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Environment as a Resource, not a Constraint

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Abstract

In this article I argue that the study of contextual issues in economics has been limited in its scope because economists have mostly conceived of the environment as a constraint on individual action. I identify and discuss three conventions that pull economists into such conceptualization of the environment. For each of the three I provide ways forward for contextual economics to avoid the pull. I then employ insights from the recent cognitive science on socially extended mind to demonstrate how the project of contextual economics as envisioned in this article can benefit from reconceptualizing the environment not as a constraint on individual action but as a resource for constituting socially extended cognitive processes. Rather than being simply about gathering more and better data, contextual economics can offer a powerful approach for studying social world based on entangled interactions between individual actors and their environments.

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1. Introduction

In their manifesto for contextual economics, Goldschmidt, Grimmer-Solem, and Zweynert (2016) argue that the *raison d'être* of contextual approaches is that mainstream economics has been too narrow in its scope by relying on an isolated view of individuals and their actions. As such, it has neglected the importance of the wider social, institutional, and historical context in which those individuals are embedded. Many might be tempted to agree with this statement immediately. However, it is actually hard to maintain that contemporary orthodoxy ignores the study of how environments affect economic outcomes. To the contrary, the study of institutions has been fully incorporated into the standard economic framework (e. g., Williamson

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2000), and orthodoxy has "pragmatically" accepted behavioral economics' emphasis on framing and choice architecture (Chetty 2015). For many economists, doing contextual economics may hardly mean much else than doing more of what has already been done. On this view, addressing contextual issues is purely a matter of collecting more and better data. Does this mean, consequently, that there is no distinct place for a self-consciously contextual approach to economics?

Answering this question requires us to delve deeper into the underlying conceptualization of context in economics. In this paper I argue that existing mainstream approaches that integrate contextual issues into economic analysis share a particular perspective: context matters precisely because it shapes behavioral outcomes by imposing various internal and external constraints on individual action. Such a perspective, however, is arguably not the only feasible view. The central methodological question legitimizing a distinct contextual approach to economics should thus not be *whether* context matters, but *how* and *why* it matters. The aim of this paper is, first, to examine and refine the "context matters" dictum; and then to suggest a distinct theoretical ground for contextual economics that differentiates it from existing approaches which analyze environment as a type of constraint.

The central argument of this paper builds on the assertion by Sturn (2016) that contextual economics should abandon the notion of economizing within "the orderly world of pure economic transactions" as its central analytical concern (80). Instead, it should move toward embracing the analysis of "complex, messy situations" (*ibid.*). Sturn (2016) argues that the exclusive focus on economizing has resulted in the neglect of certain types of contexts where scarcity is not the defining feature but where various non-scarcity interdependencies result in dynamics of increasing returns. This view, however, still conceives of the environment as having an essentially passive role. To make progress, I suggest that contextual economics should rather focus on yet a further type of interdependence wherein the environment becomes an active part in cognitive processes extending beyond the individual mind. I draw on recent developments in cognitive science based on rejecting the view of cognition as being limited exclusively to the individual brain in favor of understanding cognition as stemming from interactions between the individual and her environment. Hence, the discussion in this paper also contributes to the literature on manners in which economics can be integrated with psychology and cognitive science.

We proceed as follows. Section 2 discusses how context has been conceptualized within both neoclassical and behavioral economics, thereby identifying a lacuna to be filled by contextual economics. Section 3 addresses three common-sense conventions implicit in the standard approaches. These conventions create a pull towards conceptualizing the environment as a constraint. With regard to each I propose alternative ways forward for contextual economics. Informed by this discussion, section 4 develops a reconsideration of the role of the environment: rather than a type of constraint, it should be instead seen as a resource. Section 5 concludes.

2. Circumventing the Perceived Danger of Relativism: Environment as a Constraint

For many economists, the idea that contextual factors matter for economic analysis carries a seed of relativism: how are we to do economics as a science if every economic action depends on its given context? The standard answer to this dilemma circumvents the problem altogether by focusing on the pure logic of choice: a context-less logic based on the relationships between abstract entities. In contrast to historians or sociologists, to whom such a perspective more often than not reveals a particularly limited understanding of the social and economic world, economists' focus on context-independence in their analysis is a feature and not a bug. It shields analysis from the dangers of contextual relativism.

Combining the pure logic of choice with the most widely accepted definition of economics – economics as the study of efficient allocation of scarce resources among competing ends – the standard analysis treats contextual factors as additional constraining factors on the efficiency of allocation. In other words, the relationship between the individual agent (or firm) and her context resembles the way the maze structures and influences the movements of a mouse trying to reach a snack in the middle of it. Such analysis in economics is mostly cast in terms of constrained maximization and associated with the so-called economic approach to human behavior (Becker 1993). This approach has been incredibly successful in generating powerful accounts of human behavior within a wide range of contextual settings. But maximization must in the first place, of course, assume something which is being maximized. Most generally, what is maximized is the utility which the individual gains from satisfying her preferences in the most optimal way possible. Stigler and Becker's (1977) (in)famous assumption that preferences are given and fixed has turned the focus exclusively on the analysis of means for achieving the desired goals, delegating questions about the nature of wants to other disciplines. The individual in standard economics carefully plans her actions in order to get the most out of what is possible, given the constraints she is facing.

