economic sociologists use the work of Polanyi. I pay particular attention to Krippner's (2001) critique of Polanyi's revival in "the new economic sociology" and, in turn, neo-Polanyian scholars' responses. I then turn Krippner's critique of the new economic sociology back on neo-Polanyian scholarship. In particular, I suggest that neo-Polanyian scholars fail to fully engage in what Somers (1995) calls a historical sociology of concept formation, and thus they overlook how nature has been conceptualized in both the discipline of sociology and the work of Polanyi.

As a corrective, I suggest scholars should adopt a *neo-Polanyian approach to socionatural embeddedness.* Developing such an approach, I seek to push economic sociologists to conceptualize markets as embedded in legal, cultural, political, and *ecological* frameworks. I demonstrate the utility of this approach by applying it to examinations of three contemporary topics of sociological analysis: land grabs, extractive resources, and climate change. Exploring these three topics, I show how seeing markets merely as embedded in society is not enough and how different conclusions emerge by examining how markets are embedded in both nature and society.

Exploring the role of nature in notions of embeddedness, I intend neither to naturalize economic processes nor to reify a binary conceptualization of nature and society. As Polanyi and neo-Polanyian scholars have forcefully demonstrated, society is not a biologically self-regulating system. The ideas of neoclassical economists such as Malthus and Ricardo that underpin notions of a self-regulating market and the naturalization of poverty are based in "naturalistic fallacies" that have no empirical basis (Block and Somers 2014:39; see also Dale 2010, 2012; Gemici 2008; Somers 1999, 2008). In addition, as social scientists studying the environment have long shown, nature does not exist outside of society, and society does not exist outside of nature (Catton and Dunlap 1978; O'Connor 1998; Smith 1984; Williams 1989). I thus utilize Swyngedouw's (1999) notion of the socionatural when conceptualizing embeddedness to recognize that nature is produced through historical and geographic processes and is therefore inseparable from society.

In developing a neo-Polanyian approach to socionatural embeddedness, I respond to calls to construct a Polanyian-inspired social theory that both draws on and moves beyond Polanyi's original insights (Block 2007; Peck 2013). In addition, I build on the efforts by environmental sociologists to recognize nature in both classical and contemporary sociological theory (Catton 2002; Foster 1999; Foster and Holleman 2012; Jerolmack and Tavory 2014; Rosa and Richter 2008; York and Mancus 2009, 2013). While I am by no means the first social scientist to find nature in Polanyi (see Bernard 1997; O'Connor 1988; Prudham 2005, 2013; Stroshane 1997), I demonstrate how Polanyi can be used to bring nature into economic sociology while also developing a Polanyian approach to environmental sociology. I thus seek to further embed nature in sociological theory and contemporary social inquiry.

EMBEDDING MARKETS AND SOCIETY

Most chronicles of Polanyi trace his reemergence in contemporary sociology to Granovetter's (1985) work on social embeddedness (Krippner 2001; Krippner et al. 2004; Peck 2013). Granovetter drew on Polanyi to challenge economistic notions of rational actors and free markets. For Granovetter, economic actions are not, as economists suggest, devoid of human

interaction or performed by complete strangers. Instead, economic actions are "embedded in networks of interpersonal relations" that shape market institutions and outcomes (Granovetter 1985:504).

Granovetter's approach to embeddedness serves as the bedrock of the "new economic sociology," but his use of the term diverges from Polanyi's. Whereas Granovetter uses the term "embeddedness" to demonstrate how the market is influenced by networks of ongoing social relations, Polanyi deployed the idea of embeddedness to demonstrate how markets are constructed by and thus are part of society. As Krippner (2001:778) asserts, Granovetter's use of embeddedness submerged "the asocial market construct in social relations, all the while preserving intact the notion that somewhere there was a hard core of market behavior existing outside of social life (and hence that needed to be 'embedded')."

Krippner (2001) attributes Granovetter's divergence from Polanyi to his failure to fully engage in a "historical sociology of concept formation" (Somers 1995:114). On the one hand, Granovetter overlooks the origins of Polanyi's notion of embeddedness. For Polanyi, society must constitute markets because social institutions are needed to create and manage markets for goods not produced exclusively for sale, specifically land, labor, and money. Without such institutions, markets for these fictitious commodities—necessary inputs in processes of capitalist accumulation—would either not exist or be short-lived. As Polanyi ([1944] 2001:146) writes, "the road to the free market was opened and kept open by an enormous increase in continuous, centrally organized and controlled interventionism." Indeed, for Polanyi, even the most disembedded economy is still embedded.

