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STRUCTURALISM IN MODERN BUSINESS-CYCLE THEORY
A FRAMEWORK FOR A STRUCTURALIST
RECONCEPTUALIZATION

BY

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Structuralism in modern business-cycle theory

A framework for a structuralist reconceptualization

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Abstract: In this tiny paper, a possible framework for a structuralist analysis of modern business-cycle theory is considered. In order to respond to the debates around the realist and instrumentalist interpretations of the works of Friedman I will provide a framework in which the tension between the opposite standpoints can be overcome. Based on epistemic structural realism, firstly, I will identify Friedman's stance as a mix of agent-level instrumentalism and macro-level causal realism and, secondly, I will scrutinize the consistency of this epistemic strategy. I will argue that causal realism requires one to be realist regarding the assumptions defining agents as well.

Keywords: structural realism, entity realism, business-cycle theory, unrealistic assumptions

JEL codes: B22, B41

It was Hoover (2009) who provided the strongest stimulus to analysing the problem of the ontological status of modern business-cycle models in a structuralist framework. Studying F53 in the context of Friedman's *oeuvre*, Hoover argued for Friedman's causal realism. For Hoover, Friedman designed his assumptions with a view to causal realism. In this interpretation, the underlying assumptions need to be designed in accordance with the relevant

* Any opinions expressed are those of the author and not those of the Center for the History of Political Economy, Duke University.

causal mechanisms. This stance can be boiled down to a tenet in structural realism according to which our theories do not need to be (approximately) true if one is satisfied with a model appropriately highlighting the structure of the relevant facet of reality. Theories do not need to be more than useful fictions if the relevant causal mechanisms are effectively brought to the fore (Psillos, 1995, p. 24). In this case, as Psillos (2006) puts it, objects (entities) play only a heuristic role and they are confined to allowing for the introduction of the fundamental structures that carry the ontological weight. So, we need to reconceptualise the entities in a structuralist manner. In this case, structural realism and an entity-level instrumentalism go hand in hand. I think, this mix describes most clearly how Hoover interpreted F53.¹

If we put the emphasis on structures this strongly, it is still a question how radical the stance of F53 is. The problem is even more difficult for the descriptions of epistemic structural realism (ESR) and ontic structural realism (OSR) often intermingle. In this context, it is enough to refer to the debates around the possible reconstructions of Worrall's stance, who was the first to suggest structural realism. It seems to be correct to say that in the case of ESR no emphasis is on entity-descriptions. Although it is the entities who carry the relations, these relations are conceived to be describable even without entities and their first-order properties, for the entities are unobservable and hidden behind the veil of agnosticism. For the proponents of ESR, reality can be known only in structural terms, whilst objects are in existence, but we cannot know them—or we cannot have firm knowledge even of their mere existence (French & Ladyman, 2011, p. 27). OSR has a more radical standpoint. In this framework, entities are only the nodes of a structure. Entities are completely dissolved in the structure due to their structuralist decomposition. Accordingly, over and above structures

¹ The difficulties in interpreting F53 seem to stem from the authors' intentions of talking about entity or structural realism on the one hand, and from their analysing F53 only or the oeuvre of Friedman on the other.

there are no things in the world to know. Structures do not need to be underpinned by related objects and their properties.

In OSR as well, the emphasis is still on structures, while conceptualising entities in structuralist terms. Even though entities are conceived to be in existence, structures have grown to be exclusive and ontologically primary whilst entities are metaphysically otiose. Thus, the ideas underlying ESR and OSR are different. Whilst ESR refers to an alleged epistemological constraint that prevents us from knowing the unobservable entities, OSR eliminates such objects (Chakravartty, 2003). It is possible to cite an ontology other than our common, object-oriented one, but it is still questionable whether the idea of structures without related objects is viable at all (Stanford, 2003, p. 570). In terms of the relation-relata connection, Chakravartty (2003, p. 871) talks about conceptual dependence. For the time being, it is doubtful whether OSR can successfully solve this dependence.

