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SOCIOLOGY | RESEARCH ARTICLE

Embedding the "Black Box": A reformulated social capital theory for the exploration of socio-physical linkages

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Abstract: This article contends that many critics of social capital have failed to note a gradual but significant evolution taking place at the fringes of the theory. Influenced by work conducted by both critics and proponents, but unburdened by the theoretical flaws associated with "capital" status, various authors working in network theory and related disciplines have begun, independently, to solve the practical problems of the field. Sufficient progressive work now exists to form the basis of a new formulation, with locality, function and socio-physical linkages as its core tenets. Arguing that the future of social capital lies as an "umbrella concept", this paper delineates the theoretical adjustments necessary to construct a practical, interdisciplinary reformulation.

Subjects: Behavioral Sciences; Geography; Social Sciences

Keywords: social capital; network theory; actor network theory

1. Introduction

Eleven years after Radcliffe (2004) declared social capital "(almost) dead", the sick man of the social sciences continues to show—at least in terms of its continuing influence on policy (Franklin, Holland, & Edwards, 2012)—little sign of declining health. Indeed, it is very vigour with which the concept

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Focusing on Cambodia as a microcosm of the rapid social change currently underway in many parts of the Global South, Laurie Parsons' research seeks to explore the manner in which primarily agrarian societies are adapting to conditions of mass internal labour migration. In doing so, it has sought to develop the theoretical and methodological linkages between the natural and economic environment, and the nature of the social relations which take place therein. In particular, his work is concerned with how local power structures emerge in, and adapt to, changing environments.

As such, above and beyond its commitment to individual themes, the overarching goal of this research is to bridge the gap between the physical, economic and ecological aspects of change in the developing world. This paper therefore contributes an analytical framework intended to encourage interdisciplinary exploration of this agenda.

PUBLIC INTEREST STATEMENT

The idea that social relations are not only quantifiable, but even interchangeable with money and assets, is the powerful but highly controversial basis of social capital theory. It has proved phenomenally successful. The combination of intuitive simplicity and appeal to policy-makers has seen its influence extend far beyond its sociological origin. However, following a meteoric rise to prominence beginning in the later 1980s, the theory has been the subject of heavy and widespread criticism in recent years. Its opponents—who argue that the social capital concept is so reductive as to be meaningless, ignoring what social relations mean in favour of how many of them there are—have progressively undermined its credibility. Nevertheless, this article contends that the breadth of social capital's influence leaves a potentially valuable legacy: providing the space for a common language with which researchers from various disciplines may study how social relations interact with the physical world.









continues to influence both policy and academic discourse which is at the root of many of the concerns voiced by its critics. It has, they argue, "proved itself [so] remarkably fungible in its depth" (Fine, 2003, p. 587) that it has become "synonymous with all things which are positive or desirable in social life" (Portes & Landolt, 2000, p. 535) and consequently emerged, in its maturity, as a theory which means "all things to all people and hence nothing to anyone" (Woolcock, 2001, p. 69).

However, in the midst of a gathering consensus that social capital has become little more than a harmful neoliberal policy tool for the disempowerment and circumnavigation of Southern governments (Fine, 2001, 2003; Radcliffe, 2004), the target of such criticisms has itself become obscured. Critics have become prone to attacking "dominant envisionings of social capital, rather than fully retheorising the concept in critical dialogue with social science accounts" (Holt, 2008, p. 230), thereby erecting an academically dislocated straw man at which critiques may be addressed, long after the conceptions they directly relate to have been rightly and effectively dismantled in theory (see e.g. Fine, 2001, 2002, 2003; Radcliffe, 2004).

As this paper argues, the continued effectiveness of such critiques is linked to the retention, within contemporary reformulations, of core theoretical assumptions which have undermined attempts to redress its failings. Herein, an attempt will be made to explicate the root causes of these shortcomings, via the argument that social capital—a "rational action" formulation of network theory—has been erroneously classified as an independent strand of thought with roots more firmly planted in classical economics and American social reformism than sociology. Having done so, it will highlight the areas into which a repositioned social capital formulation might profitably tread, emphasising in particular the importance of (both spatial and temporal) locality, and the functionality of social relations.

As such, this paper is structured in four sections, the first of which addresses three key issues to persistently undermine reformulations of social capital theory. The following section will begin by highlighting the embedded theoretical positions which cause these issues to persist, before, secondly, suggesting a shift in the theoretical grounding of the theory away from the assimilating concept of capital drawn from classical economics and towards the emphasis on locality and function seen in recent incarnations of network theory. Having outlined a theoretical approach rooted in the exploration of socio-physical linkages—as exemplified by actor network theory—in section three, the paper will conclude with a guiding framework for the establishment of social capital as an "umbrella concept", methodologically and theoretically linking the investigation of diverse forms of social action.

2. Persistent shortcomings in contemporary reformulations

In the wake of sporadic and generally nuanced employment by twentieth century social scientists (e.g. Bourdieu, 1984), from the late 1980s onwards the term social capital rose rapidly to prominence within academic and policy discourse under the auspices of a handful of key thinkers, most notably Becker (1996), Coleman (1988), Portes (1998), Putnam (1995, 2001), Putnam, Leonardi, and Nanetti (1993) and Woolcock (1998, 2001). Since then, the social capital concept—which seeks, in broad terms, to quantify that element of social relations which contributes to the accumulation of economic capital—has proved one of the most successful, and controversial, ideas in recent social scientific history, drawing both vehement critiques and enthusiastic praise for a reductionist approach which has seen it adopted at the highest levels of policy.

