**Towards an Integral Economics**

Jeremy J. Wakeford[[1]](#footnote-1)

Macroeconomist, Quantum Global Research Lab, Zug, Switzerland

Senior Lecturer Extraordinary, School of Public Leadership, Stellenbosch University, South Africa

Paper submitted for the XIV International Colloquium, Stellenbosch, South Africa

3 March 2017

**Abstract**

Mainstream economic theory appears to be ill-equipped to deal with the ‘polycrisis’ currently facing humanity. This paper is an exploratory attempt to develop a more comprehensive and holistic conceptual framework for the study of economics, based on the ‘integral theory’ developed by the philosopher Ken Wilber. The specific aims are threefold: (1) to broaden the assumptions about human nature and motivations, based on widely accepted models of psychological and moral development; (2) to show how the dominant approach to economic theory has evolved over time through distinct worldviews, which are pointing towards the emergence of an integral perspective; (3) and to demonstrate that socioeconomic development has historically unfolded in successive waves, which could lay the foundation for visions of more sustainable future socioeconomic systems.

*Keywords*: integral theory; evolutionary economics; economic development; history of economic thought; heterodox economics

*JEL codes*: B000, B500, B520, O100

*Acknowledgements*:

My main intellectual indebtedness is to Ken Wilber, whose integral theory has broadened and deepened my perspective immensely. I am also grateful to Professor Mark Swilling, whose knowledge and insights about sustainable development have helped to shape my understanding over the past eight years. I also wish to thank my Managing Director, Professor Mthuli Ncube, for allowing me to devote a month to writing this paper. I take sole responsibility for all the views expressed and any errors the paper may contain.

# Introduction

Humanity is currently facing a myriad of serious developmental challenges – or a ‘polycrisis’ – which some commentators say threaten the future of our civilisation, if not our species (Morin 1999; Swilling & Annecke 2011). These challenges and threats include persistent poverty, growing inequality and unemployment, crime and conflict, population growth, pandemic diseases, social fragmentation, rapid technological developments, financial system fragility and instability, resource depletion, environmental degradation and (last but by no means least) climate change. Conventional economic theories, and the policies derived from them, are apparently ill-equipped to deal with these interrelated, complex challenges. The current global economic order – underpinned by neoliberal economic ideology – is arguably exacerbating many of humanity’s ills. Recent political developments, notably the wave of populist backlashes against established elites in Europe and the USA, illustrate the growing frustrations in even some of the most materially advanced nations. Arguably, a large part of the reason for the failure of economic theory, and the policies derived from it, lies in its partial perspective on human development. This involves a highly restrictive set of assumptions about human nature, limited modes of analysis, and an artificial separation of economics from other social sciences. The sustainable development literature (including many different strands), which has burgeoned in recent years, has gone a long way to address some of the short-comings of conventional economic theory. However, this literature arguably lacks a coherent, overarching theoretical framework – which is perhaps why it has failed to supplant orthodox economic theory. What is required, therefore, is an integrated approach which ties together various aspects of development – such as economic, social, political, and psychological dimensions – into a coherent overall framework.

This paper is an initial, exploratory attempt to develop a more comprehensive and holistic conceptual framework for the study of economics. It is based primarily on the ‘integral theory’ pioneered by American philosopher Ken Wilber (2000a, 2000b, 2001).[[2]](#footnote-2) In practice, this approach has broader relevance for our understanding of sustainable human development. This is because the integral framework is essentially developmental in character, in that it maps out successive stages or waves in the evolution of consciousness and their supporting biological and socioeconomic structures. More specifically, the aims of this paper are threefold: (1) to broaden the assumptions about human nature and motivations, based on widely accepted models of psychological and moral development; (2) to show how the dominant approach to economic theory has evolved over time through distinct worldviews, which are pointing towards the emergence of an integral perspective; (3) and to demonstrate that socioeconomic development has historically unfolded in successive waves, which could lay the foundation for a vision of more sustainable future systems. The novelty of the paper lies not in the details (for which I rely on many eminent researchers’ work), but rather the way in which existing concepts and theories from the literature are synthesized. This is the hallmark of the integral methodology: combining pieces of existing knowledge into a greater whole which seeks to yield a deeper level of understanding.

