



The Need for a Dynamic Approach to Economics

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Abstract

At the heart of the renewed criticism against neoclassical economics is the idea that it is incompatible with the dynamic type of *economic coordination* that emerges in the real world. Its focus is limited to what its accepted methodology can measure while all else is deemed constant or exogenous. It is in this need for a new approach to economics that this paper finds its aim. The emergence of the aforementioned *economic coordination* is explained by considering an expanded version of the history of economic thought, starting with nomadic society and including experiences beyond the Western narrative. This provides an expansive sketch of the complex development of economic thought. This sketch is complimented by a framework inspired by *Spiral Dynamics* to highlight the rich dynamics present within. It is then analysed with *Integral Theory's Four-Quadrants* which allows the identification of three specific variables which evolve and interact to drive dynamic change in any economy. The variables are defined as perspective (*i*), environment (*P*), and needs (*N*). *Affordance Theory* is applied to further explain how the three interact: In our environment (*P*), affordances are said to represent latent possibilities independent of the individual's ability to recognise them, they become active given the "physical capabilities of the actors... their goals, beliefs and past experiences". Similarly, needs (*N*) in a hierarchy imply that they are latent in the human psyche where the satisfaction of one need affects a change in perspective which is an activation of the next need. The conclusion brings the three variables together into a new definition of economics, which is also expressed in the form of a "function" $E=f(NP)$. This paper thus expands familiar economic concepts by grounding them in ecology and psychology, making these concepts compatible with the dynamic economic coordination that emerges in the real world. This allows the focus to be placed on three, well-defined, drivers of change rather than on the transitory phenomena resulting from change.

1. Introduction

The argument that neoclassical economics is not compatible with the world today can be summarised as follows: Economic reality is open and dynamic, and neoclassical economics is simply not a good description of the stakeholders in the economy and how they think and interact in this open dynamic reality.

This paper firstly provides a sketch of this dynamic reality, secondly, it provides a theory of how these dynamics arise. The first is achieved by considering a broader version of the history of economic thought and stressing the complex nature of this history by comparing it to a Spiral

Dynamics style framework (Beck & Cowan 1996). The second is achieved by structuring this rich account with the Four-Quadrants model of Integral Theory (Wilber 1996). The result reveals that three variables (N, P, i) are responsible for the dynamic way that agents (firms, consumers, governments, etc) coordinate their interactions. The paper then turns to identify the mechanisms by which these three variables interact. Towards this end, Affordance Theory (Gibson 1979) is applied. In the last section, the three variables are brought together in a new definition of economics, and future research possibilities that open up due to this ontological shift are presented.

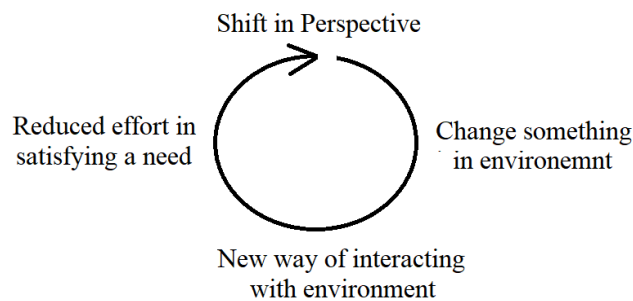
2. What dynamics?

Instead of starting with a static view or with narrow limiting assumptions as in the case of neoclassical economics (OECD 2019), a dynamic approach to economics begins with the idea that our world, our institutions, people, cultures, etc are subject to change and so are the ways in how they interact with each other. To aid in outlining this *dynamic economic coordination* we can turn to the history of economic thought, however, this history is still limited in two ways, firstly it excludes everything that happened before the writings of ancient Greek philosophers, and secondly, it does not fully represent experiences beyond the western one.

The first limit is overcome by realising that economic coordination started as early as human perspective shifted in a way that inspired an individual to change something in the environment. The altered environment then provided a new way of satisfying a need and new possibilities arose. An example of this could be making a tool or coding an app where the tool or app makes life easier (at least for some). This alteration to the environment reduces future effort in satisfying a need. As soon as this cycle is present, individuals are 'economising' and economic analysis is justified. This cycle is represented in Figure 1.

The second limit is overcome by including economic thought from other parts of the globe.

Figure 1: The economic cycle



Text Box 1 provides a sketch of the richness that emerges from the above cycle.

Text Box 1: Spiral Dynamics

Spiral Dynamics (Beck & Cowan 1996) is a model of human development and collective progress through different value systems, based on Cyclical Emergent Theory (Graves 1970)

and Memetics (Dawkins 1976). It tries to shed light on the dynamics in how individuals think and act and how it relates to collective change. It is also interesting because, unlike the history of economic thought, Spiral Dynamics starts with nomadic societies (which is when the economic cycle became present) and is based on research spanning the global north and south.