On the other hand, Granovetter fails to escape the Parsonian legacies present in late-twentieth-century sociology. As Krippner (2001) notes, Granovetter uses the concept of embeddedness to thread a path between the oversocialized view of human action in Parsonian sociology and the undersocialized approach presented by neoclassical economics. However, Granovetter failed to circumvent the common assumption that the social world should be studied in sharply demarcated analytic spheres. In particular, Krippner asserts that Granovetter's push to develop the new economic sociology resembles Parsons's desire to develop sociology as a science distinctly separate from, but in the mode of, economics. Despite recognizing that objects are imbued with both social and economic value, Parsons sought to distinguish sociology as the study of human behavior concerned with norms and values. By contrast, Parsons saw economics as the study of human behavior concerned with the allocation of scarce resources. These different disciplines were thus studying the social world in parsed and single pieces, not as a whole. Similarly, although Granovetter conceptualized society more broadly, his push to establish the new economic sociology as the study of networks of social relations reified Parsonian notions that the social world should be studied in a singular fashion. According to Krippner (2001:791), Granovetter established the new

> economic sociology as an exercise in abstraction in which concrete objects are examined in a single aspect [as networks of social relations] rather than in the complex multi-dimensionality [as networks of social relations embedded in all aspects of society]. Considered in these abstract terms, the separate life of the economy tends to reassert itself.

REEMBEDDING EMBEDDEDNESS

Attempting to rectify Granovetter's oversights, a number of economic sociologists have developed what Block (2007) calls "a neo-Polanyian approach." Seeking to overcome dualistic notions of markets and societies, neo-Polanyian scholars argue that markets are "always

and everywhere … embedded in legal, cultural, and political frameworks that are critically necessary for economic activity to continue" (Block 2007:5; see also Block 2003; Peck 2005, 2013; Quark 2013; Schrank and Whitford 2009). To make such claims, neo-Polanyian scholars focus on how Polanyi's ideas on fictitious commodities and double movements informed his conceptualization of embeddedness.

More carefully connecting notions of embeddedness to Polanyi's ideas on fictitious commodities, neo-Polanyian scholars recognize that social institutions are necessary to make land, labor, and money into things that can continually be bought and sold. As Block (2007:6) notes, "Since none of these items are actually produced for sale on a market, governments and other non-market institutions have to play a role in helping to balance the supply and demand for these key inputs." In other words, social institutions are necessary both to turn land, labor, and money into (fictitious) commodities and to protect them from being commoditized as if they had no limits. If such institutions did not exist, neither would market societies.

Not only do neo-Polanyian scholars recognize that markets are embedded in society; they also demonstrate *how and why* markets are *differentially* embedded in society. In particular, neo-Polanyian scholars draw on Polanyi's idea of the double movement to recognize how social institutions and norms influence the ways different actors perceive and pursue their interests and thus their preferences for different forms of market organization. In the most basic sense, a Polanyian double movement is the push and pull between those seeking to "expand the scope and influence of self-regulating markets" to enhance their profits on the one side, and those seeking "to insulate the fabric of social life from the destructive impact of market pressures" on the other (Block 2008:2). Capitalists and workers represent "the durable core of the two competing movements" (Block 2008:4). Capitalists tend to participate in the movement for more liberal market forms of societal organization, and workers participate in the movement for greater societal protections.

However, neo-Polanyian scholars recognize that a wide range of social actors with varied interests—from the landed classes to shopkeepers, intellectuals, and government officials—prompt both the laissez-faire and the protectionist pulls within a double movement (Block 2008). In addition, actors from seemingly similar groups may hold divergent interests and thus sit on different sides of a double movement. For example, Block (2007; see also Block and Somers 2014) suggests that capitalists can hold different views about sufficient rates of profit that affect how they prefer labor markets to be embedded in society. Some capitalists see workers as long-term investments, whereas others see them as easy to replace, leading to different preferences for wages and benefits.

Grounding notions of embeddedness in Polanyi's ideas of fictitious commodities and double movements provides an apt starting place for conceptualizing markets as embedded in social institutions. Doing so, neo-Polanyian scholars demonstrate the necessity of social institutions for market societies. In addition, they show how different actors' interests can influence the ways they prefer markets to be organized. However, most neo-Polanyian accounts tend to overlook a crucial part of Polanyi's notion of embeddedness.

A HISTORICAL SOCIOLOGY OF CONCEPT FORMATION, PART 1: THE ELUSIVE NATURE

While critiquing Granovetter for upholding the separation of the economy and society born in mid-twentieth-century sociology, Krippner and neo-Polanyian economic sociologists fail to escape another legacy of mid-twentieth-century sociology: the separation of nature and society. Indeed, somewhat ironically, Krippner's critique of Granovetter and the new

economic sociology can be reflexively applied to identify this oversight of nature in Krippner's own work and that of other neo-Polanyian economic sociologists.