There are obviously various distinct ideological approaches to the study of economics, which overlap and differ to varying degrees. However, there is a generally accepted mainstream paradigm, or set of core and peripheral theories to use philosophy of science parlance. This mainstream or orthodox approach, it can be argued, has several major – and mutually reinforcing – limitations (see, for example: Ormerod 1995; Fullbrook 2004, 2007). Some of these restrictions are in the form of foundational assumptions, while others have to do with mode or scope of analysis. Some of these limitations, and their linkages, are discussed in the sections that follow. However, the overarching purpose is not to present a comprehensive critique of orthodox economic theory, but rather to motivate for a more general and inclusive theoretical framework.

The paper is organised as follows. Section 2 provides an overview of Wilber’s integral framework, which includes five elements: quadrants, levels, lines, types and states (the emphasis is on the first three). Section 3 applies the four-quadrant lens to the discipline of economics, to show the distinctions between the subjective interiors and objective exteriors of both individuals and collectives, as they relate to different areas of economics. Section 4 focuses on the domain (quadrant) of individual psychology, outlining three major stages in the development of individual consciousness (especially cognitive ability and moral stance), and how this relates to conceptions of the ‘representative economic agent’. Section 5 outlines a stage conception of the evolution of economic thought, describing the three main historical phases of worldview as pre-modern (traditional), modern (rational-scientific) and post-modern (pluralistic-relativist). The sixth section summarises some prominent examples of models describing socioeconomic development as unfolding in a succession of stages, including foraging (survival bands), horticultural (tribes), agrarian (early states), industrial (nation states), and informational (global) societies. The final section presents some preliminary conclusions on the value of an integral approach to economics and some of its limitations, and puts forward some ideas for taking the intellectual project further.

# Overview of the Integral Model

Since Wilber’s integral model is an attempt to derive a “theory of everything”, providing a useful summary in a few pages is an almost impossible task. Nonetheless, the five basic elements of the model are simple enough to sketch in basic terms, such that they can be applied to the subject of economics. For details of the theory and the evidence underpinning it, the reader is referred to the books by Wilber (2000a, 2000b, 2001) and his many earlier and subsequent works.

As a point of departure, Wilber (2000a) notes that the universe (or ‘reality’) is comprised of holons, i.e. wholes that are themselves parts of other wholes. For example, a whole atom is part of a whole molecule, which is part of a whole cell, which is part of a whole organism, which is part of a community or ecosystem, etc. Holons possess a number of properties: [[3]](#footnote-3) (1) each holon has four dimensions (interior and exterior, individual and collective); (2) holons emerge in nested hierarchies, called ‘holarchies’; (3) holons of increasing depth (complexity) have less span (the number of holons on any given level); (4) holons of greater depth/complexity transcend and include those of less depth (e.g. a molecule transcends but includes an atom, but not *vice versa*). Wilber hypothesizes that these properties of holons apply to human beings (as one type of organism). Individual humans are wholes that are parts of whole families, which are parts of tribes or communities, which are parts of nations, which are part of global humanity. While Wilber’s general integral model includes sub-human holons (cells, molecules, etc.), the focus in this paper is on *human* holons only.

Wilber (2001: 2) summarises his “integral vision” as “a view that attempts to honour and include as much research as possible from the largest number of disciplines in a coherent fashion.” It seeks to synthesize past and current knowledge from diverse disciplines and to develop “orienting generalisations”, or largely agreed-upon general theories (Wilber 2000a: 15-16). Wilber (2000a, 2001) labels his integral model as “AQAL”, which is short for “all quadrants, all levels, all lines, all states, all types”. These five major elements are outlined briefly below, with greater emphasis on the quadrants, levels and lines as these are more relevant to the application to economics that follows.

## Quadrants

The four quadrants are derived from two fundamental dimensions of holons.[[4]](#footnote-4) The first differentiates between the *individual* and *collective* aspects: human holons have important individual characteristics, but also collective aspects relating to the communities and societies in which they live. The second differentiation is between *interior* and *exterior* aspects. The interior of human beings refers to those characteristics which cannot be observed, but rather have to be related and interpreted *subjectively*. Exterior features, on the other hand, are those which can be perceived with the senses and measured by instruments, and can therefore be observed *objectively*. Intersecting these two dimensions of human holons results in a matrix of four *quadrants*: interior-individual (Upper Left, UL); exterior-individual (Upper Right, UR); interior-collective (Lower Left, LL); and exterior-collective (Lower Right, LR). Figure 1 displays the main features of the four quadrants of human holons.