By concentrating on the properties of this individual and isolated maximizing entity, the neoclassical perspective has been notoriously *a*-social and *a*-cultural. It has prominently neglected the role of institutions in economic and social life. However, the importance of economizing remains paramount also for institutionally minded economists (Sturn 2016). For example, in Williamson's (2000) institutions-based model of multi-level economizing, higher levels are imposing constraints on the levels immediately below. From level zero, which consists of the mechanisms of the mind, to level four, where the everyday continuous marginal adaptation in the allocation of resources takes place. Characteristically, the hierarchy is linear and the influence unidirectional: mechanisms of the mind constrain the culture, culture constrains institutions, institutions constrain governance, and governance constrains the allocation

of resources.[1] The purpose of the processes on each level is explicitly tied to solving the optimization problem (i. e., "getting it right") within those constraints. In this framework, the environment is "the rules of the game" that structure incentives and transactions costs. In turn, incentives and transactions costs constrain and shape behavior and are thus considered – assuming, of course, that people are "maximizers [that] maximize, *always and everywhere*" (Leeson 2020, 146, emphasis in original) – as determining factors for economic and behavioral outcomes. In this sense, such analysis of institutions stands solidly in the neoclassical tradition of spotlighting relative costs and benefits as the relevant determinants of behavior. However, as Sturn (2016) points out, the focus on economizing within constraints has led economists to ignore certain types of contexts where the relationship between individual agents and their environment is not as straightforward as standard theory suggests.

A parallel development that forced economists to squarely face the problems of context occurred through the rise to prominence of behavioral economics. The attempts of behavioral economists to open up the black box of preferences have corrected some of the aspects of the standard approach by forcefully showing that revealed preferences are context-dependent. However, by conceptualizing contextual and environmental influences as exogenous factors, behavioral economics takes a decisive turn inwards. It focuses on the psychological and cognitive mechanisms inside the head of the individual, which may lead to biased actions when influenced by the external context. In contrast to Williamson (2000) who delegates the possible influences of the mechanisms of the mind only to the pre-cultural level zero, behavioral economists conceive of psychological constraints as continuously present on the level of everyday decision. Importantly, these psychological constraints are dependent on the context in which decision-making takes place. Behavioral economists analyze the different contexts in terms of different frames within which a decision problem can be presented (Tversky and Kahneman 1981). For example, the way the choice among various snacks is presented in the supermarket (e. g., by placing them in different order) will likely affect what the customer will buy. Such examples of individual inconsistency of choice within different contexts are then used to argue that the environment affects preferences simply by framing the decision problem differently. And since behavioral economists consider stability of preferences to be one of the normative hallmarks of rationality, it can be thus said that, on this view, environment imposes a constraint on rational thinking. Framing effects count as evidence of context-induced irrational behavior.

Another step away from the isolating view has been described recently as *strand two behavioral economics* (Hoff and Stiglitz 2016). This second wave of behavioral economic analysis aims to break the focus on the individual psychological mecha-

[1] Although Williamson's schema in principle allows for feedbacks on every level, they do not enter the analysis. His justification for this omission is unclear, but he appears to be assuming that on the temporal scale relevant to his analysis feedbacks do not take place. As he puts it, "although, in the fullness of time, the system is fully interconnected, I mainly neglect these feedbacks" (Williamson 2000, 569).

nisms and to branch out into more social aspects of decision-making. Rather than inherent psychological cognitive biases, it is concepts such as identity and culture which gain prominence in its analysis. However, the turn inwards remains, because strand two behavioral economics follows the conventions of cognitive psychology by conceptualizing culture, social identities, narratives, and other social factors as various mental models existing in the mind of the individual. Context is thought of as a factor that triggers particular mental models which the individual then "[uses] to process information and interpret the world" (*ibid.*, 36). Via the concept of mental models, contextual and social factors become additional arguments in the individual utility function (see *ibid.*, section 5.7). Despite the repeated claims of the centrality of social interaction for their argument, this over-reliance on cognitive psychology nevertheless makes strand two behavioral economics vulnerable to the objection raised by Davis, who argues that "rather than *contextualize individuality* … [these approaches] *internalize sociality* by giving the utility function an unmistakably social dimension" (2011, 69, emphasis added).

The preceding overview helps us refine the case for a differentiated approach to contextual economics. Again, my criticism is not that mainstream economics ignores context. My main objection is that it arrives at it through the individual. It conceptualizes the environment as a particular constraining factor that has a role in shaping individual behavior. The main constitutive methodological question for contextual economics as a distinct analytical pursuit can thus be stated as follows: how should contextual economics go about contextualizing individuality without reducing to the internalization of sociality? In order to better answer this question, in the following section we will address in more detail three common-sense assumptions – all implicit in the standard approaches – that create a strong pull towards the conceptualization of the environment as a constraint. I argue that these assumptions stand in the way of a more fully contextual approach to economic analysis. Resolving the problems associated with them will point us toward a more distinct theoretical foundation for contextual economics.

3. Three Problematic Conventions Underlying the Constraint-based Views, and How to Overcome Them

Apart from offering powerful analytical tools, conceptualizing the environment as a constraint on individual action appears to most economists to be a matter of common-sense. However, it is actually not at all obvious why it should be so. In this section I argue that it appears so straightforward because economists are pulled into the constraint-based view by tacitly employing one or more of the following "common-sense" conventions: (i) the obvious first step in the analysis is to separate and isolate the environmental variables from individual action; (ii) veridical perception – as reflected in a disinterested representation of a true state of the world – is the gold

standard that characterizes the normative ideal; and (iii) the individual brain, resembling an input/output machine, is the natural locus of information processing. Granted, all three conventions are related and overlapping. After all, they all represent a pull towards the same direction of conceptualizing the environment as a type of constraint. Yet, they relate to different aspects of thinking about contextual problems: the first relates to the analytical procedure, the second to the ontology of the environment, and the third to the nature of cognition. I will problematize each of them in turn and discuss how the proposed alternatives can help us in reconsidering the central subject matter of contextual economics.