Environmental sociologists have long critiqued the discipline of sociology for failing to account for nature in its conceptualizations of society. As Catton and Dunlap (1978:42) argue, the discipline was long immersed in a "human exemptionalist paradigm" that upheld and promoted an anthropocentric worldview. For Catton and Dunlap, mid-twentieth-century sociology's dismissal of the natural environment was, in part, a product of its own social and material history. Unlike the classical sociological theorists, mid-twentieth-century sociologists were living in a time and place of material exuberance. Theorizing the unprecedented social dislocation and environmental destruction occurring during the Industrial Revolution in Europe, Marx, Weber, and Durkheim all recognized how natural limits impinged on material progress (Catton 2002; Foster 1999; Foster and Holleman 2012; Rosa and Richter 2008). Mid-twentieth-century sociologists in the postwar United States, however, were theorizing amid unprecedented social mobility and advancement and thus were blind to any sort of natural limits.

According to Catton and Dunlap (1978:44), the social and material history of the mid-twentieth century led many sociologists of the time to embrace a level of Durkheimian purity in which they strictly adhered to the notion that "the determining cause of a social fact must be sought among antecedent social facts."[1] This focus on "social facts" led sociologists to presume that political, economic, legal, cultural, and technological innovations remove humans from the effects of natural laws that govern other species. Many mid-twentieth-century sociologists thus held an unflappable faith in technological innovation and failed to recognize natural limits. As Catton and Dunlap (1978:43) note, "not only have sociologists been unmindful of the fact that our society derived special qualities from past abundance; the heritage of abundance has made it difficult for most sociologists to perceive the possibility of an era of uncontrived scarcity." Mid-twentieth-century sociologists ventured as far as to claim that "there are not known limits to the improvement of technology" (Hawley 1975:8–9, cited in Catton and Dunlap 1978:43) and "basic needs are satiable, and the possibility of abundance is real" (Bell 1973:465, cited in Catton and Dunlap 1978:43).

Neo-Polanyian scholars do not completely fall victim to the human exemptionalist paradigm. Following Polanyi, they recognize land as a fictitious commodity and equate land more broadly to nature. As Block and Somers (2014:32) assert, "land is nature that has been subdivided." In some ways, neo-Polanyian scholars thus see nature as socially constructed. They recognize that society has transformed nature into a fictitious commodity by establishing property rights and conducting land surveys. In addition, neo-Polanyian scholars indirectly recognize that nature has limits. As Polanyi ([1944] 2001:193) noted, "the vigor and stamina of the population, the abundance of food supplies, the amount and character of defense materials, even the climate of the country which might suffer from the denudation of forests, from erosions and dust bowls" depend on "the integrity of the soil and its resources." Such an observation is mirrored by Burawoy's (2003:218; see also Dale 2010; Peck 2013) assertion that "to commodify land is to threaten the environment and agriculture whereupon land also loses its use value."

Despite seeing nature as a fictitious commodity with limits, neo-Polanyian scholars often still uphold a level of Durkheimian purity, in which the causes of social facts are thought to be found among antecedent social facts. In particular, neo-Polanyian scholars tend to give society explanatory primacy by privileging labor in their examinations of fictitious commodities and the double movements engendered by their depletion. As Krippner and Alvarez (2007:229) assert in their literature review on embeddedness in economic sociology,

> Labor—coterminous with social life itself rather than produced for sale on the market—is the most important of these fictitious commodities. For Polanyi argued that the tendency to treat labor as if it were a commodity throws the very survival of society into peril. Society, however, does not shrink back from such a threat; a countermovement spontaneously emerges to demand social protections and prevent what would otherwise be the sure destruction of humanity.

According to Krippner and Alvarez, labor is thus "the most important fictitious commodity" and the primary fictitious commodity needing protection.

In conceptualizing labor as both a fictitious commodity and an element in the double movement, most neo-Polanyian scholars cast Polanyi's theorization of nature in narrow terms. They confine their treatment of nature to the notion of a fictitious commodity—that is, to something that is constructed and can be depleted by capitalist societies but does not influence social change in a double movement. This leads neo-Polanyian scholars to see nature primarily from an anthropocentric perspective. Block (2003:296), for example, notes,

> Establishing labor, land, and money as fictitious commodities required new institutional structures. … For land, the minimum conditions that Polanyi emphasizes include assuring a stable food supply at reasonable prices that, in turn, involves protecting the farming population from dramatic income fluctuations that might drive them off the land.

Nature, in this case land, exists only to satisfy the needs of humans. Institutions are not needed to protect nature from liberal market forces per se but to ensure that nature is organized in a way that satisfies society's need for nutritional sustenance. Neo-Polanyian scholars see nature as a fictitious commodity that is in some ways scarce, but they still conceptualize nature as something that exists for and can be easily used by society.

In short, while neo-Polanyian scholars recognize how mid-twentieth-century sociological notions of an asocial market were reified in the new economic sociology, they largely overlook how the dismissal of the natural environment influenced both the new economic sociology and their own work. Neo-Polanyian scholars thus still largely uphold the human exemptionalist paradigm by giving society explanatory primacy, privileging labor as the most important of Polanyi's fictitious commodities, and conceptualizing nature only as a fictitious commodity.