During this rapid ascent (and more recent slow decline), polarisation between opponents and proponents of the theory has been stark. Indeed, from an external perspective, it is an often ignored facet of the debate over social capital that challenges to the dominant representations come not only from outside, but from those "proponents" who, accepting the critiques aimed at previous work, nevertheless retain some faith in the fundamental value of the field. Opponents of social capital have consistently dismissed such efforts as insufficiently radical in their reconstruction, with the numerous attempts to introduce specificity and focus to the concept being readily denigrated as



"futile attempts to impose some general classificatory order over a category that is free to roam wherever it wants" (Fine, 2003, p. 591). Furthermore, as Fine (2003, pp. 600–601) subsequently concludes, any such endeavours are not only incidentally, but inherently ineffectual, given that:

Irrespective of the more progressive and intellectually rigorous contributions that might be made, social capital has been captured in content and momentum by a "social capital" of its own making. It has its own bridging, bonding, leaders and networks, trust and distrust, values and a legitimising dark side and so on that guarantee it will endure until it serves out its role as a passing fad or is broken from outside

Whilst there is good deal of validity to such criticism, the dismissal of all efforts, actual and potential, to rectify the failings of the field constitute an unnecessary step. What Fine (2001, 2002, 2003), and indeed Radcliffe (2004), have correctly identified is that most reformulations have generally succeeded only in addressing a single aspect of social capital theory's shortcomings, whilst falling victim to secondary deficiencies inherited from the parent theorems. What follows shall outline the three key shortcomings retained by contemporary social capital reformulations.

2.1. Inherited flaw No. 1: trust and "the aggregation problem"

Of all the theoretical substrata upon which later incarnations of social capital have rested, perhaps the most unstable has been Fukayama's (1995, 1999) interpretation as the level of trust in a community, or in his words "the instantiated informal norm which promotes cooperation between two or more individuals" (Fukuyama, 1999, p. 1). This instability derives first from its "positivistic" positioning, whereby negative consequences deriving from social relations may be conceived only as occurring in "zones of social capital deficiency" (Goodhand, Hulme, & Lewer, 2002, p. 390); and second, from its universalistic historical and geographic disembeddedness. The combination of these flaws underpins its failure to deal, in any meaningful way, with the issue of scalar aggregation.

Despite an awareness of some of these shortcomings, Carpenter, Daniere, and Takahashi's (2004) attempt to revise the trust-based social capital conception lays bare the pitfalls inherent in any attempt to shore up the operational and conceptual rigour of trust-based social capital formulations. Crucially, it does so not because the specific addenda they enact are incorrect, but because they become meaningless when operationalised within the de-localised universalism of the model they are seeking to address.

As such, Carpenter et al.'s (2004, p. 534) attempt to account for the fact that "different definitions of social capital lead to different strategies for measuring its effects" by utilising "experiments [derived from Game Theory, which] provide more accurate measures of behavioural social capital" is ultimately of no greater utility than the theory it seeks to supplant because it has attended to only one element of the latter's failings. Whilst their methodology, in which participants are requested to choose between allocating money to group-based schemes, or to retain it in pursuit of greater security but lower returns, is likely more accurate than the heterogeneous questionnaire surveys they deem inappropriate, the issues of specificity and aggregation continue to loom large in their results.

Ergo, although Carpenter et al. (2004) may be correct in following Fukayama's (1995, 1999) assertion that trust represents a crucial element of community functionality, their methodology nevertheless remains flawed because trust is not a homogenously distributed asset and is therefore not suitable for simple aggregation from small-scale surveys or experiments (e.g. Lin, 1999). Indeed, whilst the authors do disaggregate their participants to some extent—for instance along the lines of gender—a lack of detail in this respect obfuscates the fact that people may invest more trust in others of the same race, background or class, or may, conversely, exclude a group on the same basis. Of equal relevance, they may trust others in a certain capacity or role, but not in every role or capacity. For example, an individual may have every faith that his shopkeeper will not cheat him, or that his neighbours will not rob him, but this does not necessarily indicate his willingness to enter into a



credit sharing arrangement, or to participate in a community regeneration scheme. Simply put, trust, viewed in a disembedded and reductionist manner, is a poor measure of anything of note.

2.2. Inherited flaw No. 2: sub-classification and the "positivistic" outlook

In seeking to rectify some of the concerns raised regarding the conceptual and practical validity of trust-based analyses in the mould of Fukuyama (1995, 1999) and Carpenter et al.'s (2004) studies, Adler and Kwon's (2002) revisionist model seeks both to address the social disembeddedness of other models and to pursue a greater level of cohesive self-awareness in the field as a whole. As they argue, multiple definitions are necessary "depending on whether they focus on the substance, the sources, or the effects of social capital" (Adler & Kwon, 2002, p. 19).

With respect to the first of these aims, the authors propose a framework whereby the social structure may be divided into three interrelated components: market relations, hierarchical relations and social relations. Notably, an element of cross-fertilisation is introduced via the contention that whilst the source of social capital lies primarily within the third of these, "insofar as real-world market and hierarchical relations give rise to social relations ... the other dimensions of social structure contribute indirectly to the formation of social capital" (Adler & Kwon, 2002, p. 19).

However, although Adler and Kwon (2002) concede a degree of interrelatedness between the three categories, they proceed insufficiently far in this respect. Indeed, the distinction itself is theoretically dubious: as Bourdieu (1984) amongst others (e.g. Scott, 1985) asserts, the foundations of hierarchy are planted in symbolic contestation, and as Mauss (1967/1925) before him laid out, the social exchange of commodities culturally underpins all societies. By the same token, economics could not function in the absence of reciprocal norms which Adler and Kwon categorise separately from their "largely disembedded flow of capitals". The three are fundamentally intertwined.