3.1 Convention 1: The Analysis Starts by Separating and Isolating the Variables

The first problem to be emphasized has to do with the fact that in all of the above-mentioned approaches the individual agent and her environment are assumed to be, at least in principle, analytically separable and independent. The analysis starts with some form of optimization calculus at the level of the individual. The environment is broken down into a set of constraining variables, which are then added to the calculus where they are conceptualized as co-determinants of behavior in terms of their constraining properties. On this view, environment is an *add-on* to whatever is considered rational economic action. Thus, the resulting calculus can be simplistically represented as: *rational action* + *environmental constraints* + *cognitive limitations* + *narratives* + ... In general, the add-ons are all the elements that complicate the clean and frictionless fundamental picture. This "rational + x" perspective can be most clearly recognized in standard economic theory, where the assumption of rationality defines the very nature of the individual agent.

Behavioral economics, however, may seem to be anything but a "rational + x" account, since it was developed primarily through showing the inadequacy of the rationality assumption. Yet, the explicit appeal by behavioral economists to the normativity of the rational choice theory (see, for example, Tversky and Kahneman 1986) reveals the underlying relatedness to neoclassical analysis (see also Berg and Gigerenzer 2010). Let us again consider the framing effects as an example. Behavioral economists today typically talk about choice architecture, which refers to the particular structure of the environment that is explicitly designed and presented to bring about certain behavioral patterns. Choice architecture can be designed to exploit or to cancel out a particular cognitive bias that is inherent to the psychology of the agent. On a closer look, however, behavioral economists appeal to an *inner rational agent* that serves as an indicator of the individual's true preferences against which the outcomes observed in the behavioral experiments are assessed (Infante, Lecouteux, and Sugden

2016). This inner agent corresponds to the neoclassical image of a fully rational individual, which makes behavioral economics in its essence a "rational + x" account.[2]

In neoclassical economics, the important implication of the assertion of analytical separability is that economic action can be decontextualized in principle. Much of the explanatory power of its theory derives from the claim of being context-free and thus readily available to be applied to any specifiable context. Behavioral economists, on the other hand, have shown that behavior is always context-dependent – choice in the supermarket may be rational under one frame and irrational under another, but it will inevitably have to be presented within some frame. Decontextualization, however, is relevant in behavioral economics as well. Behavioral analysis implies that there exists an abstract essence of the problem – knowable to the observing experimentalist – which can be framed differently in order to measure the framing effects. For example, in the famous "Linda problem" (Tversky and Kahneman 1983), different frames may lead the subjects to choose one option or the other. However, what really matters (normatively) are the underlying logical relationships based on the probability calculus.[3] In other words, framing of the problem is imposed on individual reasoning to divert it away from its logical path.

This discussion touches upon the perennial discussion about the agency/structure dualism in the social sciences, which revolves around the relationship between "active agents and … constraining social structures" (Loyal 2012, 1). However, Collins argues that this debate mostly "confuses the distinction of micro/macro with the distinction between what is active and what is not" (2004, 5), which mistakenly leads the subsequent discussion to be about what it is that propels the activity forward. In standard economics, this is evident by the centrality of the maximization assumption that accounts for the "energy" propelling forward the individual action. But, as Collins points out, this energy is always about the "processes of real human beings doing something in a situation" (*ibid.*, 5). Resembling the point made by Dewey that "[living] in a world means … [to] live in a series of situations" where "the conceptions of situation and of interaction [between individuals and objects and other persons] are inseparable from each other" (1938, 43), Collins proposes to start with the situation – rather than the individual – and to focus on the interactions that constitute and characterize it. As he argues, "we get more by starting with the situation and developing the individual, than by starting with individuals; and we get emphatically more than by the usual route of skipping from the individual to the action or cognition that ostensibly belongs to him or her and bypassing the situation entirely" (Collins 2004, 3).[4]

[2] For a more exhaustive discussion of framing in behavioral economics, see Rizzo and Whitman (2020, 69–75).

[3] For a critical discussion of the Linda problem, which emphasizes that people actually use contextual cues to their advantage rather than being merely misled by them, see Hertwig and Gigerenzer (1999).

[4] See also Popper ([1945] 2013) arguing that "'psychological' part of the explanation is very often trivial, as compared with the detailed determination of [individuals'] action by what

For contextual economics, the move away from the analytical focus on the properties of an individual within the exogenously determined context to the focus on the situation and the interactions within that situation promises a viable way forward in overcoming the internalized and constraint-based view of the environment. It points to the importance of changing the unit of analysis. We should not only study the structural characteristics of institutional and social environments, but the various social practices, relationships, and interactions that define them.

3.2 Convention 2: Veridical Perception Is the Benchmark

The second convention relates to the first one in that they both involve existence of a one-and-only objective and invariant point of reference. However, rather than stemming from a common-sense intuition about analytical separability of individual action and external influences, the second convention has to do with how perception is generally understood. A view to which many economists tacitly subscribe is "perceptual omniscience or an all-seeing view of perception" (Felin, Koenderink, and Krueger 2017, 1042). The following quote captures it vividly: "We see *correctly* – 'veridically' is the official term – to the extent that we manage to emulate the All-Seeing Eye. To the extent that we miss out on this, we live in a state of blindness. To the extent that we deviate from it, we dwell in a state of illusion. Each equally embarrassing" (Koenderink 2014, 2, emphasis in original). This implies that there exists an objective picture of the environment, where objectivity refers to the state of affairs as seen by an omniscient entity. Furthermore, this objective camera-like picture of the environment defines the benchmark of unbiased perception that forms a basis for unbiased rational action. The assumption of perceptual omniscience draws the focus of economists into identifying the conditions that cause individuals to fail to meet the benchmark.