Figure 1: The four quadrants

|  |  |  |
| --- | --- | --- |
|  | **Interior** | **Exterior** |
| **Individual** | UPPER LEFT: INTENTIONAL  *subjective*  **psyche** and **consciousness**  thoughts, emotions, intentions, motivations, preferences, aspirations, morals, cognition, spirituality | UPPER RIGHT: BEHAVIOURAL  *objective*  **biology** and **behaviour**  organism, endocrine system, nervous system, reptilian brain stem, limbic system, cortex & neocortex  observable behaviours & actions |
| **Collective** | LOWER LEFT: CULTURAL  *inter-subjective*  **culture** and **worldview**  shared perceptions & meanings  ideologies, paradigms & belief systems  shared values, ethics, morals & norms  religious beliefs & theologies | LOWER RIGHT: SOCIAL  *inter-objective*  **social** **system** and **environment**  social structures & institutions  economic systems  political orders, laws & regulations  technologies, infrastructure systems  natural environment |

*Source: Adapted from Wilber (2000a: Fig 5-1, p. 65)*

The Upper-Left, interior-individual quadrant includes *consciousness* and *psyche* (mind and emotions), intentions and motivations, preferences and aspirations, cognitive ability and spirituality. All of these aspects of humans are subjective and cannot be ‘seen’ by others, only interpreted and related by the individual him- or herself. The Upper-Right quadrant deals with the objective, exterior aspects of the individual, i.e. those which can be perceived by others through the senses (and instruments). These include *biological* structure and functioning of the human body as well as observable *behaviours*. Although the brain and other organs are internal to the body, they are defined as external because they can be seen and measured with instruments (once one probes beneath the skin). The Lower-Left quadrant is the realm of *culture*, which for these purposes Wilber (2001: 50) defines as “shared values, perceptions, meanings, semantic habits, cultural practices, ethics”, as well as worldviews and belief systems. As with individual consciousness, culture cannot be directly perceived by the senses or measured by instruments. Thus Wilber refers to the cultural realm as “inter-subjective” (the interplay between different individuals’ subjectivity). The Lower-Right, exterior-collective quadrant includes *social* systems and institutional structures, the techno-economic mode, economic systems and structures, political orders, laws, and the natural environment. All of these aspects of society can be described in objective terms, and are therefore referred to as “inter-objective”.[[5]](#footnote-5)

The differentiation of the four quadrants does not mean that they are operate independently: all four are inextricably linked. One way of interpreting them is that the left hand quadrants represent individual and collective consciousness, while the right hand quadrants represent their supporting physical structures. Each quadrant is an aspect of the human holon, and each quadrant affects all of the others. For example, thoughts or emotions can be detected in specific parts of the brain by electroencephalograph (EEG) machines. The use of drugs can lead to altered states of consciousness. Culture influences individual modes of thought as well as behaviours. Socio-economic systems and environments affect which psychological needs are paramount for an individual. And so on.

Wilber observes that scholars and theorists throughout history have tended to focus on the aspects of human beings represented by only one or two quadrants, while ignoring the other quadrants. For example, the traditional spiritual wisdom systems of both West and East tended to focus on the Upper-Left quadrant to the exclusion of others (Wilber 2000b). The so-called ‘hard sciences’ such as physiology, neurology, behaviourism and empiricism focus on the Upper-Right quadrant – the exterior of individuals. On the other hand, systems sciences such as systems theory, ecological networks, complexity theory, and social and economic systems lie in the domain of the Lower Right, exterior-collective quadrant. Together, these two exterior quadrants represent the ‘scientific’ approach to knowledge – which is well and good as far as it goes, but it has nothing to say about the interior aspects of human beings. Post-modernists, amongst others, emphasize (and in some cases over-emphasize) the importance of cultural contexts for understanding individual and social behaviour and systems, i.e. they stress the importance of the Lower-Left quadrant. The Upper-Left quadrant, as we have seen, is the domain mainly of psychology and consciousness studies (both ancient and modern).