Furthermore, like Fukayama's, Adler and Kwon's formulation is undermined by a myopically normative conception of social capital as the "goodwill that others have towards us" which facilitates "valuable" outcomes (2002, p. 18). Given that, as most outside the field of social capital have long realised, benefit may be gained just as readily from antipathy as goodwill, this perspective is evidently flawed. Moreover, if social capital is indeed a resource that can be possessed by either individuals or groups—or, to incorporate some of the more nuanced conceptions (e.g. Arku, Filson, & Arku, 2009; Iyengar, 2012), a catalytic facilitator of the efficient use of other resources—then it is troubling that in spite of its nominal capital status, social capital theorists have almost universally neglected the other fundamental pillar of value—scarcity, or more specifically, the human behaviour which accompanies scarcity.

Indeed, as Wong and Salaff (1998, p. 360) have postulated, the fact that "network capital" (which, as discussed below, may be viewed as a task-specific form of social capital for these purposes) "is the least institutionalised form of asset" may have obscured an informal, but nevertheless vital, system of value regulation. In support of this proposition, Wong and Salaff (1998, p. 362) present evidence of a "friction and rivalry [which] exists between carriers of network capital and cultural capital" wherein:

Those who are skilled at networking, such as entrepreneurs, tend to incur popular hostility and resentment in a society ... They would appear to be too cunning and pragmatic. They spurn the sacredness of personal relations, turning ends into means. Thus, they are open to charges of undermining social solidarity and eroding group allegiance. (Wong & Salaff, 1998, pp. 361–362)

According to Wong and Salaff's interpretation, then, social conservatism appears to protect the value of network capital by restricting its improper (or to extend the metaphor, fraudulent) use in much the same way that property rights and central banking protect that of physical and economic capital, respectively. This contention is valuable for at least two reasons. First, it explains the



covariance of network capital with other forms of capital and second, in doing so, it demonstrates the role that network capital plays in the persistence of inequality. Network capital, like other "capitals", is scarce because sanctions against the impropriety of ad hoc interactions constitute a restrictive influence on its usage.

This, say Wong and Salaff (1998, p. 362) is "the dark side of network capital" and it demonstrates clearly the fallacy of viewing any social system as unambiguously positive. Thus, although Adler and Kwon's (2002) interpretation has begun the process of addressing the socio-physical disembeddedness of social capital, their insistence upon viewing it as a positive asset, carried over from earlier incarnations of the theory, undermines their model. Indeed, Wong and Salaff's (1998) focus on migratory linkages as social, or network, capital is particularly instructive in that to view a facilitating linkage of this sort as a positive asset possessed by some and not others, though readily intuitive, is a position that must be rejected. In its stead, a recognition is required that linkages of this sort are predicated on relationships of dyadic trust which exist "in these situations precisely because [they are] enforceable through the power of the community" (Portes & Landolt, 2000, p. 534). As such, they are possessed by some because they hold other assets and, by extension, those who lack them do so because others have them.

2.3. Inherited flaw No. 3: Bourdieu as Panacea

Although absent from the work of Adler and Kwon (2002) and other social capital formulations in a similar mould (e.g. Bebbington & Perreault, 1999; O'Brien, Phillips, & Patsiorkovsky, 2005), the bidirectional relationship enacted between social linkages and entrenched inequality is readily apparent in the work of Bourdieu (e.g. 1984) and those authors who, in recent years, have opted to challenge his "excision" (Fine, 2003, p. 589) from the literature. Indeed, as Holt (2008, p. 228) has argued, the primary value of a remodelled social capital theory may lie in those "critical accounts ... [which] ... can provide insights into the (re)production of inequalities and advantage through everyday sociability within a variety of intersecting social networks".

As she goes on to posit, the scepticism surrounding the concept of social capital within Human Geography in particular "is tied to the capture of social capital by dominant policy perspectives, which are limited and even erroneous" (Holt, 2008, p. 229), whereas "Pierre Bourdieu's accounts address many of the critiques levelled at [the theory]" (Holt, 2008, p. 228). However, whilst Holt (2008) may be correct in her identification of Bourdieu as the most promising theoretical foundation for a revitalised social capital, there remains a danger in his uncritical adoption. Bourdieu's work has not been so excised from the literature as to provide no exemplars of its dubious use and it is clear from a variety of studies (e.g. Erel, 2010; Zweigenhaft, 1993) that the invocation of cultural capital within the current analytical framework adds little nuance to the concept in practice.

For instance, Erel's (2010) recognition that the cultural "baggage" carried by migrants may, over time become sufficiently embedded in a foreign culture as to create a distinct, hybrid, cultural capital is a valid one, but specifically what this "capital" may be, how exactly it functions, and the manner in which it interacts with the well known "dark side" of cultural perception are insufficiently treated. Similarly, Zweigenhaft's (1993) finding that "public-school graduates seem to be more committed to the accumulation of cultural capital through academic achievement … [whereas those educated in private schools place] relatively more emphasis on the accumulation of social capital" through prestigious societies and clubs (Zweigenhaft, 1993, p. 223), is predicated upon a distinction between the two social "goods" unmade by Bourdieu.