The role of perceptual omniscience is rather explicit in behavioral economics, evident by the statements such as that we are "blind to the obvious" and by the frequent analogies with visual illusions (Kahneman 2011; for a discussion see Chater *et al.* 2018). Thus, the problem to be explained is agents' errors in the perception of some obvious and invariant features of their situation (Tversky and Kahneman 1986). Crucially, these invariant features come to resemble the axioms of rational choice theory. For example, economic agents are in the framework of behavioral economics considered boundedly rational (or sometimes even outright irrational) if they attach utility to relative gains and losses, rather than to the absolute levels of wealth as should

we may call the logic of the situation" (308); Ostrom (2010) on the centrality of action situations for institutional analysis; and Smith and Wilson (2019), who recently raised a similar objection when arguing that their "narrative" approach to experiments is unlike framing, because narratives provide the context in which the decision becomes meaningful. In other words, a decontextualized problem is meaningless and cannot be used as a benchmark for the evaluation of framing effects.

be the case in the expected utility framework. But, as Rizzo and Whitman ask, "why shouldn't *expected utility agents* be considered limited or bounded because they are *not* sensitive to gains and losses (except to the extent that they affect absolute levels of wealth)" (2020, 32, emphasis in original)? It does not obviously follow from the experimental observations that there is some mechanism at work that limits perception and rationality. Felin, Koenderink, and Krueger point out that behavioral economists, following both Herbert Simon as well as Kahneman and Tversky, treat the environment as having "a true, actual nature … which can be learned over time" (2017, 1044). The environment is thus supposed to have an objective and invariant existence that can be defined and measured in absolute terms. Consequently, this objective state of the world as perceived by an assumed all-seeing eye is adopted as a normative benchmark in behavioral economics. Thus, it is central for the evaluation of rationality of actions based on such perception.[5]

But, as Felin, Koenderink, and Krueger argue, "perception *necessarily* originates from a perspective, or point of view" (2017, 1049, emphasis added). Consequently, the environmental cues do not exist independently of the observer. They are, therefore, also not simply given triggers for particular mental models, as proposed by strand two behavioral economics. In order to perceive contextual cues as relevant, agents first need to conceive of them as cues in the first place. This becomes clear when applied to the issue of entrepreneurship. As Lavoie argues in his discussion on the discovery of entrepreneurial profit opportunities, "entrepreneurship is not a matter of opening one's eyes, of switching on one's attentiveness; it requires directing one's gaze" ([1991] 2015, 59). Perceiving an opportunity as an opportunity means interpreting it as such. And context plays a crucial role in the process of interpretation "because it gives meaning to outcomes" (Smith and Wilson 2019, 159). However, the interpretation does not happen *ex nihilo.* The entrepreneur interprets profit opportunities by relying on a specific pre-existing cultural framework that enables her to direct her attention. Similarly, Boltanski and Thévenot claim that "subjects do not constitute the meaning of a scene by the gazes they bring to bear on it" (2006, 144) but that what we perceive is mostly pre-interpreted. In their view, people have no choice but to perceive things in certain ways or notice what is relevant in a situation, because interpretation is directed by the particular province of meaning (Schutz 1962) that the agent relies upon in a given situation.

The emphasis that we simultaneously live and act in different worlds, each governed by its own distinct logic, provides a clear alternative to the perspective of omniscience.[6] Rather than assuming that the problem is how to access the invariant

[5] Gerd Gigerenzer claims that one of the main points that differentiates his proposed alternative to standard behavioral economics is that in his account heuristics are "functional, not veridical" (Chater *et al.* 2018, 801). However, the emphasis on functionality does not rule out the constraint-based view of the environment.

[6] Variations of this perspective are found in Schutz (1962) on multiple realities, Thévenot (2001) on pragmatic regimes, Boltanski and Thévenot (2006) on worlds of justification, and Thornton, Ocasio, and Lounsbury (2012) on institutional logics.

objective reality blocked by a variety of interfering factors – which creates a strong pull toward the constraint-based view – the starting problem of this perspective is to determine the particular interpretive framework that agents rely upon in making sense of their situation, which influences the very meaning of rational action within a particular logic.[7] Researchers cannot rely on their own common-sense notions of what matters in particular situations (Smith and Wilson 2019). An opportunity for contextual economics thus lies in utilizing the "multiple worlds" perspective in order to bring the analytical focus to the interpretive dynamics taking place between and within the plurality of different provinces of meaning that economic agents inhabit.

3.3 Convention 3: Cognition Is a Matter of the Mental Processes in Individual Minds

When discussing the possible reasons for why philosophers and economists are often drawn to the idea of an inner rational agent who is affected by the "alien" (to him or her) constraining psychological forces, Sugden (2018, 66) speculates that this may be due to the tacit acceptance of a particular view of human mind and cognition. According to this view – consistent with the so-called cognitivist paradigm in cognitive science[8] – cognition refers to the processes of symbolic manipulation of the internal representations of reality, where these processes are ontologically linked exclusively to what happens in the brain (Newen, Gallagher, and De Bruin 2018). In line with this internalist and representationalist view of cognition as software running on the hardware of the brain, economists usually conceive of the individual agent as an input-output machine that takes the input received from the environment through the senses and – combined with existing preferences – transforms it into plans of action directed at preference-satisfying behavior (Ross 2014). Psychological realism claimed by behavioral economists comes from separating mistakes and true preferences, but the basic image remains the same: cognitive biases are a case of bad software (Lecouteux 2016).