In a social scientific context as well, OSR would entail a worldview in which the surrounding reality is only structure and nothing else. However, attributing this stance to F53 seems to be implausible. Not only for OSR is tied to quantum mechanics (Morganti, 2004, p. 83) and, being so, is unlikely to fit social sciences, but also for the solid microfoundations of modern macroeconomics, including Friedman as well. This project can hardly be reconciled with a metaphysical foundation that eliminates the individual as a micro-unit in order to abandon the object-oriented ontology (French, 1998, p. 107). Such a worldview means that structure is not supervenient on the existence and properties of individual objects. Using OSR as an interpretative framework makes sense only if individualisation of objects is problematic (French & Ladyman, 2003a, pp. 37-38). However, economics is not like this. Friedman was particularly willing to apply assumptions defining economic agents, thus his focus on the structure was unlikely to drift him even to OSR. Such an interpretation would seriously distort his theoretical stance. Friedman's alleged causal realism cannot plausibly be traced back to

OSR, since his stance was not to interpret agents in a purely structuralist fashion. By contrast, Friedman attributed distinct properties to his agents and built the structure upon (the relations of) these properties. The genuine question is whether a verisimilar structure-representation requires a distinct way of designing agent-level properties.

Within the framework of ESR the problem I can solve is whether the representation of relations can be separated from the representation of entities. I will argue that structural realism cannot do without entity realism. In other words, a structuralism detached from the representation of entities (i.e. from the approximately true descriptions of agents) is not a viable option in economics. Structure and causality are of primary importance in creating scientific knowledge. In these terms, the only problem is that knowledge of a structure cannot be separated from the knowledge of entities. Their causal properties and dispositions are of crucial importance in forming their (causal) relations. Dorato (2000, pp. 1624-1625) also argues that in order for an entity to stand in specific relations, it needs to possess specific properties. Entities having other properties stand in other relations, thus properties of entities are not neutral in terms of relations.

The core of the problem lies beyond the fact that our assumptions used in models are empirically invalid (Weber, 1949, p. 87). Elsewhere (Galbács, 2017) I argued that entity-level assumptions in economics commonly regarded as ‘unrealistic’ can come from two distinct methodologies. One is the pure instrumentalism. The other that Weber attributed to neoclassical economics is the realist case providing concepts that can be regarded as approximately true. Weberian ideal-types are built upon such realist assumptions that are devoted to highlighting the real causal structures. It is questionable whether both methodologies are compatible with (macro-level) causal realism, or casual realism requires some realism of entity-descriptions.

Arguing for realistic entity descriptions has long traditions in general philosophy of science. Richard Boyd (1983) stands up for a *naturalistic theory of reference* the most important task of which is to clarify how to design the assumptions that define the entities. In Boyd's view, model entities should take resemblance to their real counterparts in a very subtle and refined way. Thus, the content of the concepts we use is established by the real properties of real entities. However, this is still not the case of direct description. Even though we can make it a requirement that our concepts should refer on the basis of real properties, this is not an effective argument for entity-realism in order to achieve structural realism.

It is worthwhile to consider why causal realism can be discussed in the context of structural and entity realism. There is no unique and commonly accepted view on the relationship between causality and the fundamental structures. Advocates of OSR pay particular attention to the close connection of causality and structure. Starting from (French & Ladyman, 2003b), Esfeld (2009) makes efforts to regard them as equivalent (causal-cum-structural equivalence). For him, fundamental structures are causal structures. The structuralist reconceptualization of entities and their properties means that relations possess inherent causal empowerment. In other words, this causal empowerment is not grounded by the entity properties (French & Ladyman, 2011, p. 40). However, Psillos (2006) thinks that OSR is not an adequate framework for causal considerations since in this framework cause and effect are impossible to distinguish. Psillos conceives structuralism to be insufficient on its own to draw this distinction, so he puts causality back into object-oriented ontology, where structures relate entities having properties. Chakravartty (2007, pp. 89-141) puts the questions of causality and structure on a common basis, i.e. the properties of objects. By so doing, he can discuss causality and structure simultaneously. Chakravartty has no difficulties in giving high priority to entity-level properties in the context of causality and structures, since he does not doubt the existence of these detectable properties. Thus, such properties can play a crucial role in

causality. For him, structure is made up of the relations between causal properties, and it is these causal properties that make entities have certain dispositions and causal roles. Causality works along the relations between causal properties. Entities possessing definite properties serve as an ontological resource on the basis of which *change* can be conceptualized. Changes happen to objects, and what happens is dependent on the properties of objects (and other related objects). Chakravartty (2003, p. 872) refers to this peculiarity as the *causal dependence* between relata and relation.