Figure 2: Left-hand and right-hand paths to knowledge

|  |  |
| --- | --- |
| **Left-Hand Path: Interior** | **Right-Hand Path: Exterior** |
| subjective  unobservable/communicable  interpretive  qualitative  hermeneutic  meta-physical  consciousness  meaning  synthesis  intuitive  right-brain | objective  observable  measurable  quantitative  empirical/positivistic  physical/material  form  functionality  analysis  rational  left-brain |

*Source: Adapted from Wilber (2000a: Fig. 6-1, p.77)*

Many contemporary academic disciplines tend to focus on either the interior or the exterior aspects of humans. Figure 2 summarises some of the main differences between these two approaches to knowledge, which Wilber (2000a, 2001) calls the left-hand and right-hand paths. Most economists will identify strongly with the aspects of the right-hand path, and will probably be sceptical of the left-hand approach, which is commonly regarded as ‘soft’ or ‘unscientific’. This also explains why many academic economists are derisive about sociology and some other social sciences and humanities, which take into account (at least to some degree) the role of intentions and culture in shaping societies. One of the aims of this paper is to show that both left-hand and right-hand paths are relevant to the study of economics, i.e. that an all-quadrant, integral perspective is required for a full understanding of economic behaviour, systems and development.

## Levels or waves

The second major element of the integral model is that within each quadrant, there are a number of identifiable levels, stages or **waves** of development, which represent potentials for individual and collective human evolution. Wilber distinguishes between *basic* waves of development, common to all quadrants, and *specific* sets of waves that are applicable to individual streams of development, which are discussed in the next subsection. The various waves are not discrete but continuous, merging or overlapping at the boundary regions, as does the refracted spectrum of visible light in a rainbow.[[6]](#footnote-6) These waves may be viewed as increasing levels of complexity; a higher wave is not necessarily ‘better’, just more complex. For example, a molecule is more complex than an atom, while a cell is more complex than a molecule. Each evolutionary stage is valid in its own right, and is a necessary part of the whole person or system.

The concept of stages or waves of development appears in research by noted scholars in many fields, including psychology (e.g. James Mark Baldwin, Jean Piaget, Erik Erikson, Lawrence Kohlberg, Abraham Maslow, Clare Graves), social anthropology and cultural studies (e.g. Max Weber, Jean Gebser, Jurgen Habermas), and economic and social history (e.g. Gerhard Lenski, Karl Marx, Douglas North).[[7]](#footnote-7) These and other scholars have collected empirical evidence demonstrating that development – of either or both individuals and societies – progresses though definable stages, irrespective of the cultural context. The exact number of stages differs according to the theorist and their precise focus, with the number of levels ranging from three to a dozen or more.

Wilber’s integral theory, which draws on and synthesises many of the aforementioned scholars’ work, hypothesises the following common features of waves of development:

* A set of ‘basic’ or representative waves can be identified, with correlates in all four quadrants. (See an example below.)
* The waves unfold in a holarchy, meaning that each successive wave transcends and includes its predecessor.
* No wave/stage of development can be skipped. (This hypothesis is derived mainly from developmental psychology and sociology, and needs further investigation and empirical verification when it comes to economic development.)
* The basic waves represent potentials, and higher levels may not be reached by particular individuals or societies. (In the case of the Upper-Right quadrant organism and brain structure, all humans have evolved up to the level of complex neocortex, which supports cognitive capacities from ‘concrete operational’ onwards.)
* There is a general tendency over the long term for an evolutionary progression up the waves, but both individuals and collectives can regress to lower stages under certain circumstances.
* In the collective quadrants, to say that a society is at a given wave of development does not imply that all members of the society are at that level (individuals could be at higher or lower levels), but that the centre of gravity and dominant cultural worldview or social organisation is at that wave.

Figure 3 provides Wilber’s examples of the basic waves in each of the quadrants, drawing heavily on the Spiral Dynamics system developed by Beck and Cowan (1996), which itself built on the pioneering research of psychologist Clare Graves (1970, 1974).