A HISTORICAL SOCIOLOGY OF CONCEPT FORMATION, PART 2: UNEARTHING NATURE

Krippner's critique of Granovetter and the new economic sociology can further be reflexively applied to identify another shortcoming of neo-Polanyian economic sociologists. They overlook how Polanyi himself took a more holistic approach to understanding nature and society. For Polanyi, nature both is shaped by and shapes the ways in which markets are embedded in society.

At the root of Polanyi's notion of embeddedness rests a conceptualization of nature as more than a fictitious commodity. Polanyi recognized nature for its use value and as a necessary provider of human sustenance. However, his ideas about nature also reflect those of early environmentalists such as Henry David Thoreau, Ralph Waldo Emerson, and John Muir. Polanyi ([1944] 2001:187) recognized the role of nature in human culture:

> The economic function is but one of the many vital functions of land [nature]. It invests man's life with stability; it is the site of his habitation; it is a condition of his physical safety; it is the landscape and the season. We might as well imagine his being without hands and feet as carrying on life without land.

Furthermore, Polanyi ([1944] 2001:187) never intended nature and society to be conceptualized as separate entities:

> What we call land is an element of nature inextricably interwoven with man's institutions. To isolate it and form a market for it was perhaps the weirdest of all the undertakings of our ancestors. Traditionally, land and labor are not separated; labor forms part of life, land remains part of nature, life and nature form an articulate whole.

Nature and society only came to exist as separate from one another as society created markets for land, labor, and money—as nature was constructed as a fictitious commodity. As Polanyi notes, separating nature from man "was a vital part of the utopian concept of the market economy" (p. 187).

Polanyi's conceptualization of nature allowed him to see both how it was shaped by society through its construction as a fictitious commodity and how it shaped society through double movements. In his explications of double movements, he recognized that ecological change can spur social change. For Polanyi ([1944] 2001:159), social change often results from "war or trade" or "startling inventions." However, social change can also be driven by "shifts in natural conditions" such as "a change in climate" or in "the yield of crops" (p. 159). This is not to say that such shifts in natural conditions are purely natural. As exemplified in Polanyi's idea of the fictitious commodity, social change often results in changes to nature. However, recognizing that shifts in natural conditions can also result in social change, Polanyi sees nature operating in a dialectical relationship with society.

The recognition that ecological change can spur social change has not been completely overlooked by Polanyian-inspired social scientists. Perhaps most notably, O'Connor (1988, 1998; see also Stroshane 1997) draws on Polanyi to theorize how liberal forms of economic organization create a dual crisis: a crisis of overproduction based on the overexploitation of labor and a crisis of underproduction based on the overexploitation of nature. According to O'Connor, this dual crisis should bring workers and environmentalists together to push back against liberal market policies in a double movement. More recently, a number of scholars have drawn on Polanyi to theorize how the privatization of a diverse array of fictitious commodities—from water, to fisheries, to oil and natural gas—has provoked people throughout the world to mobilize against what has been called the neoliberalization of nature (e.g., Fraser 2013; Kohl and Farthing 2009; Mansfield 2004). These scholars recognize how ecological destruction and commodification can prompt pushes for social change. However, they overlook a key aspect of Polanyi's conceptualization of the relationship between nature and society.

Not only did Polanyi recognize that nature shapes the ways in which markets are embedded in society; he also demonstrated *how and why* nature *differentially* shapes the ways in which markets are embedded. In the most basic sense, Polanyi saw that space and place matter. As he notes when speaking of the influence of social change on communities, "any widespread form of change must affect the various parts of the community in different fashions, if for no other reason than that of differences of geographical location, and of economic and cultural equipment" (Polanyi [1944] 2001:159). However, Polanyi was not a crude geographic or environmental determinist. Seeing change as both social and ecological, Polanyi

conceptualized geographies as both physically and socially differentiated and, in turn, dialectically shaping different actors' interests and their preferred forms of market organization.

This is perhaps best exemplified in Polanyi's discussion of how the differential relationships different actors held with land in early capitalist Europe affected their preferences for how markets were embedded in society. As Polanyi ([1944] 2001:187–94) explains, capitalists and landlords at the time had divergent relationships with nature—in particular land—and thus different views on its commoditization. Industrial capitalists and traders depended on nature for the raw materials used in processes of production. As a result, these classes pushed for institutional arrangements that facilitated the commoditization of land as a means to secure raw materials that were often limited in supply (p. 192). In contrast, aristocratic and clerical landlords depended on nature for its continual cultivation in agriculture. As a result, they supported institutional arrangements that limited the commoditization of land and facilitated its conservation as a means to continually glean the agricultural surpluses produced by rural populations in exchange for land use. As Polanyi ([1944] 2001:193) notes, "feudalism and landed conservatism retained their strength as long as they served a purpose that happened to be that of restricting the disastrous effects of the mobilization [commodification] of land."