In the usual concept of causality, the assumed nature of time raises some concerns. However, in Chakravartty's framework such doubts do not arise at all on account of the way he clarifies the role entity properties play. Meanwhile, causality relating events as a *simplification* can remain in use. The most profound objection to causality concerns the very nature of causal mechanisms. Chakravartty's idea is promising for along its lines we can sidestep the objections with reference to the nature of time: they do not raise at all. Moreover, he puts forward a more tenable suggestion as for causal mechanisms. For him, causal mechanisms/relations relate circumstances and properties that contribute to the emergence of events. By this shift, in terms of causality the emphasis relocates to the properties of entities. These properties explain how the entities behave in certain situations and under certain circumstances. Thus, it is the properties of entities and not the events themselves that are related in a causal structure. Events look like being adjusted along a causal chain, since it is the entities the causal properties of which (and their relations) set up the casual mechanism in fact. Causal structures are made up of the relations between causal properties: however, it is the entities and not the events that possess these properties. A causal property confers dispositions for behaviour: such a property prescribes how an entity must behave or act in interactions with others. So, it is causal interaction of objects that underlie causality. In such interactions, properties undergo changes and the behaviour of entities also change

consequently. This approach solves the problem of events acting as causes and effects, since entities with causal properties are involved in continuous process of interactions. Thus, a causal mechanism is a system of relations between properties that make the entities involved in causal interactions.

This approach is particularly beneficial to economic epistemology, since it facilitates the study of economic laws. Entities with the same property behave in the same way under the same circumstances which makes it possible to draw general laws. Thus, together with causal processes general laws are also traced back to the properties and their relations. This is the reason why causal realism can be discussed in the framework of structural realism. In other approaches, such a direct identification is impossible. In the traditional interpretation, a causal mechanism relates events, while a structure relates objects. Chakravartty (2007, pp. 61-63) could place causal analysis and structural analysis on a common ground, i.e. causal properties of entities. Therefore, the analysis of causal realism (both in general and in particular cases) can be carried out in the more sophisticated framework of structural realism.

Chakravartty and OSR agree on that fundamental structures are causal structures (2011, p. 31). However, for Chakravartty, causal connections stem from entity properties standing in relations. It is still possible that causal mechanisms can soundly be conceptualised in OSR as well. But if one picks objects to be the primitives in his theory, he cannot be satisfied with instrumentalist entity-level assumptions, given that structures consist of the relations between entity properties. On this showing, it stands to reason that verisimilar structure descriptions require verisimilar entity descriptions.

In the literature, there is a common trend for confronting entity realism and structural realism. The latter option makes sense only if structural realism is not to have entity realism as a prerequisite (Worrall, 1989; Psillos, 1999, p. 108). Scientific realism, be it structural or entity realism, is rarely more than highlighting some relevant partial truths. Thus, if structural

realism is detached from entity realism, it amounts to abandoning the requirement of the correspondence (i.e. approximate truth) between model and reality at the entity-level.² The only question is whether there is a minimum requirement for designing abstract entities. This problem concerns the correspondence between the properties of our entities (objects or *agents* in the case of economics) and reality (Giere, 1988, p. 78); or in other words whether it is possible to succeed in structural realism through models built on non-realistically defined entities (and their properties and the relations of these properties).³ Even though Worrall's (1989, p. 117) answer was positive, it is still doubtful whether an alleged focus on structural/causal realism can exempt us from giving approximately true descriptions of the postulated entities. If we conceive structure to be observable whilst entities are unobservable (Laudan, 1981, pp. 22-24; Worrall, 1989, p. 118), whilst structural realism still requires entity-level *structural* assumptions, then it is not the limits of observability that compel us to abandon the fairly liberal concept of entity realism in economics. If structure is independent of the related entities, it would be unnecessary to give up entity realism and reference. If our entities are really independent of the embedding structure, then we have no reason to draw up entity descriptions that lie cross to everyday or common-sense experience (strictly speaking, in such a case we would not need entities either). Even though in physics we are uncertain of the nature of the entities beyond experience, this tenet cannot be a principled argument in economics for setting aside what we know or can reasonably assume⁴ (Psillos, 1995, p. 20; Schmidt, 2010, p. 508). Even those who argue for OSR call attention to the fact that in the

² This is not the only attempt to solve the problem raised by the referential status of theoretical terms. Cruse and Papineau (2002) and Papineau (2010) establish their epistemological scientific realism on the possibility of re-formulating scientific theories in Ramsey-sentences, where this referential status is irrelevant. In this framework, the nature of the entities is of no importance: anything can be related in a given structure that fits that.