The internalist view can be contrasted with the view of cognition as extending into the world rather than being confined to the processes in the head. The so-called extended mind hypothesis (Clark and Chalmers 1998) is part of a family of related

[7] The institutional logics literature makes it explicit that it is not only about institutions as constraints: "Institutional logics represent frames of reference that condition actors' choices for sense-making, the vocabulary they use to motivate action, and their sense of self and identity. The principles, practices, and symbols of each institutional order *differentially shape how reasoning takes place and how rationality is perceived and experienced*" (Thornton, Ocasio, and Lounsbury 2012, 2, emphasis added).

[8] For the discussion of the core tenets of cognitivism, including its "deliberate decision to de-emphasize certain factors … [including] … the contribution of historical and cultural factors, and the role of the background context in which particular actions or thoughts occur," see Núñez *et al.* (2019, 783).

approaches in recent cognitive science that emerged out of the "immanent critique" of the brain-bound and representationalist view of cognition within the cognitivist paradigm (for overviews see Wilson 2002; Robbins and Aydede 2009; Newen, Gallagher, and De Bruin 2018).[9] The central argument of the extended mind hypothesis is the so-called *parity principle:* "If, as we confront some task, a part of the world functions as a process which, were it done in the head, we would have no hesitation in recognizing as part of the cognitive process, then that part of the world is (so we claim) part of the cognitive process" (Clark and Chalmers 1998, 8). The classic examples of such extended cognitive processes include paper-and-pencil calculations, where the cognitive process of calculation cannot be separated from the external artefact; and relying on notes for the retrieval of information, where it is argued that the process is essentially the same whether I engage with either the memories stored in my brain or in the notebook.

However, the idea of extended cognitive processes does not apply only to various physical tools and technologies as the vehicles of extension. It applies also to other minds we interact with, institutions, and social practices. This is captured by the notion of *the socially extended mind* (Gallagher 2013), which suggests that cognition should be looked at "in terms of activities and processes, such as problem-solving, decision-making, judgment, etc." (Petracca and Gallagher 2020, 7). On this view, cognition is extended when the individual agent "couples with" an institution or practice. At the center of this approach are the so-called *cognitive institutions* that "consist of those practices, rules and structures that have been instituted for cognitive purposes (such as making judgments, making decisions and solving problems)" and without which "specific classes of cognitive processes would simply not exist" (Slaby and Gallagher 2016, 33–4; for an application to economics see Gallagher, Mastrogiorgio, and Petracca 2019, and Petracca and Gallagher 2020). A typical example is the legal system, which is not just a set of rules governing our actions but a set of institutions that make legal reasoning possible in the first place. By engaging with these institutions through various practices – such as contracting, court procedures, and argumentation – one "plugs into" the system and so extends one's cognitive problem-solving ability.[10] In stark contrast to the cognitivist account that conceives of cognition

[9] This family of approaches is not entirely coherent, and researchers working within the paradigm vary considerably in their commitment to the relative strength of the claims. The perspective is thus far from settled. However, the approaches share a common thread of thinking of cognition as not bound to the mental processes in the head. At the moment, the whole family of approaches is gathered most comprehensively under the umbrella term *4E cognition*, standing for *embodied, embedded, extended,* and *enacted* cognition (see Newen, Gallagher, and De Bruin 2018). Acknowledging the role of embodiment, the nuances in the level of extendedness, and the question whether the extended mind hypothesis nevertheless still assumes the center of cognition to be in the head, this paper adopts the term 'extended mind' as a colloquial term to refer to the whole paradigm.

[10] "Contracts are institutions that embody conceptual schemas that, in turn, contribute to and shape our cognitive processes. They are not only the product of certain cognitive exercises but are also used as tools to accomplish certain aims, to reinforce certain behaviors, and to solve

primarily in terms of computational processes, cognition in the (socially) extended mind approach refers to a process of active engagement with the (social) environment.

This points to the pragmatist roots of the extended mind approach. For pragmatists like Dewey, cognition is a form of action in the environment (Gallagher 2009), which implies a more direct engagement with the world than the cognitivist Cartesian vision based purely on inner mental processes. Accordingly, the individual agent perceives the environment directly by way of the potential actions that the environment makes possible. That is, in terms of *affordances* (Gibson [1979] 2015).[11] This suggests that it is not only various physical tools and technologies, but also other people, social and institutional structures, and abstract categories (Felin *et al.* 2016) which can offer possibilities for interaction and engagement as a direct part of extended problem-solving cognitive process (Petracca and Gallagher 2020). The pragmatist emphasis on action, environmental affordances, and direct perception also means that much of what we do does not involve any contemplation about the aspects of the environment with which we are interacting. As I am finishing this paragraph, I am not thinking about the keyboard under my fingers; I write. When I present a paper at a seminar as part of the development of my ideas, my activity is not the result of processing the mental representations of the academic conventions and the institutional structure of the university; I simply discuss with my peers, which is a result of directly perceiving, and acting on, the social affordances made possible by both the institutional (and social) environment of the university department and the practice of a university seminar.

There are two related implications of accepting cognition as extending into the world, which point to a promising way forward for contextual economics. First, the perspective implies a different kind of interdependence: individual-environment cognitive couplings. Due to the non-computational and non-representational nature of the (socially) extended cognitive process, the dynamics of such couplings are simply intractable from the perspective of the standard framework. Contextual economics could explicitly study the situations and contexts where direct interactions between the individual and the environment are central. The second take-away from accepting this position is that cognitive processes do not refer only to computational processes. For economics, this means that the act of economizing should be rethought. For what is economic action if it is not some kind of calculation of costs and benefits, if it is not maximization within a set of constraints? The following section offers a reconsideration of the role of the environment that utilizes the discussed alternatives to the unit

certain problems. Institutions of property, contract, rights, and law not only guide our thinking about social arrangements, for example, or about what we can and cannot do, but *allow us to think in ways that were not possible without such institutions.* Insofar as we cognitively engage with such tools and institutions we extend and transform our cognitive processes" (Gallagher 2013, 6, emphasis added).