Polanyi ([1944] 2001:200) made similar observations about the differential relationships the popular classes held with nature and the implications for their institutional preferences:

> The reactions of the working class and peasantry to the market economy both led to protectionism. … Yet there was an important difference: in an emergency, the farmers and peasants of Europe defended the market system, which working-class policies endangered. While the crisis of the inherently unstable system was brought on by both wings of the protectionist movement, the social strata connected with the land were inclined to compromise with the market system, while the broad class of labor did not shrink from breaking its rules and challenging it outright.

Farmers' and peasants' dependence on land and nature to maintain their livelihoods led them initially to support regulations against efforts to commoditize land, allying both with the feudal rulers. However, when laborers in industrial centers began to pursue worker protections and revolt against the capitalists, the farmers and peasants in the countryside allied with the capitalists as defenders of property rights. Workers with little to no property understood their interests as linked to their labor and thus sought institutional arrangements that embedded the economic, social, and ecological in a way that challenged the liberal market system. In contrast, farmers and peasants understood their interests as linked to land and property rights and thus preferred institutional arrangements that embedded the economic, social, and ecological in a way that upheld the liberal market system.

While neo-Polanyian scholars have unearthed society in Polanyi's ideas of embeddedness, they have largely overlooked how Polanyi saw nature as a crucial element shaping market societies. In doing so, they tend to miss Polanyi's recognition of how the ecological conditions in which market societies exist can shape social change. As Polanyi demonstrates, actors' different relationships with nature across space and time can affect how they perceive and pursue their interests and thus their preferred forms of market embeddeness.

A NEO-POLANYIAN APPROACH TO SOCIONATURAL EMBEDDEDNESS

Bringing Polanyi's observations about nature into closer dialogue with the work of neo-Polanyian economic sociologists can provide a more robust understanding of embeddedness.

Table 1. Embedding the economic, the social, and the ecological.

(Neo-)liberal economic approach	Markets exist in and of themselves.
	The social and the ecological are subsumed in the economic. Both can be commoditized, priced, and profited from without regard to limits.
	Rational economic interests underpin and govern the existence of the market.
Neo-Polanyian approach of social embeddedness	Markets are embedded in legal, cultural, and political frameworks.
	The social can only be commoditized, priced, and profited from in a limited fashion.
	Social conditions shape actors' interests and affect the institutions they deem desirable to govern markets.
Neo-Polanyian approach of socionatural embeddedness	Markets are embedded in legal, cultural, political, and ecological frameworks.
	The social and the ecological can only be commoditized, priced, and profited from in a limited fashion.
	Socionatural conditions shape actors' interests and affect the institutions they deem desirable to govern markets.

A neo-Polanyian approach to socionatural embeddedness can be used to conceptualize markets as always and everywhere embedded in legal, cultural, political, and *ecological* frameworks. By acknowledging the ecological, neo-Polanyian scholars can recognize the double movements surrounding the commodification of both labor and nature. Furthermore, they can recognize how both the social and the ecological conditions in which actors are embedded affect their interests and, in turn, the types of institutional arrangements they deem desirable to govern markets. As shown in Table 1, a neo-Polanyian approach to socionatural embeddedness can thus be used to show how nature is shaped by and shapes the ways in which markets are embedded in society. In turn, such an approach can better account for how markets are differentially embedded in socionatures and thus provide a more nuanced understanding of variegated forms of capitalism.

To demonstrate the utility of a neo-Polanyian approach to socionatural embeddedness, I explore recent work by sociologists examining the commodification of three forms of socionature: land, underground extractive resources, and carbon emissions. The questions scholars explore through these three fictitious commodities could be answered by merely examining how markets are embedded in legal, political, and cultural frameworks. However, I demonstrate why seeing market societies as embedded in ecological frameworks—and thus recognizing the dialectical relationship between markets and nature—matters.

Embedding the Soil: Land and Land Grabs

Rural sociologists and development scholars have long problematized the commodification of land (e.g., Bernstein 1977; Chayanov [1966] 1986; Friedmann 1982; Kautsky 1988; Mann and Dickinson 1978; McMichael 1984), but sociologists studying land grabs have brought a renewed interest to the topic (Borras, Hall, Scoones, White, and Wolford 2011; Borras, Franco, Gómez, Kay, and Spoor 2012; Fairbairn 2013; Levien 2013). Such sociologists draw on Polanyi's work and neo-Polanyian scholarship to understand how land is made into a fictitious commodity. In the most basic sense, they recognize that land is made into a fictitious commodity once it is subject to a cadastral process. Measured, demarcated, and

protected, land can then exist in parcels as property. Measured and demarcated land does not have to be commoditized. It can exist as a public good, or it can be bought and sold. In the words of neo-Polanyian scholars, markets for land are created by and embedded in legal, cultural, and political frameworks.