Nomadic Society: Members of such societies only knew basic needs. The concept of *goods and services* as we know it didn't yet exist, there were only social interactions with others and the basic things that nature provided autonomously and freely. They lived in harmony with the world and valued equality and sharing; it was this culture and goals that were an important part of their 'economic' systems. Lots remained undiscovered (like electricity), and the possibilities that it would afford and the changes it would bring but they did not have a pressing need for it because they were unaware (Sahlins 1972). After they found ways to alter their environment to satisfy their needs easier, the new environment led to new needs and their view of the world and their own possibilities changed (see Figure 1).

Empires and early nation-states: All over the world, private ownership became more common, sharing less common, and empires expanded. Autonomous supply by nature became dependent on agriculture, trade, and the expansion of the empire. A need for power gained prominence. Here society typically gets divided between those who own land and those who work on it. Religious teachings or a type of 'righteousness' becomes popular which is usually part of the state and plays an important part in creating order and producing the first economists doubling as philosophical or religious thinkers (de Roover 1958). Spiral Dynamics sees 'religion' as something that pulls people and societies out of the exploitative mindset that runs rife in empires and gang-stricken areas of today's world, providing context to the growth of the Catholic Church in Rio.

Industrialisation: Enlightenment brought an end to the dark ages and industrialization changed the rules again. A new 'platform' called companies started to commoditise things into 'goods and services', market them to create a need, and supply it to those who have adequate 'effective demand'. We see a range of neoclassical concepts applicable to this new period. (Smith 1776, Keynes 1937). The perspective was to work and earn money, the goal was to grow regardless of other costs. Some economies are still stuck here.

Green: Our new goal became sustainable development, equity, and justice. Animal rights, the triple bottom line, civil rights, etc all became popular in this phase as a response to problems associated with the industrial age.

Integrated networks: Supply is becoming automated. Economic agents need and consume information that is sometimes free and at other times very costly. Ideas like labor and production functions lost their logic, it is not about output but rather what is afforded by certain things. For example, consider the smartphone, it can't really be called a good or service in the classical sense, it is a combination of so many things that afford you to do and be part of

different things. Many things are 'free' to the user because it is 'networked' supply, where questions such as who really supplies who and with what become more complex. Information changes our perception dramatically and our new goal is to keep up with this information. The Economy becomes so creative that it makes economists scratch their heads.

Spiral Dynamics exposes the system-wide changes that result when individuals with certain values within societies reach critical mass and when individuals change institutions and their environment to better serve their individual and collective needs. This progression (or regression at certain times) is present in each culture's history, in society at large, and within individuals' psycho-social development respectively.

(Note that the Spiral Dynamics explanation is heavily condensed)

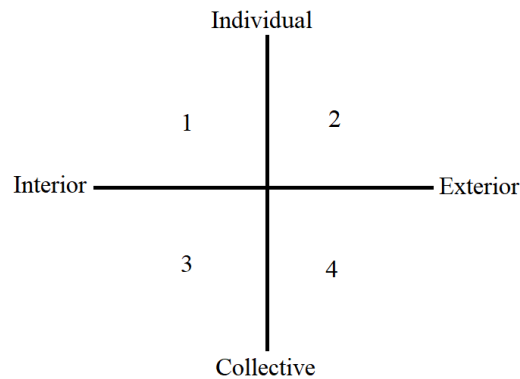
The different value systems introduced in Text Box 1 each saw reality in their own way, this is much like the different perspectives observed in the history of economic thought. With economic pluralism it is realised that each perspective contributes something worthy to economics, however, this paper aims to provide a dynamic ontology that goes beyond merely valuing each perspective individually. As such, it tries to see how the pieces fit together in order to see the underlying dynamics. Valuing such a dynamic approach is part of the so-called 'second tier' stage in Spiral Dynamics, however, in the end, it is not important how many stages or value systems there are, how they get divided, or even which general analysis is used. For example, there is Aristotle's analysis of the formation of the city-state, the German Historical School's more empirical analysis of how economies transitioned from feudalism to capitalism, Carl Marx's historical materialism, etc. It is hard to make comparisons between these because each presupposes a slightly different composition of reality, or focuses on a different part of it, and then continues to build the analysis from there. Even if the same composition of reality is presupposed, the subsequent analysis might differ because there are no universal rules for building analyses. The issue about a presupposed 'composition of reality' is tackled in the next section while the issue of 'how to proceed with analysis given this composition' is suggested as a future research endeavour. The purpose of the present section was only to stress the fact that there are deeper dynamics at play that form a rich and complex history. However, it needs to be asked how this rich and complex history could be placed into perspective in a way that reveals why history has taken the path that it did. In other words, how our economies came to be and why it is evolving. These questions of how and why have been pushed to the background after neoclassical economics came to occupy the mainstream.