³ According to Worrall, a structure can be described properly even if we miss the entities. A version of this idea is when entities in our models are formed so that their design could be instrumental in highlighting some pre-given laws. This is the entity-level instrumentalism that can be regarded as the stance of F53.

⁴ This is not to be mistaken for the circumstance that mapping the causal structure is always on a hypothetical ground for causality is unobservable in a strict sense. However, we are still free to regard the causal structure as an objective feature of the world.

realm of observable phenomena there is no need to relinquish the ontological priority of entities (French & Ladyman, 2003a, p. 41). The properties of economic agents that are relevant in structural and causal terms do not compel us to abandon traditional scientific realism, since in their case we have the epistemic grip that facilitates verisimilar entity descriptions (French, 1998, p. 422; 2006, p. 177). When Hacking (1983, p. 264) talks about some commonly shared beliefs about entities, he refers to such properties that are true and accepted irrespective of the theoretical backgrounds.

When it comes to Friedman's causal realism, the genuine problem concerns whether revealing the real causal structure is possible while omitting the real properties of the related entities. The intuitive answer is negative. As it is the object-oriented ontology that characterizes the microfoundations project of modern macroeconomics as well, entity realism seems to be indispensable. Properties of the objects prescribe the way objects are related. Structural realism without entity realism means that whilst we are interested in the real relations, the related entities are only of secondary importance. According to ESR, it is possible to describe a structure whilst the nature of the related entities remains veiled for we have no access to such natures. It stands to reason that we cannot latch onto those properties that are unobservable thus natural in structural terms,⁵ whilst we describe the structure at the level of the structure itself, detached from the entities. Here we have conflicting ontologies. If objects take priority, then they are indispensable (French & Ladyman, 2003b, p. 76).⁶ Reconciling the ontologies is far beyond the scope of this paper, but it is unnecessary indeed, since choosing the most appropriate ontology should be dependent on the purpose of the application. The

⁵ There are properties that we cannot describe in structural terms (Ladyman, 1998, p. 418), but they are omittable. However, in the case of economic agents, the knowledge of such properties is not corrupted.

⁶ Esfeld (2009) gives an outstanding description on this. He also details that moderate version of OSR that allows structures to have embedded objects (Esfeld, 2013). However, entity description is still minimal for entities do not possess identities beyond their relations. This conception was born in order to block the critique according to which structures without related things cannot be conceived and in order to remain as close to the original notion of OSR as possible. In the meantime, the radical form of OSR claiming that it is only structures not the entities that are in existence is still in use.

idea of describing the structures while omitting the related things cannot be refuted by arguing for the traditional object-oriented worldview. However, if we are not compelled to abandon the object as the basic and constitutive unit of a structure, then it is a problem whether a verisimilar (or approximately true) structure description is possible when entity properties are not in the game. In an object-oriented ontology, these properties are of crucial importance in terms of the relations.

In this context, Chakravartty (1998, pp. 400-402; 2007, p. 134) underlines that structural knowledge entails knowledge of the structural properties of entities.⁷ Structure stems from certain properties of objects. In other words, knowing the structure is the same as knowing those properties of the objects that are relevant with regard to their relations. Relations contain information about the entities. This information describes the structural properties of the objects. A given structure is only compatible with certain entities: those it relates (Chakravartty, 2007, p. 67), thus structure is not neutral regarding the objects. In other words, a description of a real causal structure cannot be built upon entities without the properties of real objects (agents). Since a description of a causal structure requires entity-level assumptions as well (as structure penetrates the objects), entity realism (regarding the relevant or structural properties) is a prerequisite for causal realism. *Structural and causal properties of objects are not transcendent to structure.* In his critique on structural realism, Psillos (1995, pp. 31-32) highlights that describing a structure is exactly the same as describing the way entities are related and the way entities act in these relations. Consequently, if one wants to describe a real structure, he needs approximately true entity descriptions. Moreover, Psillos (2001, p. 20) argues that one can reveal even some non-structural first-order properties on the basis of relational properties, since there is no epistemological gap in between. Focusing on structural/causal realism does not exempt us from providing realistic entity descriptions

⁷ Psillos (1995) obtains similar conclusions.