[11] Pezzulo and Cisek define an affordance as a "potential action that is made possible to an agent by the environment around it" (2016, 415).

of analysis, to perception, and to cognition, in order to propose a view of the environment not as a constraint but, rather, as a resource.

4. "Context Matters" Reconsidered: Environment as a Resource

In section 1 we defined the methodological challenge of contextual economics to be how to contextualize individuality without relying on reductive internalization – a common characteristic of a social utility function – of environmental and social constraints. In this section we reconsider the "context matters" dictum in light of this challenge. The aim is to shift the emphasis in the understanding of the role of the environment from a passive constraint on individual action to an active factor in the constitution and carrying out of cognitive processes. The argument develops through three stages, progressing from conceptualizing environment as a resource of potential actions; through acknowledging the (often distributed) knowledge embodied in its various components; to, finally, emphasizing environment as providing resources for constituting socially extended cognitive processes.

4.1 Environment Is an Expanding Opportunity Set of Potential Actions

Our discussion in the previous section revealed the important role of the environment in making possible various affordances – or potential actions – that individual agents can directly engage with in the process of (social) interaction. This is the view of environment as an *affordance landscape* (Pezzulo and Cisek 2016), which "can be physical, but also social and cultural" (Gallagher 2017, 174). To emphasize the economically relevant dimension of choice among various options, I will describe this conception of the environment as *an opportunity set of potential actions.*

This opportunity set is, however, far from static or given. Developmental researchers studying humans' ability to interact with each other have argued that "infants gradually learn about their world through learning the interactive potential of aspects of this world. They learn what they can do with it and how it reacts, that is, what happens as a result of their actions. They come to perceive their world in terms of potential actions" (Carpendale, Frayn, and Kucharczyk 2016, 195). It probably comes as no surprise that discovery and learning feature heavily in developmental studies, but for us this helps to emphasize an important additional point about the nature of the environment as an opportunity set of potential actions: it is ever-*expanding,* based on learning and discovery that occurs as agents are acting and interacting within it. When we are acting and interacting in the world, the environment, more importantly than simply providing a set of constraints, serves as a learning ground for discovering

potential actions it affords. Thus, the expansion of the opportunity set does not occur as a result of an exogenous change in the structure of the environment, but rather as a result of learning and discovery of the interacting potentialities it offers.

However, being good in social practices and interactions goes beyond only knowing the correct code or script. This means that the learning process is not about uncovering rules for more successful interaction, but about developing expertise in what Dreyfus (2014) referred to as *skillful coping:* the state of being absorbed in an interactive situation. In the well-known model of skill acquisition, Dreyfus and Dreyfus argue that rules-based systems cannot capture expertise, "since expertise is based on the making of immediate, unreflective situational responses" (2005, 779). Learning to directly perceive the social affordances that are tied to specific situations, and how to exploit them, requires the agent to acquire a certain level of expertise in the (social) practice. Following context-free rules is a sign that the agent has not yet gained understanding of the relevant context, and it is thus a characteristic behavior of a novice.[12] This adds an interesting perspective to the characterization of the standard neoclassical economic agent, where the ability to stick to context-free rules is a hallmark of rationality. Therefore, institutions analyzed as a set of rules will only ever offer a partial answer. Granted, a novice needs rules because she does not yet know what is relevant. In this sense, rules are important on the basic level because they help to stabilize interactions in a specific context (Linson *et al.* 2018). But an important implication for economics is that learning the rules alone does not uncover the relevant incentives, because only when the agent masters the skills that enable her to perceive what the environment affords will she be able to fully understand the activity. And such an understanding is a prerequisite for interpreting the meaning of the relevant incentives in a given situation.

In addition to not being static and given, the environment as an expanding opportunity set of potential actions also does not have any objective existence in the sense of being perceivable by an omniscient being. As emphasized above, the pragmatist emphasis on skillful coping when dealing with the world brings attention to the continuous process of learning and developing new ways of engaging with the world. But rather than learning as a process of uncovering true and objective underlying features of the environment, this implies learning as a creative process of discovery of previously non-existent opportunities. As Felin *et al.* (2016) argue, "uses are not ontological properties of a resource per se, but rather are *attributions of specific actors*, to the extent *actors perceive* resources – as affordances – by means of potential uses that such resources enable" (138, emphasis added). This aspect is obviously important for the study of entrepreneurship (Koppl *et al.* 2016), particularly as related to the emergence of latent markets (Cazzola Gatti *et al.* 2020), since the perception of

[12] "Normally, the instruction process begins with the instructor decomposing the task environment into context-free features that the beginner can recognize without the desired skill. The beginner is then given rules for determining actions on the basis of these features, like a computer following a program" (*ibid.*, 782).

entrepreneurial opportunities and the ability to act on them are highly dependent on the level of skill an actor possesses. But it is also highly relevant for our understanding of organizational dynamics.

To see this more clearly, we first need to reconceptualize the idea of work from maximizing some objective function to perfecting one's craft (Klamer 2016). For example, a librarian working within organizational and institutional structure of a library is continuously acquiring particular knowledge of time and place (Hayek 1945) and gradually becoming more and more competent at her job. As she is perfecting her craft of librarianship, she is also both discovering and expanding the scope of possible actions and interactions within the practice and within what the library as an institutional and organizational environment makes possible, which is leading her to further discover what it means to be a good librarian. But crucially, this process has important spillovers for the organization as a whole. Expanding the opportunity set of potential actions means opening up new lines of work, which in turn creates a positive feedback loop of further specialization and division of labor. Organizational development is thus directly linked to the ability of the organizational infrastructure to afford active engagement and skill development.