Figure 3: Basic waves in the four quadrants

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| UL: Consciousness | LL: Culture |  | UR: Organism | LR: Social system |
| instinctual | archaic | 1 | reptilian brain-stem | survival clans |
| emotional-magical | animistic-magical | 2 | limbic system | ethnic tribes |
| egocentric | power gods | 3 | neocortex | feudal empires |
| mythic self | mythic order | 4 |  | early nations |
| achiever self | rational-scientific | 5 |  | corporate states |
| sensitive self | pluralistic-relativist | 6 |  | value communities |
| integral self | integral | 7 |  | integral commons |
| holistic self | holonic | 8 |  | holistic meshworks |

*Source: Adapted from Wilber (2001: Fig 3-1, p.43)*

## Lines or streams

The third element of the integral model recognises that there are relatively independent lines or streams of development that unfold through the basic waves in the four quadrants. This aspect of Wilber’s model has been most fully developed in the Upper-Left quadrant of self and consciousness, and was inspired by researchers such as Howard Gardner, who proposed the notion of ‘multiple intelligences’. There may be up to two dozen such developmental streams in the Upper-Left quadrant, including self-identity, cognition, affective or emotional intelligence, interpersonal skills, morals, role taking, logico-mathematical competence, kinaesthetic skills, and psychological needs, among others. Wilber (2000b:28) writes that “the bulk of research has continued to find that *each developmental line itself* tends to unfold in a sequential, holarchical fashion: higher stages in each line tend to build upon or incorporate the earlier stages, no stages can be skipped, and the stages emerge in an order that cannot be altered by environmental conditioning or social reinforcement” (original emphasis). Nevertheless, an individual might be at different stages on different lines, since development on various streams occurs relatively independently. For example, someone might have a high level of cognitive development but a low level of moral development (at the extreme, an intelligent psychopath).

In the Lower-Left quadrant (culture), streams of development include worldview (e.g. archaic, magic, mythic, rational, pluralistic, integral), value systems, ethics, and religious/spiritual beliefs. Some prominent streams in the Lower-Right quadrant are the techno-economic mode (foraging, horticultural, agrarian, industrial, informational), social structure (survival bands, ethnic tribes, feudal orders, ancient nations, corporate states, value communities, global commons), dominant energy source (passive solar, active solar, fossil fuels, modern renewable energy technologies), legal system, etc. The concept of streams is less straight-forward in the Upper-Right quadrant, but in addition to the major stages of biological evolution (reptilian brain stem, limbic system, and neocortex) could include, for instance, behaviour patterns that correspond to levels of moral development.

## Types

The fourth aspect of the AQAL model is referred to as **types**, which are *horizontal* typologies that may exist at different levels, and may progress through the waves on one or more particular streams of development. The distinguishing feature is that types represent *horizontal* differentiation within a particular stream (or common across several streams within a quadrant), whereas waves represent *vertical* differentiation. Examples of types in the Upper-Left quadrant (interior-individual) are personality types (e.g. typologies such as the Enneagram, Myers-Briggs Type Indicator, and Jungian types) and gender styles (feminine and masculine orientations). For instance, individuals representing each of the nine Enneagram personality types will retain their fundamental type as they progress through the levels of psychological development. The main types found in the Upper-Right quadrant are gender types, i.e. female and male physiologies. In the Lower-Right quadrant, examples of types could possibly include economic system (market economies, planned economies, mixed economies) and political orientation (e.g. left or right) (see Wilber, 2001: 114). In the Lower-Left quadrant, types could perhaps refer to different religions (e.g. Christianity, Hinduism, Islam, Judaism).

## States

The fifth element of Wilber’s model is called **states**, and refers to the various states of consciousness that an individual may experience. These include both ‘normal’ states of consciousness (waking, dreaming, and deep sleep) and ‘altered’ states (for example, states induced by meditation or psychoactive drugs). This conception of states is therefore limited to the Upper-Left quadrant, and it will not be explored further in this paper.

## Summary

To summarise, the integral or AQAL model has five elements. First, the scope of human development is divided into four dimensions, called *quadrants*: interior-individual (self and consciousness); exterior-individual (biology and behaviour); exterior-collective (social system and environment); and interior-collective (culture and worldview). Secondly, human development unfolds in a number of identifiable stages or *waves*, whichhave correlates in each of the four quadrants. Within each of the quadrants, there are numerous developmental *streams/lines*, such as: biological functioning and behaviour (behavioural quadrant); cognitive, emotional, interpersonal, and moral development (intentional quadrant); techno-economic mode, social structure, political and legal systems (social quadrant); and worldview, value system, and spiritual beliefs (cultural quadrant). Fourth, individual humans can experience a variety of states of consciousness, both ordinary (waking, dreaming and deep sleep) and altered states. Finally, various horizontal *types* (e.g. male/female biologies, personality types, political orientations) may be present on a particular stream or streams in different quadrants. Figure 5 below is a diagrammatic representation of the integral model. It shows the four quadrants, with waves of development that unfold in a nested holarchy (each transcending and including the previous wave). The streams of development are indicated by ‘spokes’, which have different lengths to indicate that an individual or society may be at different levels on different streams, i.e. development progresses unevenly in various dimensions or realms. Types and states are not represented in the figure.