Like neo-Polanyian scholars, sociologists studying land grabs examine how nature is organized to satisfy the interests and needs of different actors in society. In particular, sociologists studying land grabs recognize a Polanyian double movement pitting those seeking to buy and sell land against those seeking to live off of it. As financiers, states, and elites have participated in land grabs to profit from rising land, food, and (bio-)fuel prices, peasants and small landholders throughout the world have sought to keep their plots and maintain access to common property for food and fodder (Borras et al. 2011; Fairbairn 2013, 2014; Levien 2013).

The root of this double movement surrounding land cannot be attributed merely to what neo-Polanyian scholars see as an act to ensure society access to "a stable food supply at reasonable prices" (Block 2003:296). The double movement observed by sociologists studying land grabs is a response to encroachment of laissez-faire forms of market organization upon society. However, the peasants and small agrarian landholders resisting such encroachment are more often seeking to protect their own, and potentially their communities', livelihoods than societies' existence writ large. Their resistance is not merely a response to a legal, political, and cultural framework that seeks to separate markets from society but a response to a legal, political, cultural, and *ecological* framework that disrupts their relationship with the land. As a result, their resistance is rooted in the socionatural conditions upon which their livelihoods have historically depended.

This is perhaps best exemplified in Levien's (2012, 2013) discussion of the divergent responses of peasants and small landholders to land grabs in India. Levien demonstrates that resistance to land grabs occurs for a number of reasons—from poor compensation to bad experiences with past forced land sales. However, he also recognizes how the materiality of the soil and what it can produce influences resistance. Like other scholars of land grabs, Levien shows that peasants and small landholders have resisted land grabs to maintain access to the land upon which they subsist. Moving beyond links between land and subsistence forms of living, Levien also suggests that the fertility of the soil can influence whether different groups resist land grabs. In places in India with high levels of soil fertility, peasants and small landholders more tenaciously defended their land and resisted laissez-faire forms of land market organization. In places with low levels of fertility, some peasants and small landholders resisted land grabs, but others willingly accepted compensation for their land. Levien shows that peasants' and small landholders' resistance to land grabs can be influenced by socionatural conditions that differentially tie their livelihoods to the land.

Embedding the Underground: Extracting Minerals and Hydrocarbons

Sociologists studying extractive industries have less explicitly drawn on Polanyi and neo-Polanyian scholarship, but their work can still be used to demonstrate the utility of a neo-Polanyian approach to socionatural embeddedness. Polanyi himself often equated land to more than the soil upon which we settle and cultivate. For Polanyi, the enclosure of land allowed both the soil and what rested below it to be turned into fictitious commodities. However, as sociologists studying extractive industries demonstrate, gaining access to subsoil riches requires more than measurement, demarcation, and property rights. Markets for the wealth beneath the ground are embedded in more than legal, political, and cultural frameworks.

As Bunker (1985, 1989; Bunker and Ciccantell 2005; see also Barham, Bunker, and O'Hearn 1994; Boyd, Prudham, and Shurman 2001) demonstrates, the physical, biological, and mathematical laws that govern nature cannot always be easily manipulated. Underground riches, such as hydrocarbons and minerals, form over millions of years as organic and inorganic matter are subject to different amounts of pressure and temperatures deep beneath the earth. Through this process, subterranean raw materials exist in distinct locations throughout the globe and in a wide array of forms. To turn an underground resource into a fictitious commodity thus requires knowing where to find something that exists out of plain sight and is potentially invisible. In addition, it often requires being able to collect and transport varying states of matter from remote locations of the globe to markets thousands of miles away. Embedding the underground in market societies thus requires simultaneously accounting for social conditions that exist above the subsoil in surrounding land and ecological conditions that exist around a subterranean resource.

As with sociologists studying land, sociologists studying the underground seek to understand the double movements surrounding its commodification and how and why it is continually (re-)embedded in market societies. Over the past century, waves of privatization in natural resource sectors have often been followed by waves of resource nationalism (Kennedy and Tiede 2011; Stevens 2008). The first wave ebbed and flowed with the rise and fall of colonialism. For centuries, colonial powers supported the endeavors of their transnational extraction firms under the guise of private investment, only to see anticolonial movements push to nationalize mineral and hydrocarbon reserves in the first half of the twentieth century. In the postwar era, the United States heralded private investment in extractive industries as a pathway to enhanced development, only to see antiimperialist movements push to nationalize mineral and hydrocarbon reserves in the 1960s and 1970s. After the international debt crisis in the 1970s, the allied states in the global north forced the privatization of state-owned mineral and hydrocarbon reserves under the guise of efficiency, only to see a new round of nationalist movements again seek to control their countries' subsoil wealth.