3. The three variables

Neoclassical economics finds the answers to *their* world in demand and supply of goods and services, but since the real world is dynamic and since other times does not have the environment, institutions, concepts, goals, and perspective assumed by neoclassical economics, how can we find answers about the real world?

We have to look at a time before neoclassical economics. One approach is to look to early institutionalist evolutionary thinkers, and another is to look at philosophers such as Descartes, both approaches lead us to the same basic understanding of reality. These will have to wait for a future paper, the present paper will take a shortcut that gets us to our answers way quicker! We will look at *The Theory of Everything* by Ken Wilber (1996) who uses a simple framework with four co-dependent quadrants to compose a complete picture of reality, as shown in Figure 2.

Figure 2: Four-Quadrants model of Integral Theory



The first quadrant in Wilber's model refers to processes internal (where internal means physically unobservable) to the individual. It includes motivations, preferences, feelings, desires, goals, etc.

The second quadrant refers to external processes of the individual and includes the neural system, kinesthetics, etc. This quadrant is more concerned with human physiology and does not form part of this paper.

The third quadrant refers to things internal to the collective. It includes culture, ethics, shared worldviews, conventions, etc.

The fourth quadrant refers to collective things that can be observed externally, it includes the natural environment, physical parts of institutions, technological artifacts, infrastructure, etc.

This forms the basis for where we find the answers to the real world: The first variable (related to quadrant 1) is Needs (*N*), not just a specific set of needs considered by orthodox economics but a range of things and concepts that humans can spend time pursuing because all of this influence opportunity cost, time spending and economic decisions. We also don't just consider a snapshot of needs in a specific time but an evolution of needs.

The second variable (related to quadrant 4) is the things in the Environment (*P*) that satisfies all of these needs. How we define our environment and see ourselves interact with what is around us should be at the core of economics. Our environment determines what is possible and what is not, it's where we work, play and create. The orthodox view of the environment focuses on goods and services of industry and government. However, there is so much more to the environment that impacts opportunity cost, time spending, and decisions. Here the orthodoxy leaves a gap in explaining the real world and fails to capture everything that has

value to us. P gives a more broadly defined concept applicable regardless of the time that you are in.

The third variable (relating to quadrant 3) is the developing consciousness or perspective (i) which weaves itself through society, it allows us to see possibilities that others didn't, like the enlightenment that brought an end to the dark ages and sparked the industrial age. Robert Solow (1985) once said all economic activity is embedded in a web of social institutions, customs, beliefs, and economic attitudes - these social institutions and customs are represented with i .

An individual's past experiences in their environment determine their perception. Someone who grew up, for example, in Spiral Dynamics' stage of empires and early nation-states or in gang life will not have the same perception as someone who grew up after the post-industrial movements. How P and N interact given a certain i will be investigated in the next section.

4. How the three variables give rise to real-world dynamics

If we agree that these three variables provide us with the composition of reality, it would then be advantageous to understand the mechanisms that operate between these variables and how this ultimately gives rise to dynamic real-world situations that we observe in our economies. This can be achieved by taking theories of, for example, ecological perception, bounded rationality, contagion, technological development, etc, and mapping these to the three variables. The first of these theories, namely Gibson's Theory of Affordances (1979) in ecological perception, will now be mapped. This will reveal how Needs (N), Environment (P), and perspective (i) interact in the real world. Gibson's theory has been applied to other disciplines, such as Information Technology, design and robotics, but never to economics. This will now be done in the remainder of this section, however, a more complete version will be developed in a subsequent paper.

Gibson's theory of affordances was originally introduced in ecology to describe how an animal interacts with (shapes and is shaped by) its environment. It is perfect to apply to a dynamic economic landscape since it reveals how individuals perceive value in their niche over time (Heft 2003, pp 173-176; Chemero 2003; Chemero 2013 pp 192-193; Rockwell T Chapter 10). In ecology, each species (humans included) lives in a niche, a niche is different from a habitat, it is not a place but is a way of life (it is an i), the habitat would be represented with P .

Affordance Theory's study identifies all the specific things or *features* of the environment that *affords* something to the organism given its niche. This results in a different approach to our world than what we are used to from the orthodoxy, it does not start with a representative agent model, it considers a complete picture of anything the organism can spend time on pursuing or can possibly need and how this changes through time (Chemero 2009 pp 26). So called *features* of the environment as applied to economics could be products, services, the internet, events, social media platforms, anything that affords something to the individual. Gibson and Norman (1988) explain that, in our environment, affordances represent latent possibilities independent of the individual's ability to recognize them but always in relation to the individual,

for example, transportation independent of whether the wheel is discovered yet (Reed, 1996 pp 26) (See Figure 1 again).