While the basic structure is simple, the model is highly dynamic in nature. Elements of the four quadrants are interactive and mutually emergent. For example, both social structures (LR) and culture (LL) influences individual consciousness (UL) and behaviour (UR). Progression through the waves is not automatic, and regression can occur. Furthermore, a particular society (or individual) may operate at different waves on different streams, and this creates tension which can lead to shifts along one or more developmental streams. Major developmental shifts may be stimulated by such factors as individuals’ ideas, technological innovations, social structures adapting to environmental changes, etc. The framework provides both a historical explanation of past evolutionary patterns, as well as a vision for how development may unfold in the future as successive waves are attained. The remainder of this paper represents an initial, exploratory attempt to apply the integral (AQAL) model to the discipline of economics.[[8]](#footnote-8)

Figure 4: Diagrammatic representation of the integral model

BEHAVIOURAL

INTENTIONAL

SOCIAL

CULTURAL

*Source: Adapted from Wilber (2001: Fig 5.1, p. 100)*

# A Four-Quadrant Perspective on Economics

The first step towards an integral framework for economics is to recognise the four quadrants and use them to categorise or map sub-fields and concepts within the discipline. The value of doing this exercise is to provide a basis for ensuring that no key areas of the discipline are omitted in an integral approach, and that one perspective does not dominate over others. The distinction between individual and collective aspects of economics is of course well known to anyone who has studied the subject, namely microeconomics and macroeconomics.[[9]](#footnote-9) The second distinction, namely between interior and exterior aspects, is perhaps somewhat less obvious in economics, but broadly corresponds to ‘normative’ and ‘positive’ economics, respectively. Normative economics deals with value judgements, which arise from individual morals (Upper-Left quadrant) as well as cultural norms (Lower-Left quadrant). To clarify further, an individual’s interior motivations, preferences and morals (UL), partly conditioned by the culture in which the individual is embedded (LL), give rise to their exterior economic behaviours and activities (UR). In the Lower-Right quadrant, although one cannot ‘see’ a national economy or sector, one can describe its structure, functions and processes in objective, empirical fashion. Orthodox economics[[10]](#footnote-10) focuses almost exclusively on the right hand quadrants, not only because individual economic behaviours and collective economic systems naturally fit into the Upper-Right and Lower-Right quadrants, respectively, but also because the rational-scientific paradigm of orthodox economics is essentially positivistic and often attempts to reduce the interior, subjective world of intentions to the objective, empirical level (i.e. exterior world of behaviour) (see further discussion in section 5). A classic example is the quantification and econometric analysis of subjective answers to qualitative survey questions, the results of which can be flattened and blunt representations of people’s complex inner realities.

Figure 5 classifies some of the main fields and concepts within the discipline of economics according to which quadrant they belong to. Most fields within microeconomics (including game theory, agent-based modelling, revealed preferences, experimental and behavioural economics) fit (at least mainly) in the Upper-Right quadrant, whereas most macro-level studies (including international economics, economic systems, public economics, development, environmental and resource economics, etc.) belong in the Lower-Right quadrant. Some fields of economics overlap the Upper-Right and Lower-Right quadrants (i.e., they have both macro and micro dimensions), and are not shown in the figure (examples include labour economics, financial economics, and industrial organisation, which focuses on the firm as a unit of analysis).