Nevertheless, the fields under scrutiny in both Erel's (2010) and Zweigenhaft's (1993) studies are sufficiently similar to those which were the subject of Bourdieu's own investigations (e.g. Bourdieu, 1977, 1984; Bourdieu & Wacquant, 1998) that it would be invalid to accuse these latter works of lacking theoretical grounding—even if they fail to utilise it fully. Rather, these authors, together with Holt (2008), place an emphasis on Bourdieu which attacks at the level of theory what should be



treated on a methodological basis. Otherwise put, in using conclusions derived from his inductive methodologies as deductive first principles, they have done as he finds, but not as he works.

Indeed, given Bourdieu's own deep opposition "to the separation of theory and research" (Weininger, 2005, p. 120), it is reasonable to suggest that neither his methodologies, nor the classifications he derives from them, are suitable for the kind of transference evidenced in the above works. Any such attempt, even when conducted within broadly similar fields, risks falling victim to elisionary shortcomings based upon a failure to account for Bourdieu's foundational principles of reflexivity and specificity (Weininger, 2005).

Indeed, although the concepts Bourdieu developed have the appearance of generalisability, to remove them from the context in which they were developed adds no greater value than the multiple sub-classifications which have characterised the mainstream of social capital research. What Bourdieu has to offer is a model of how rigorous ethnography, allied to the judicious employment of multiple methodologies, has the potential not only to highlight, but to explain the processes and phenomena which constitute the social sphere in relation to their wider environment.

Bourdieu's investigative principles in this respect will be incorporated into the framework proposed in section three. However, as the examples discussed above have shown, modifications and addendums of this sort may easily be rendered useless by a theoretical framework which fails to complement them. Thus, before attempting to delineate a new approach, what follows shall begin with the detailed historical-theoretical analysis necessary to provide an appropriate conceptual foundation.

3. A theoretical reformulation: repositioning social capital within network theory

3.1. Challenging the false history of social capital

Following social capital theory's explosive emergence towards the end of the 1980s, there have been a number of post-hoc attempts to place what has at times appeared a somewhat disembodied concept within the contextual cannon of social theory. The extent to which these efforts prove convincing is debateable, however, due largely to the overbearing concern on the part of the theorists who write them (e.g. Farr, 2004; Putnam, 2001; Woolcock, 1998) with distinguishing social capital from the mainstream history of sociology and carving a niche which reflects what they argue to be the economic element of the theory's parentage.

Indeed, as Woolcock (1998, p. 159) argues, social capital's roots may be "traced to the Scottish Enlightenment" and Adam Smith's recognition that "norms of cooperation were needed to guide the invisible hand and market transactions" in his Theory of Moral Sentiments of 1759. As Woolcock (1998, p. 160) goes on to explain, however, "the role of norms and institutions in explaining economic life was suppressed for much of the nineteenth century ... as Utilitarians and classical political economists such as Mill, Bentham and Ricardo elected to take social science down the road pioneered by The Wealth of Nations", rather than Smith's earlier work, which, though long ignored by economists and economic scholars, would later "become the purview of the early French sociological tradition" (Woolcock, 1998, p. 160).

As such, together with Portes (1998, p. 44), who himself posits that the term "simply recaptures an insight present since the very beginnings of sociology", Woolcock (1998) is often at pains to demonstrate that in a great many ways the concept of social capital represents nothing new in academic thinking. Rather, as he seeks to present it, social capital has only recently coalesced, drawing together its various component parts from other disciplines, after Adam Smith's original seedling had germinated slowly, and in diverse locations, within the academic cannon.

In this respect, Woolcock's (1998) historical analysis is opposed by Farr's (2004, p. 12) account, which, being much closer to Putnam's original conception (Putnam, 1995, 2001; Putnam et al., 1993),



finds the genus of the social capital concept not in classical European sociology and philosophy, but in early nineteenth century American social reformism. Therein, following Putnam (2001), he identifies Hanifan (1916)—an American proponent of the "social centre movement"—as one of the earliest users of term. In a similar vein, Farr also credits the celebrated American philosopher John Dewey "as presenting the most authoritative philosophy for the movements of civic education and the texts of social capital" (2004, p. 14).

These two competing genealogies reveal a clear distinction between those who suggest, as Woolcock (1998) does, that social capital is a sociology of the economic, and those who, siding with Farr (2004) and Putnam (2001), view it as taking "the social' from capital's point of view" (Farr, 2004, p. 25). This division merits particular emphasis because so much of the criticism levelled at social capital theory is directed at the latter of these camps; indeed, the investigation of only two of the most commonly cited critiques: the "positivistic" (e.g. Goodhand et al., 2002) stance and the issue of fungibility (e.g. Fine, 2001, 2002, 2003), reveals that social capital, in its dominant guise can never answer or evade them. All capitals are positive assets and all are - although arguably to various extents (Bourdieu, 1984; Holt, 2008)—fungible. Thus, any attempt to couch social action in economic terms is burdened with an intrinsic, rather than merely incidental duty towards positivity and fungibility. Without these twin pillars, "the novelty and heuristic power" of social capital, thus envisioned, evaporates (Portes, 1998, p. 44).

Nevertheless, it is curious that those "social capital" models at which fewer criticisms have been directed as a result of their having either rejected or minimised the impact of these two premises (i.e. Bourdieu, 1984; Holt, 2008; Lin, 1999; Portes & Landolt, 2000), have served to shore up the edifice as a whole. Rather than being merely more nuanced versions of Putnam's (Putnam, 1995; Putnam et al., 1993) work, such formulations, regardless of their labelling, in fact represent a distinct genre, free from the burdensome fallacy that "social relations" need to be viewed as a quantifiable form of "capital" at all.