Like neo-Polanyian scholars, sociologists studying extractive industries examine how nature is organized to satisfy the needs and interests of different actors in market societies. For much of the twentieth century, colonial and imperial powers supported their own transnational extraction firms abroad to secure the necessary raw materials for processes of production and consumption at home (Barham et al. 1994; Bunker and Ciccantell 2005). At the end of the twentieth century, the allied countries of the global north supported privatization of global mineral and hydrocarbon reserves to open new sites of investment and profit for finance capital (Labban 2010). At both moments, countries seeking to nationalize their minerals and hydrocarbons did so to capture a greater amount of the profit from their underground riches for their own people (Stevens 2008).

Despite the anthropocentric roots of these double movements, scholars studying extractive industries do not overlook how nature shapes actors' preferences for how the underground is embedded in market societies. In the most basic sense, geography and geology shape the extent to which most actors can seek to benefit from the underground. In particular, the inherently local nature and relative scarcity of many subterranean resources grounds extractive industries in place.

This is exemplified in my own work exploring how the socionatural relationships between workers and nature in Bolivia's mining and hydrocarbon industries created differential support for the nationalization of the country's subsoil wealth (Kaup 2014). In Bolivia's mineral sector, workers have historically required relatively low levels of technological and infrastructural investment to manipulate nature; workers have thus been able to sustain their

employment with or without continual investment. Despite massive layoffs after the privatization of the state company during Bolivia's neoliberal turn, the miners' relationships with nature allowed them to create cooperatives and continue to eke out a living. Exploited but included in the global economy, Bolivia's miners later proved to be more resistant to nationalization of the mineral sector. In contrast, workers in Bolivia's hydrocarbon sector have historically been dependent on constant large-scale infrastructural and technological investment to manipulate nature; they thus have not been able to sustain employment without continual investment. During the country's neoliberal turn, privatization of the state hydrocarbon company resulted in decreased investment in the sector. Excluded from the global economy, Bolivia's hydrocarbon workers were more amenable to a nationalization of the hydrocarbon sector. In both the mineral and the hydrocarbon sectors, workers' relationships to nature affected how they sought to embed markets in society during Bolivia's counter-neoliberal turn.

Embedding the Air: The Making of Markets for Carbon Emissions

Social scientific research on climate change offers another lens through which to see the utility of a neo-Polanyian approach to socionatural embeddedness. Attempts to solve our current climate predicament have come about in an era dominated by market-based solutions. As a result, the creation of carbon markets is the most commonly discussed prescription to prevent a potentially catastrophic climate crisis. In addition, the double movements surrounding climate change have taken an array of forms (be it for or against carbon regulations, carbon markets, or climate justice) in which a diverse multitude of actors struggle over how nature—in this case carbon emissions—should be embedded in market societies.

Social scientists of all stripes implicitly recognize carbon emissions as a Polanyian fictitious commodity. In their most basic formulation, markets for carbon emissions are constructed by (1) deciding how much carbon can be released into the atmosphere without adversely affecting the Earth's climate, (2) turning an often invisible gas into a measurable carbon credit, and (3) creating a marketplace in which carbon credits can be bought and sold. In carbon markets, carbon emissions are embedded in society as fictitious commodities because their very existence as something that can be bought and sold depends on making them both visible and tradable. Furthermore, states and other regulatory bodies can be credited with creating both the supply and the demand of carbon emissions available in a carbon market.

Scholarly advocates and critics alike implicitly recognize carbon markets as part of a double movement. Advocates see carbon markets as a way to push back against proponents of laissez-faire approaches to societal organization.[2] In this view, carbon markets are a form of regulation that internalizes the costs of emissions, and government intervention is needed to spur the technological innovation and behavioral change necessary to lower carbon emissions (Spaargaren and Mol 2013; Stephan and Paterson 2012). Critics see carbon markets as actually advancing laissez-faire forms of societal organization and question whether they are the most effective way to reduce carbon emissions (Lohmann 2010; MacKenzie 2009; Parr 2013). In particular, critics argue that regulating carbon emissions through market mechanisms pushes emissions into the realm of financial speculation, where traders and brokers profit but the solution to our carbon crisis remains unresolved (Descheneau 2012; Knox-Hayes 2010; Layfield 2013).