We do not only use environment, however, but also actively create and shape it to serve our cognitive needs. In this sense, institutions are resources that have a particular mode of being produced, maintained, and reproduced (Dekker and Kuchař 2020), which has a dynamic that is quite different from the standard thinking about the diminishing returns from a fixed factor. The central role of action and interaction in developing and sustaining institutional resources makes such resources shared goods (Klamer 2016). The counterintuitive characteristic of such goods – for example, friendships or conversations – is that as you use them, you actually have more of them. Such increasing returns dynamic is central to understanding the environment in an active way as an expanding opportunity set of potential actions.

4.2 Environment Serves as an External Resource of Embodied Knowledge

Skillful action and interaction are not all that exists concerning the active engagement between individual and environment. Extended cognitive processes crucially rely on "external (and conventional) cognitive schemas and rules … provided by the … institution itself" (Gallagher 2020, 214). These conventions are resources of embodied knowledge that emerge in the workings of an institution. Let us consider an example. As one walks into a bookstore, one is faced with the problem of how to buy. Simply contemplating the thousands of available titles, potentially on different media, can be an overwhelming experience. However, the spatial layout of the shop, various sorts of lists and rankings, and different product categories that establish and qualify relationships and groupings, all help in guiding one towards solving the problem. As such, they are all vital parts of the practice of buying. Context clearly matters because

it provides the proper cues, established through previous practice, which help one solve the problem by simplifying the cognitive load.

This aspect of environment is explicit in the idea of prices aggregating and communicating the knowledge dispersed throughout the economy, where the knowledge of the relative scarcities and desirabilities of goods is distilled to a single number (Hayek 1945). But viable knowledge can also be embodied in various cultural practices, such as the practice of people forming a queue (Hutchins 2014). Forming a queue goes beyond a mere array of people. A queue clearly indicates the point of service, lets everyone know who comes next, who came before whom, and how long it will approximately take to get to service. It is not simply an external source of information, but a participatory device that actively helps in solving a coordination problem. In a similar sense, a book review is a judgment device that plays a vital role in solving the uncertainty problem in the market for books by serving as a guidepost that helps orient the actions of consumers (Karpik 2010). Dekker and Kuchař (2020) argue that these judgment devices and cognitive practices are *instruments of interpretation:* institutional elements that are particularly important because they enable interpretation that is "needed to transform [the] institutional sources of information into knowledge that can guide action" (31). As such, they are pivotal in making institutions effective in Lachmann's (1971) sense: as signposts that orient individual plans and form expectations about the future actions of others. On this view, the environment consists of social and institutional resources that we may draw on when we need them to tell us what to do.

Interpretation having such a central role in the process raises two problems, however, that need to be addressed. The first is how and why people understand the devices and practices in particular ways? Why does a queue embody the order of arrival? And how do we tell when to ask for a friend's recommendation for a good book and when to consult a critical consensus among the experts? This implies that there exists a more or less tacit (intersubjective) understanding of cultural practices, institutions, and judgment devices. In other words, the world mostly descends on us in pre-interpreted fashion and ready for use. This underlies the importance of the processes of socialization and initiation (Gallagher 2020; see also Smith and Wilson (2019) on the role of *maturation* in the formation of moral sentiments). As Zawidzki (2013) argues, the general relevance of such processes is that they homogenize us as members of the community of interpreters by providing us with a common interpretive framework within which the shared interpretation instruments can indeed serve as vehicles of extended cognitive processes and which have coordinating powers.

While stable meanings are important prerequisites for institutions to be successful as coordinating devices, interpretive frameworks are never fixed. The second problem is thus that there is always a latent possibility for circumventing the norms that homogenize the social world, or for applying a different interpretive framework. This means that situations that shake the stability of accepted meanings will be especially interesting topics of study. In such conflictual situations, the different interpretive

frameworks which are employed by the interacting agents are revealed, and a reconciliation is required in order to solve the problem (Boltanski and Thévenot 2006). Importantly, the solution to a problem does not depend on any notion of veridicality with respect to the interpretive framework. Rather, it resembles a game-theoretic convergence: actors must simply reach a common agreement on what the right framework is. In such moments, the important question is not only how people choose the proper framework, but which interpretive frameworks are at their disposal? This suggests that another important potential research topic for contextual economics is to study the unequal distribution of access to available interpretive frameworks.

4.3 Environment Has an Active Role in the Cognitive Processes

As discussed above, the socially extended mind perspective suggests that cognition should be understood in terms of various interactive problem-solving processes that are constituted as the individual agents act and interact within so-called cognitive institutions. We thus move away from the "rational + x" model (where the environment is conceptualized as a variable in the individual maximizing calculus) to the idea of the environment and the individual agent as being coupled and entangled to such extent that a particular cognitive process can only take place through this coupling. However, it is not only that institutions have a constitutive role in cognition. New institutional resources are constantly emerging through these actions and interactions. This means that the individual-environment coupling is bi-directional: individual actions and interactions shape the various rules and practices which, in turn, shape the subsequent actions and interactions. For example, a music chart, which serves as a judgment device for the individual buyer making a purchasing decision, is simultaneously transformed in the process. The chart thus reflects and embodies decision-making processes of all the individuals that engaged with it up to the present moment.