Indeed, rather than being the cornerstone of social capital theory that it is often assumed to be, the idea of the social as a bona fide capital has in fact crept into the discipline's lexicon only recently. Coleman (1988) himself preferred the term "appropriability" to "fungibility", and it is clear that the historical sources (Bourdieu, 1984; Dewey, 1904; Hanifan, 1916) cited by contemporary theorists as evidence of the concept's longevity were utilising the terminology in either a metaphorical or loose sense, to suggest linkages and a degree of co-variance between economic and social well-being, rather than as an argument that the two are in any sense the same.

As regards the historical and academic contextualisation of social capital, this recognition is a crucial one: it allows the theory to be viewed as a variant of network theory in the tradition of Simmel (Lewandowski, 2012; Scott, 1988) and—in its contemporary formulation—more closely "analogous to Burt's structural holes theorem" (Katz, Lazer, Arrow, & Contractor, 2004, p. 313) than to anything in the work of Adam Smith, Hanifan, or Dewey, who in any case have little to do with each other beyond recognising a social element in the mediation of desirable economic outcomes. Indeed, properly theorised, the social capital universe may be restricted to the rational self-interest paradigm of network theory, wherein "individuals consider the creation of ties as an investment in the accumulation of social resources" (Katz et al., 2004, p. 313). What follows shall demonstrate the benefits available to a social capital concept afforded its proper theoretical placement in this way.

3.2. Theoretical implications of false parentage: scalar aggregation and the network selection problem

It is something of a curiousity that work constructed according to a social capital framework, whether targeted at the investigation of micro-, macro- or meso- level phenomena, continues to leave itself so open to problems of aggregability, when its (albeit sometimes unrecognised) parent theorem has the bridging of these scalar gulfs as one of its core mandates in breaking from mainstream sociology. Granovetter (1973, p. 1360), for instance, the early driving force amongst separatist network



theorists, viewed the discipline as a solution to contemporary sociology's failure to "relate microlevel interactions to macro-level patterns in any convincing way", lauding "the analysis of processes in interpersonal networks ... [as] ... the most fruitful macro-micro bridge" (Granovetter, 1973, p. 1360) and one which could provide key insights into "social power as a social structural phenomenon" (Cook & Emerson, 1978, p. 721).

The key ingredient which allows Network Theorists to succeed in this respect, where mainstream social capital theorists (see e.g. Burt (2001) re: Coleman; Fine (2001, 2003) re: Putnam) and even Bourdieu (Lin, 1999) fail, is a recognition of the embeddedness of social ties within other forms and structures of social relations. From personal affinity to class, these overlapping structures complicate social relations to the extent that "understanding [them] requires more than merely aggregating the dyadic ties" (Katz et al., 2004, p. 312). Rather, "the flow of information and resources between two people depends not simply on their relationship to each other but on their relationship to everything else" (Ibid.), so that the investigation of any such linkages in isolation from their multi-scalar context is foundationally flawed.

This issue is closely related to the "network selection problem" which concerns attempts by social capital practitioners to measure the benefits accruing from social cooperation in a single way and on a certain scale. Although social capital theorists have signally failed to accomplish this end, they have, with notable exceptions, displayed an almost positivist zeal in pursuing it. Methodologies have been adapted, categories shifted, and in recent years the word nuance has even entered the semantic lexicon (e.g. Edwards & Foley, 1998; Kelly, 1994), but the inalienable goal remains the same: a single, transferable means of quantifying a person or community's net social resources in the same manner as their physical or economic assets.

As Bourdieu (1984) sought repeatedly to demonstrate, however, the researcher cannot simply be eliminated from the research process in order to obtain an objective result in this respect. Indeed, from a Network Theoretic perspective, any such endeavour is doomed given that what is discerned through experimental methodology depends upon the question under investigation and the manner in which it is investigated (Borgatti & Halgin, 2011; Scott, 1988). For this reason, the frequent attempts to refine and recategorise the constituent elements of social capital are little more than the product of "naïve concern" (Borgatti & Halgin, 2011, p. 2), as Borgatti and Halgin (2011, p. 2) go on to explain:

The typical anxiety is that "we may select nodes 'incorrectly', accidentally excluding nodes that should have been there and possibly including nodes that should not have been. In reality, however, the choice of nodes should not generally be regarded as an empirical question. Rather, it should be dictated by the research question and one's explanatory theory".

As such, rooting the concept of social capital within network theory evades two of the theory's key shortcomings by abandoning its core remit: to produce a deductive model of social relations which can be applied across a variety of situations and scales. Instead, a network theoretic social capital reifies context and locality, viewing social action as inherently linked to the environment in which it takes place. What follows shall seek to expand upon this principle, highlighting the necessity and advantages of first spatial and subsequently temporal context. Beginning with an outline of what social capital can learn from actor network theory, the following section will lay the theoretical foundations necessary for the framework to follow.

4. A repositioned theory in use: locating social capital in time and space

4.1. Spatial specificity: recalling the environment

Of the many lessons for social capital within the literature on actor network theory, perhaps the most profound is also the simplest: that "the social cannot be construed as a kind of material or



domain" (Latour, 2005, p. 1), but—much like a chemical compound—is inextricably bound up with the environment in which it manifests. In the absence of this premise, the social is abstracted and dislocated, not only from its environment, but from real social action, leading to "a biased, apolitical notion of what civic participation is, and ... [one which] ... encompasses only a part of civil society" (Daly & Silver, 2008, p. 547).