Although the theory has never been applied to economics, it fits the three variables well: Maslow's pyramid of needs as well as the lesser known unending spiral from Spiral Dynamics both imply that needs are sequential, so does affordance theory, treating needs as latent in the human psyche where the satisfaction of one need affects a change in perspective which is an activation of the next need. The theory provides the links between the 3 variables, it provides the rules of how the variables interact.

This approach also makes sense when looking at business models. For example, Starbucks is not about the coffee but about all the other things it affords to its customer. A collection of event and physical features. When Starbucks closed some of its branches in Australia (Allison 2008) it was because people here did not see these affordances, in other words, it lay outside their niche.

If there is a known affordance that an individual does not have access to then that individual has an unsettled need. If there is an unknown affordance there is not yet a need; then this individual is unaware like the nomads or the Australians. To keep things simple it can be said that affordances are facts of the environment (P), they are unlimited, waiting to be discovered (Reed 1996, pp. 26), so are needs (N). An affordance is the connection between these two developing realms and the group of active affordances depends on the niche or consciousness (i). This approach offers a new ontology where the focus turns to the variables responsible for change instead of the transitory phenomena resulting from change.

5. Conclusion

The dynamic approach, based on the three inseparable variables and their interaction, allows us to describe the real world. Instead of representations of economics that emphasise a specific value system during our development (such as the neoclassical one) or a specific quadrant, we can now have a type of functional definition.

In order to distinguish between the many static views of economics, let each of those be represented with a small letter e followed by a constant (subscript i) to represent their specific perception at the specific time, while the dynamic view of economics is represented with a capital E .

$e_{i=1}, e_{i=2}, e_{i=3}, e_{i=4}...$ as opposed to E

Orthodox definitions say "Economics is a study of unlimited needs and scarce resources." At that constant point in time with the certain set of needs and state of development in the environment, the perception indeed was that "economics (e_i) is the study of endless needs (n_i) and scarce resources (p_i). It was all about the specific subset of needs (N) from industrial era perception (i) and the specific environmental features (p_i) that they considered according to their perspective, represented by active affordances.

$$e = n_i p_i$$

However, since definitions should not just focus on one perspective, *Economics* = everything from $i=1$ up to $i=\infty$ to include all perspectives that could impact our needs and reveal affordances as the dynamic system emerges over time. Thus we can represent the summation of small letters with capital letters.

$$E = f \left(\sum_{i=-\infty}^{\infty} n_i \quad \sum_{i=-\infty}^{\infty} p_i \right)$$

Economics as a function of our changing Needs and Platforms

Everything in the economic world, every activity, advance and opinion is the result of a dynamically interacting creative force between our Needs (*N*), platforms (*P*), and changing perception (*i*). That is our dynamic definition of economics. From this perspective, *N* and *P* are both unlimited with the active part determined by the relevant *i*.

It should be obvious that the above function is not meant to substitute real values in. It is not an equation for a mathematician to solve or for a physicist to imagine a three-body problem of economics. There are, however, some future areas of research that could follow: (1) Investigate the implications of this on understanding various economic concepts, for example, how the concept of scarcity changes when affordances are treated as unlimited resources; (2) Fully develop the application of Affordance Theory to economics and map the three variables to other theories in order to explain the mechanisms by which the variables interact; (3) Apply the second quadrant of Integral Theory to the Dynamic Approach, this relates to the implications of technology that enhance human physiology and how this could impact on economies and economic science; (4) Develop the three variables, measuring their active and latent parts, this can be done empirically, with the help of equations, narratively, in computerised experiments, or in any combination of these methods since the Dynamic Approach is not specific to any modelling method.

Future research could look at a range of neoclassical industrial age concepts that have lost their logic (or never had great logic) and see in what new ways these may be expanded or dynamised to bring them in line with a reality that emerges out of three variables. For example, instead of thinking about supply and demand in a production function or about static classifications of goods and services, researchers could start thinking about access to affordances and about affordances being either active or latent, environmental features could be classified into groups or sets according to their specific attributes which shows the shift from autonomous supply to dependent supply and onwards to automated or networked supply to give insight to the workings of the real world.

In summary, this paper first presented end results with a rich sketch of reality, then presented the cause by introducing three variables, and then it presented the relationship between cause and end result by explaining the mechanism by which the variables operate. Hopefully, more mechanisms can be built through the interdisciplinary efforts of institutionalists, social scientists, and modellers.

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