(oftentimes not even in the case of non-relational properties), since knowledge of the structure and knowledge of entities entail each other (Chakravartty, 2007, p. 59). However, if our objects (entities) in the relevant aspects bear no resemblance to their real counterparts, then our knowledge can be negative at best. The world is evidently different from our ideas.

An analysis of a mechanism is to be tied to reality, or else our knowledge cannot even be applied to reality. This is the intuitive answer. It follows that realism about structures sets a minimum standard for entity descriptions, so entity realism is required. The lack of entity realism cannot be complete, and the design of our entities cannot be ad hoc.

Psillos (1999, p. 107) scrutinizes the entity-level assumptions in terms of the role entities play in the success of a theory. Psillos underlines that entities contributing to success must be truth-like. The instrumentalist assumptions of Friedman's Phillips curve, however, are suspicious for they are of crucial importance in drawing the (theoretical and economic policy) conclusions. But for them these conclusions cannot even emerge.

As far as Friedman's Phillips curve is considered, the property of agents that employees and employers perceive price dynamics in different ways is a structural property for it is causally active. This implicit property is a prerequisite for the causal mechanism working as Friedman theorized. However, if this property is missing from reality and only of "cooked-up" nature, then the causal mechanism it underlies cannot be real either. It is always problematic if one builds a law upon entity properties that are absent in reality. In such a case, some relations may emerge as assumed properties of the objects that cannot be expected to emerge in reality. As Chakravartty (2007, p. 142) puts it: "Relations obtain only if the things they relate exist. Thus, specific causal laws obtain only in worlds containing the requisite casual properties." In the case of "missing properties" we can obtain only vacuous laws. It is possible to set up such vacuous laws in models (these laws are operative in model environment), but we cannot expect them to emerge in reality. Friedman built his Phillip-curve upon in-principle missing

properties. Or, as Chakravartty puts it: “In-principle vacuity occurs when law-statements describe relations between causal properties that do not exist in the actual world for a principled reason.” The reason for this lack lies in the very nature of economic agents. Chakravartty (2007, p. 143) takes idealisation, i.e. setting up abstract laws as one of the major sources of vacuous laws for entities defined in theories (or their properties) cannot be found in reality. Thus, laws they underlie must be vacuous in a strict sense. In other words, properties and relations are depicted so that they cannot be found in reality as they are depicted. It stands to reason that the exact technique of abstraction/idealisation is crucial here. If we do not insist that theoretical properties bear resemblance to reality, then even instrumentalism may prove to be acceptable as a ground for theorizing. The ultimate source of in-principle vacuity is that the relations between the properties we hypostatise never emerge in reality. In case of assumptions isolated from reality, referring to *ceteris paribus* clauses can cut our losses. However, F53-like instrumentalist assumptions mean a special form of in-principle vacuity. Referring to *ceteris paribus* clauses is justified by the fact that models are partial descriptions of reality. However, instrumentalism has no intention of describing reality in a strict sense, saving the phenomena is well enough here. If descriptions are (approximately) true (that is, they highlight what is in reality), then they provide accurate descriptions of relations between some specific causal properties. Thus, such descriptions contain partial truths. But if they are not (approximately) true, they describe nothing at all. Real manifestations are not even guaranteed even for (approximately) true descriptions either, since omitted factors may interfere with the emergence of relations. I conclude by stating that in-principle vacuity has a twofold source: one is the nature of abstraction/idealisation from reality, whilst the other is the case of “cooked-up” instrumentalist assumptions.

If we choose to describe relations at the entity-level, then realistic structure descriptions require realistic entity descriptions in terms of the relevant aspects. This is the conclusive

argument. The nature of abstraction must also be considered. The microfoundations project of modern macroeconomics has put the emphasis on agents (i.e. objects), thus the macro-level emerges as the system of relations of agents. This is the reason why it would not be an effective defence to highlight that both ESR and OSR conceive structures to be describable without entities. The very program of the object-oriented microfoundations project principally blocks this line of reasoning.

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