Moreover, as a result of this somewhat disembodied concept of the social, investigation has tended to proceed in one direction only, towards "the consequences of social capital" which, despite, or perhaps due to their status as the subject of fierce debate and contestation, have almost completely obscured investigation into "the causes of social capital", about which there are far "fewer propositions" (Daly & Silver, 2008, p. 558). Indeed, in spite of several decades of enquiry, it is a worrying indictment of the rigour of the field, that "the literature [remains] exceedingly vague about this" (Daly & Silver, 2008, p. 559).

Nevertheless, a consensus is gathering: constructive critiques (e.g. Holt, 2008; Lewandowski, 2012; Radil, Flint, & Tita, 2010) have begun to argue in increasing numbers that answers lie in the environment in which social interaction takes place. Thus, building upon those Network Theorists who have engaged with social capital, such as Wong and Salaff (1998), discussed above, "a focus on things coming together in specific spatial contexts" has led, almost inevitably, to the suspicion that "a more spatially sensitive theory of capitals" may be necessary in order to construct a picture of social goods of greater than superficial value (Holt, 2008, p. 239)

The recognition that "capitals are not simply inculcated in a vacuum" (Holt, 2008, p. 239) is, of course, no great innovation of social capital, and can be traced as readily to the adopted Classical Economic forefathers of the discipline as it can to the sociology of Simmel, whose metaphor of waterside and textile community social relations as reflective of the "intertwined mesh" of the fabrics produced and used therein (Scott, 1988, p. 110), demonstrates a clear appreciation of the interlinkages between the physical and social environment. Indeed, Simmel's work in many ways underpins not only network theory in general, but its socio-physical dimension in particular (Scott, 1988), which was described by Scott (1988, p. 120) in an early review of the literature as "provid[ing] a way of mapping sociological data into a form analogous to the maps of conventional geography and everyday life".

Largely as a result of the representational difficulties Scott alludes to in his review, however, success in this endeavour has been slow in arriving and despite continued proclamations that "the network perspective can help researchers integrate the internal workings of the group and the group's external environment" (Katz et al., 2004, p. 324), examples of such work are both limited and frequently flawed. Nevertheless, those examples which have emerged, in particular Radil et al.'s (2010) study of spatially embedded gang rivalries in Los Angeles, are replete with lessons for a revitalised social capital capable of investigating causes in addition to consequences.

Therein, they show that the adoption of a spatially "embedded" approach permits "evaluations of how differences in position in multidimensional spatialities can be said to relate to material outcomes" (Radil et al., 2010, p. 308). In the past, they argue, this has proved difficult or inaccurate in conventional network analysis because the assumption of "strict structural equivalence" which characterises the work of Burt (1992, 2001), Coleman (1988), Putnam (1995, 2001), Putnam et al. (1993), and to a much lesser extent Bourdieu (1984), "is a mathematical property of nodes in a network and typically unrealised in real data" (Radil et al., 2010, p. 311).

Viewed thus, the implications of Radil et al.'s (2010) study go far beyond their empirical findings. What is crucial is the manner in which the authors "begin with the recognition that space is socially constructed" and integrate this acknowledgement fully into their study, making the "construction process" itself the subject of their research (Radil et al., 2010, p. 321). By viewing social systems in terms of how and why they come to exist, rather than merely what they are able to achieve, this



study fulfils the very role that is missing from the current generation of social capital research, highlighting as it does that "the complexities of human spatial behaviour cannot be captured [by considering only] one type of embeddedness" (Radil et al., 2010, p. 310).

Furthermore, this drive towards greater holisticity—or, otherwise put, this move away from the reductionism of Putnamian social capital research towards a framework which seeks to investigate as many aspects as possible within a socially or spatially bounded system—is also a feature of the literature on actor network theory. Ergo, its advocates hold that "what we typically see as 'the social' is constituted by relations among humans and non-humans, and [therefore] that the divide between the natural and the social sciences should be broken down" (Bosco, 2006, p. 141). Whilst this principle is not necessarily novel of itself, the placement of collaboration at the core of social research methodology is one which is beginning, slowly, to gain a head of steam, following Burton's (1997, pp. 20–21) recognition that the persistent inability of the heterogeneous social sciences to generate deeper insights into human behaviour has resulted from the "separation of aspects of behaviours which occurred when knowledge was divided into disciplines at the end of the last century".

Indeed, that the literature on social networks comes not merely from sociology—or jointly from sociology and Classical economics, as Farr (2004) and Woolcock (2001) may prefer—but "from a federation of perspectives" (Bosco, 2006, p. 141) is evidence enough that the manner in which human beings interact has a bearing on a great many aspects of the environment, whether economic, political, environmental, social, or any combination thereof. Rather than attempting to narrow the impacts of social relations on each of these diverse fields to a single measurement, as has traditionally been the aim of social capital, what follows shall highlight the advantage of a framework which conceptualises the diverse motivations, causes and effects of social action in terms of their intended function. As will be shown below, this facilitates a framework which is not only contextually grounded, but dynamically responsive to changes in social behaviour.

4.2. Temporal specificity: change and function in the socio-physical environment

One of the most pertinent criticisms levelled at social capital theory in its current guise has been that which highlights the disjuncture between the existence of social systems and the reason for their existence. Indeed, as Bankoff (2007) notes, the Putnamian tendency to seek out formal, single-purpose civil society organisations in developing countries may potentially lead to the oversight of traditional, multi-purpose community organisations which exist, wholly or partially, in the form of norms rather than institutions and which, as he demonstrates in the case of community natural disaster responses in the Philippines, may become apparent only sporadically.