Social scientific scholars of climate change have also demonstrated how and why carbon emissions are differentially embedded in society. In particular, scholars have examined why different actors take anti- or proregulatory stances on climate change and, among those in

favor of regulation, why different actors support carbon caps, carbon taxes, or carbon markets. Historically, the strongest opponents of climate change regulation came from the fossil fuel and other heavy carbon-emitting industries (McCright and Dunlap 2000, 2003; Newell and Paterson 2010). Seeing all forms of carbon regulation as impinging on their profits, but knowing that antienvironmental stances were generally unpopular, these industries sought to make lowering carbon emissions appear unnecessary by making the scientific studies surrounding climate change appear unsettled. However, over the past decade, most actors have sought to shape—not prevent—climate change regulation (Bumpus and Liverman 2008; Meckling 2011; Newell and Paterson 2010). Actors in finance were the biggest supporters of carbon markets with tradable emissions reduction units, rather than carbon taxes and hard caps, but many polluting industries also advocated this solution. Polluting industries saw carbon markets as a more flexible form of regulation, allowing business entities to buy more carbon credits if they were unable to meet emissions reduction goals fast enough. In addition, with taxes and regulations often operating at a national scale, versus the global scale of capitalist markets, some industries saw carbon markets as more adept at preventing "carbon leakage"—the possibility that industry would move to places with the lowest carbon taxes and least stringent carbon caps.

However, social scientific scholars of climate change recognize that more than concerns about flexibility and global competition influence how carbon emissions are embedded in society. Moving beyond neo-Polanyian scholars' observations of social embeddedness, a number of scholars of climate change recognize that how and why different actors are physically affected by climate change shape how they seek to embed carbon emissions in society (Bond 2011; Dawson 2010; Roberts and Parks 2007). In other words, social scientific scholars recognize not only that market societies differentially shape climate change but that climate change differentially shapes market societies.

Perhaps most notably, climate change has already acutely affected a number of low-lying coastal areas and island nations as well as places that have always sat on the precipice of water shortages. Threatened by rising sea levels and persistent droughts, such places have been depicted by scholars as the front lines of climate change (Bond 2011; Roberts and Parks 2007). Many of the places most affected by climate change are also among the most impoverished places in the world, making them least able to mitigate the damages of climate change (Roberts 2001). As a result, their interests in how and why carbon emissions are embedded in society often differ from those of industry and finance. Whereas industrialists and financiers prefer to see carbon emissions reduced in a flexible and gradual manner, places already affected by climate change prefer an immediate reduction. In addition, while industrialists and financiers are concerned about continued profits, those in places already affected by climate change are concerned about their lives and livelihoods. As a result, the people and governments in the places most affected by climate change have pushed for climate justice, demanding that those most responsible for the carbon crisis pay mitigation costs to those most affected by it (Bond 2011; Ciplet, Roberts, and Khan 2013; Roberts and Parks 2007). Actors' socionatural relationships with increasing carbon emissions and their adverse effects influence how they wish to see carbon embedded in market societies.

CONCLUSIONS

Social scientific explanations of embeddedness often privilege the economic and the social. In their recent engagements with the work of Polanyi, economic sociologists aptly demonstrate how markets are embedded in legal, cultural, and political frameworks. However, they often overlook how markets are also embedded in ecological frameworks. Neo-Polanyian

scholars and other economic sociologists frequently fail to recognize how their use of Polanyi both upholds mid-twentieth-century sociological notions that see nature as separate from society and overlooks how Polanyi himself recognized the dialectical relationship between nature and society. As a result, economic sociologists largely overlook nature and its crucial role in shaping markets.

Unearthing nature in the work of Polanyi and building a theory of socionatural embeddedness, I argue that scholars should see markets as always and everywhere embedded in legal, cultural, political, and ecological frameworks that are critically necessary for economic activity to continue. Recognizing markets as embedded in both nature and society, scholars can better explain how actors' positions within processes of capital accumulation and their differential relationships with nature can shape the ways they understand and seek to protect their interests. As demonstrated in my explorations of the scholarly work on land grabs, underground extractive industries, and carbon emissions, a neo-Polanyian approach to socionatural embeddedness can be used to recognize the inherent relationship between labor and nature and how each has been turned into a fictitious commodity and thus influences double movements. Actors' relationships with nature can shape how they seek to exercise power and the forms of market organization they accept and support.

A neo-Polanyian approach to socionatural embeddedness not only brings nature more forcefully into economic sociology but better illuminates the pitfalls and possibilities of creating progressive economic and environmental policies. As Polanyi and others building on his work demonstrate, actors of similar socioeconomic standing can hold radically different relationships with nature that influence how they seek to shape markets and nature itself. If any sustainable economic and ecological form of market organization is to occur, such divergent relationships and interests will need to be accounted for and overcome. Otherwise, the most progressive economic policy could still lead to ecological collapse, and the most progressive environmental policy could lead to economic collapse. Taking Polanyi seriously means embedding both land and labor as socionatures.

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NOTES

1. While Durkheim did state that the "cause of a social fact must be sought among antecedent social facts," he still recognized the natural environment as influencing human action (see Catton 2002; Rosa and Richter 2008).
2. Laissez-faire approaches support no markets for carbon emissions; some proponents believe consumer demand for low-carbon products will spur the technological innovation and behavioral change necessary to lower carbon emissions.

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