There are two interesting issues that arise as a consequence of this bi-directional influence taking place through interaction. One is methodological, the other conceptual. Concerning the former, the general challenge of extended cognition approaches based on individual-environment couplings is that, because the "agent and environment exert continuous and mutual causal influence on each other … agent and environment cannot be modeled as separate systems. They are instead best modeled as a single extended cognitive system" (Kiverstein 2018, 4). Similarly, Ross rejects "descriptive individualism" on the grounds that "our economically interesting preferences … are generated in and by the social and material marketplaces where we interact" (2014, 311). And Davis (2016) suggests that, since individuals are constituted (individuated) through their relations to others and their environment, this may call for a reconsideration of the relevant unit of analysis. Individuals and their environment should perhaps be studied jointly. This raises a practical issue of how to

actually go about such an approach. The discussion in this paper suggests that one possible answer to this – and a viable strategy for contextual economic research – is to shift the focus from studying the mechanics of individual actions and decisions to studying situated social practices in which individuals engage when pursuing their cognitive goals. The concept of social practices implies both individual actions and particular situations in which they take place, yet it is not reductionistic in terms of getting to the environment through the individual. Within a practice perspective, the elements of the environment – such as conventions, judgment devices, and other instruments of interpretation – play an active role in the analysis and are not subordinated to the individual choice calculus.

The relevant conceptual issue follows from recognizing that the continuous bi-directional transformation implies a central role of action and interaction in the process. In this regard, Petracca and Gallagher point out that "once we acknowledge the centrality of social interactions and of the dynamical notion of constitution, institutions are no longer understood, as in Denzau and North and as in Clark, as structures that merely constrain and enable individual actions" (2020, 16).[13] But, how should institutions be understood instead? The answer suggested by the literature on cognitive institutions is to shift the understanding of institutions from *shared mental models*[14] to *shared mental processes.*[15] This conceptual change shifts the focus from analyzing the effects of the institutional structure on the individual agent to understanding the dynamics of the knowledge embodied in various institutional elements as the result of continuous actions and interactions.

The answer to our initial methodological question of how to properly contextualize individuality thus suggests two ways forward: on the one hand, contextual economics would benefit from studying situated social practices and other resources for extended cognitive processes as the relevant units of analysis. On the other hand, the way

[13] The reference to Clark in this quote is (mostly) about his landmark book *Being There* (1997) where – influenced by the conversations he had with Douglass North – Clark develops the notion of *scaffolding institutions.* This notion, however, still views institutions essentially as constraints.

[14] "Institutions are the rules of the game of a society and consist of formal and informal constraints constructed to order interpersonal relationships. The mental models are the internal representations that individual cognitive systems create to interpret the environment; the institutions are the external (to the mind) mechanisms individuals create to structure and order the environment" (Denzau and North 1994, 4).

[15] "If we think of the mind not as a repository of propositional attitudes and information, or in terms of internal belief-desire psychology, but as a dynamic process involved in solving problems and controlling behavior and action – in dialectical, transformative relations with the environment – then we extend our cognitive reach by engaging with tools, technologies, but also with institutions. We create these institutions via our own (shared) mental processes, or we inherit them as products constituted in mental processes already accomplished by others. We then engage with these institutions – and in doing so, participate with others – to do further cognitive work. These socially established institutions sometimes constitute, sometimes facilitate, and sometimes impede, but in each case enable and shape our cognitive interactions with other people" (Gallagher 2013, 7).

forward is opened up by conceptualizing institutions as shared mental processes. In both cases, the mechanics of individual action and decision-making are not at the center. Rather, the interactive aspects of the relationship between the individual and the environment are. And in both cases, it is required that we shift our understanding of environment from the conception of a constraint to the conception of a resource.

5. Conclusion

I have argued in this article that taking contextualism in economics seriously entails going beyond viewing the environment as a constraining variable in the individual agent's decision-making calculus aimed at maximization. We cannot understand the social world by analyzing context *into* individuals' minds. Proper contextualization of individuality implies a move away from the analytical focus on stable preferences as the benchmark for rational action towards a focus on stable situations and practices providing sense-making settings for meaningful action and interaction. Such a move enables a much broader understanding of social dynamics which takes place as agents interact with each other and with their environment, engage in various problem-solving social practices, and build relationships that define their roles within the processes of social interaction. In order to make this move, however, we must understand cognition not as an internal process performed by individual brains, but as a process that extends across interacting individuals, elements of their environment, and the various practices that shape action and interaction. This article has demonstrated that context matters because the environment is a resource for extended and shared cognitive processes.

Viewing the environment as having a constitutive role in cognitive processes, rather than as simply being an add-on to individual action, has important consequences not only for the understanding of interactive and organizational dynamics on the micro-scale, but also for understanding the developments at the macro-level of society and culture. As society becomes more complex, the opportunity set of potential actions afforded by the social environment expands as well. A complex society involves a broad variety of interactive situations that afford a large number of possible individual-environment cognitive couplings. Contextual economics, as envisioned in this article, contributes to understanding dynamics on both micro- and macro-levels and provides a framework for a comprehensive study of complex social processes.

This new vision of contextual economics transcends the standard institutional critique of neoclassical economics by incorporating the continuous bi-directional transformative influence between the individual and her institutional environment. Moreover, it transcends the psychological critique by showing how individual psychology and cognition are entangled with the environment through situated social practices and interactions. Contextual economics thus conceived also raises a larger question of whether we must abandon some of our methodological commitments,

such as methodological individualism or the explanatory focus on optimization or rule-following. The conceptual shift from institutions as shared mental models to institutions as shared mental processes entails the impossibility of treating agents and environments as separate systems. However, if the environment not only helps individuals to achieve their goals and provides the information and rules that the individual actors employ in their planning, but rather plays a constitutive role in cognitive problem-solving processes, then caution is warranted about the relevant unit of analysis from a methodological perspective. Thus, the first step when doing contextual economics might be to take seriously the possibility that the properties of an individual agent – irrespective whether actual or representative – might not be the appropriate starting point for analysis.

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