In accordance with Bankoff (2007), Pretty and Ward (2001, p. 219) note that "when groups form they do so to achieve a desired outcome ... likely to be in reaction to a threat or crisis, or as a result of the prompting of an external agency". By extension, such external prompting may, with equal likelihood, encourage a group to dissipate, or alter the manner in which it functions—a phenomenon documented at length within the anthropological and geographical literature by, for instance, Platteau and Abraham (2002), Rigg (2001), and Scott (1985), but which, with few exceptions (e.g. Adger, 2003; Oeur, Sopha, & Mcandrew, 2012) has been passed over by the social capital field. As such, where social capital research concedes the existence of a "dark side" (i.e. Portes & Landolt, 2000) it does so in such a way as to suggest that the social systems in question have always been "dark", and must be conceived of as separate to the generalised positivity of social relations.

Rather than engaging in normative classifications of this sort, a preferable conception emphasises "the social and biophysical facts that comprise the social reality" (Nelson & Finan, 2009, p. 305) and has been utilised to this effect by Fafchamps (1992), Fafchamps and Gubert (2007), and Platteau and Abraham (2002). In doing so, these authors provide evidence of a crucial tenet of socio-physical embeddedness: that the manner in which social systems operate depends to a large extent on the nature of the local primary income sources available (i.e. undifferentiated agriculture versus varied agriculture or fisheries) and their susceptibility to environmental and economic risk.



Indeed, evidence exists, within the risk literature in particular, that cooperative social systems, including, but not limited to those concerned with informal loans, and land and labour sharing, emerge in such a way as to reflect the prevailing ecological conditions. For example, "farmers living in an ecologically uniform area and carrying out activities which are similar from a risk point of view have little to gain by sharing or pooling their risks" (Platteau, 1991, p. 27) so that, rather than reflecting a fundamental characteristic of the national or international peasantry, as Popkin (1979) and Scott (1976) have famously argued, "a technical reason alone—the high covariance of yields—accounts for the difficulty of providing insurance against collective risks" (Platteau, 1991, p. 27). Those living in areas characterised by relatively heterogeneous risk levels, by contrast, are likely to find greater potential benefits to cooperation, as noted by Okamoto (2011) with respect to fishery-dependent communities in particular.

Moreover, although social responses to the environment such as these are engendered—in the first instance—at the local level, the interplay between community risk response and wider economic processes is increasingly coming under scrutiny within the labour migration literature. The role played by village level socio-familial networks in mediating shock-driven entrance to the Cambodian modern sector, for instance, is highlighted by Parsons, Lawreniuk, and Pilgrim (2014) and Parsons and Lawreniuk (2015), whilst various authors (Derks, 2008; Locke, Hoa, & Tam, 2012) have recorded how complex migration systems derive from and feed back to community associations and norms. Far from being discrete entities, the economy and environment combine to "re-inscribe" social relations via "discursive and material struggles around livelihoods and natural resources" (Elmhirst, 2008, p. 69).

Convincing linkages, such as these, between ecological systems, economic processes and social action serve to demonstrate two things: first, they highlight the manner in which "social capital" can be at once facilitatory and constraining at both the individual and community level. Second, they demonstrate the need for an embedded and spatialised investigation of how certain types of social relations emerge from, and influence the pursuit of, specific phenomena. Actor network theory has gone far in this respect, but is hampered by "an exclusive emphasis on case studies and empirical observation" (Cressman, 2009) which inhibits the constructive interaction of its component studies. Drawing together the lessons of the investigation herein, what follows shall present a framework capable of providing a methodological and theoretical "umbrella" to productively link such studies.

5. Proposed framework

One of the key sources of scepticism regarding social capital's "burst into prominence" (Fine, 2003, p. 586) since the turn of the millennium resides in its positioning as evidence "that economics [is] colonising the other social sciences as never before" (Fine, 2002, p. 18) and consequently that its expansion is more parasitic than progressive. This view is counterproductive. At the very least, the rise of social capital has created a valuable, albeit imperfectly theorised, field of enquiry, which in its very positioning—between the economic and the social—invites holisticity and interdisciplinary collaboration.

Indeed, as Adler and Kwon (2002) note, following Hirsch and Levin's (1999) assessment of the decline of Organisational Science in management studies, social capital is best defined as an umbrella concept, "which are often necessary for establishing intellectual linkages among otherwise isolated researchers" (Hirsch & Levin, 1999, p. 205). Thus, if it is to locate a persistent value, then social capital must not be viewed as a discipline in and of itself. Rather, to borrow the language of network theory, the social capital field must become the node at which the vertices leading from several disciplines converge. Similarly, it must be recognised that what is currently referred to as social capital is in fact a number of overlapping and dynamic functionalities which work in diverse ways to achieve different ends (McGrath, Arrow, & Berdahl, 2000; Scott, 1988), rather than a single, mono-variate resource.

As such, the idea that it is possible to identify the "correct", or even an "optimal", combination of variables is itself a fallacy carried over from social capital theory's erroneously constructed



theoretical parentage. Rather, it must be a core recognition of future work on social capital that "it is the researcher ... that defines a network" (Borgatti & Halgin, 2011, p. 2) so that any investigation of it proceeds, as a matter of first principle, from a clearly specified field of investigative vision, in the manner undertaken by, for instance, Bourdieu in relation to class (1984), and academia (1984); Wong and Salaff in relation to labour migration (1998); Holt (2008) in relation to disability; and Radil, Flint and Tita in relation to gang rivalry (2010). Otherwise put, they must seek to investigate the social capital [defined simply as those social interactions and structures which facilitate or inhibit the pursuit of *specific* goals] of x in y.

In essence, then, whereas previous social capital research has tended to be concerned with the *identification* of productive interaction, sorted (and sometimes measured) according to formal classifications derived from a given strand of the theory, what is proposed shall seek to understand precisely *how* such interaction is productive and *why* it has emerged as such. To adopt Borgatti and Halgin's (2011) Network Theoretic dualism, what is sought is both a theory of social capital and a fuller social capital theory, wherein the conceptual principles of the former inform the methodologies and research agendas of the latter. Thus, keeping in mind that any such effort must represent merely a guiding, rather than foundational framework, the following schema emerges from the foregoing discussion:

Theory of social capital

- (1) Social capital, viewed as a rational action formulation of network theory, is not a resource, but a number of overlapping and dynamic functionalities. Social capital analysis must therefore proceed from the principle that the researcher determines what kind of social capital they find, via the type of resource they elect to investigate the pursuit of.
- (2) Although a network perspective is essential to the analysis of social capital, it is a core recognition of this formulation that social networks, whether productive or constraining, are embedded within the physical and economic environment, as demonstrated by Bosco (2006), Radil et al. (2010), and as outlined in depth by Bourdieu (e.g. Bourdieu, 1977, 1984; Bourdieu & Wacquant, 1998).
- (3) By encouraging the investigation of why socio-physical linkages emerge in the manner that they do, a functionalist viewpoint, as utilised in a variety of studies outside of the social capital literature (i.e. Nelson & Finan, 2009; Okamoto, 2011; Platteau & Abraham, 2002), provides the most promising grounding for a theory of social capital. Thus, by working "upwards" from a specific functionality, as opposed to utilising the kind of top-down classification which has tended to characterise social capital research thus far, a functionalist approach encourages the investigation of several social systems, and the cross-cutting linkages between them, concurrently. Furthermore, in an inductive manner analogous to Bourdieu's work (e.g. Bourdieu, 1977, 1984; Bourdieu & Wacquant, 1998), it seeks to place methodological flexibility and the employment of mixed methodologies at the core of social capital research.

Social capital theory

- (4) Social capital must eschew definitional issues in favour of exploring cross-cutting social systems and multi-scalar linkages. Thus, rather than utilising transferrable classificatory frameworks, focussing on, for instance, bonding, bridging and linking ties, social capital research must be set up in such a way as to capture as fully as possible the structures and forces which influence the transfer and use of a particular resource (whether social or physical) in a particular place.
- (5) In order to explicate not only the primary, but also the underlying, embedded structures which influence the chosen focus, linkages with non-social systems must be addressed. Multimethods, collaborative, research is therefore a key element in this formulation and it is expected that a combination of quantitative and qualitative methodologies will characterise any associated work.



(6) In order to accommodate this holisticity, social capital research must be grounded both thematically and geographically. Studies focussing on breadth and generalisability (i.e. Adler & Kwon, 2002; Putnam, 1995; Putnam et al., 1993) have consistently failed to produce convincing results, whereas smaller scale and more specifically targeted research (i.e. Pellini, 2004; Wong & Salaff, 1998) has tended to fare better in spite of the issues which undermine current social capital formulations. The benefits of socio-economic and physical contextualisation are key to this differential success.

As such, this research-led expansion of social capital theory aims, first, to understand the impact of the "social element" at work in the transfer and management of particular resources and second, to delineate the embedded, multi-scalar, social and physical factors which affect the extent of this impact (positive or negative) for various persons and groups. In doing so, this framework seeks to address several of the failings highlighted above within the contemporary and foundational social capital literature by repositioning the field as firmly within network theory, but nevertheless characterised by a commitment to the investigation of linkages between social (inter)action and the physical, economic and natural resources within which—and because of which—it takes place.

6. Conclusion

The object of the framework presented herein has been to recast social capital as an embedded network theory of the economic, rather than taking "'the social' from Capital's point of view" (Farr, 2004, p. 25), as previous work has tended to. This reclassification is intended not only to absolve the field of the problems associated with the capital label and the issue of fungibility, but also to provide a sturdier conceptual base upon which to tackle the associated issues of scalar aggregation and the network selection problem, both of which are significantly mitigated when network analysis is conducted within an appropriate environmental context.

In doing so, this framework seeks to incorporate and build upon recent work conducted under the auspices of actor network theory and commodity chain analysis which, though preferable to the contemporary social capital formulations discussed above, nevertheless possess their own shortcomings in isolation. Their usage in conjunction, however, permits the *concurrent* investigation of social networks and institutional systems operating at higher scales (and therefore facilitates a basic analysis of covariance and mutually important nodes), as well as lending itself to the investigation of their interaction and dyadic recreation.

In summary, then, a failure to investigate two key linkages underpins a number of social capital's shortcomings: first, that between the physical environment and local social systems and second, that between the physical environment and multi-scalar institutions, including the market and political administration. A reformulated social capital must seek to draw together the study of these linkages, whose importance is widely acknowledged, but in which respect data is dispersed throughout the academic canon in such a way as to preclude analytical dialogue between the elements of a complex and holistic system.

Indeed, in the light of a plethora of studies such as Hank's (1962) and Ledgerwood's (2007) recognition of the (natural and economic) resource-led dynamism of patronage, and Bush (2004) and Le Billon's (2002) findings regarding the interconnectivity of patronage and multi-scalar resource distribution, it emerges as illogical to compartmentalise such systems further. Whereas social capital, as an enumerator of social interactions in small groups, is little use in rectifying this foreclosure, social capital, viewed as an environmentally functionalist, embedded, network theory of the social element of resource distribution, holds some potential in beginning to delineate the whole.

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