As already mentioned, most fields within economics deal mainly or almost exclusively with exterior (right-hand) aspects of humans. Where attention is given to left hand dimensions, they are generally highly restricted. The Upper-Left quadrant is the locus of theories and assumptions about human motives and modes of thinking, notably the orthodox assumptions underpinning the concept of *homo economicus*, i.e. a representative economic ‘agent’ driven by self-interest and making decisions based on rational calculations. As will be explained in greater detail in section 4, this represents a gross reduction of the numerous possible basic drives and capacities of human beings. Finally, in the Lower-Left quadrant (culture and worldview) we find the broad fields of philosophy and methodology of economics (conceptions of what economic should study, and how), and the history of economic thought (how economic ideas have evolved over time and coalesced into paradigms and schools of thought). It also includes theories of value and ethical issues, such as distributive justice, as well as investigations of the role of social institutions (in the sense of norms, habits and mores, as opposed to organisations) – so-called institutional economics. As noted in section 2, some broad stages can be identified in the historical evolution of worldview and cultural value systems. It will be argued in section 5 that these developmental waves also apply to economic thought, and that orthodox economics is firmly rooted in the rational-scientific worldview, which is but one of many possible paradigms that have advantages and limitations.

It is important to note that some fields or categories of economics span more than one quadrant. For example, there are fields that have both macroeconomic and microeconomic dimensions, such as labour economics. In addition, some fields address both interior and exterior dimensions – such as the interface between psychology and behaviour as studied by behavioural economists. Another example is institutional economics, which investigates both interior cultural norms, rules and values, and socio-economic systems and structures. The main point of using the quadrant lens is that a comprehensive or integral approach to economics should include the subject matter, fields and perspectives from all four quadrants, without unduly prejudicing any one of them. Some of the ways in which orthodox economics has limited the scope of its enquiry will be discussed in sections 4 and 5.

Figure 5: Categorisation of economic fields and concepts in the four quadrants

|  |  |  |
| --- | --- | --- |
|  | **Interior**  (normative economics) | **Exterior**  (positive economics) |
| **Individual** | *homo economicus*  rational choice theory  bounded rationality  subjective wellbeing  interface between economics & psychology | microeconomics  revealed preference theory  game theory  behavioural economics  experimental economics  capabilities  micro-econometrics  agent-based modelling |
| **Collective** | history of economic thought  philosophy & methodology of economics  moral economy  theories of value  institutional economics (norms etc.) | macroeconomics  monetary economics  international economics  economic systems  institutional economics (social systems)  development economics  environmental & resource economics  public economics  law & economics  macro-econometrics  complexity economics  economic history |

*Source: Author*

## Interactions among the quadrants

As mentioned in section 2.1, while the quadrants are distinct they are not independent of each other; they are co-arising aspects of holons. All four quadrants interact with and impact upon each other. In economic jargon, this means that individual intentions and behaviour, culture, and social structures are all determined endogenously. To assume that the contents of one quadrant are ‘exogenous’ is to commit a form of reductionism. Specific examples of how each quadrant may affect the other three quadrants are given below to illustrate this concept.

First, an individual’s intentions and motivations (Upper-Left quadrant) clearly affect his or her behaviour (Upper-Right); e.g., I decide what kind of vehicle I want to buy after a series of internal thought processes and my innate preferences. Individual thoughts, emotions and intentions can also shape culture, for example by the way in which individual leaders influence shared beliefs (e.g. religious leaders or philosophers). The Upper-Left quadrant also influences social systems; for instance Karl Marx’s ideas gave rise to socialist and communist systems of government.

Our biological make-up (Upper-Right quadrant) also underpins our thoughts and feelings; the complex neocortex supports our capacity for rational thought, while the limbic system supports emotions. Neurochemicals affect mental and emotional states. Aggregating individual behaviours gives us social behaviour and institutions (e.g. the interaction of autonomous economic agents creates an economic system of exchange). Our biological constitutions, including gender differences, partly shape social systems and cultural practices. For example, all agrarian societies have been patriarchal, reflecting the fact that women could not safely operate ploughs during pregnancy (Wilber 2000a). In addition, the observed behaviour of a political leader may have a profound effect on broader cultural values (such as the impact of Ghandi’s passive resistance on Indian culture).

Culture (LL) influences individual motivations, beliefs and preferences (UL) through cultural conditioning, one example being fashion trends. Culture also gives rise to specific social institutions and structures (LR) and determines the way societies interact with their environment (e.g. the worldview of scientific materialism leads societies to try to exploit the natural environment using sophisticated technologies). Beliefs in many cultures circumscribe the permissible behaviours of individuals (UR) and groups (LR).

Social structures also condition individual behaviour since the whole is greater than the sum of its parts. For example, as an individual consumer my ability to purchase environmentally friendly products is circumscribed by what the broader economic system produces and makes affordable and accessible. An economy which fails to produce sufficient jobs for its labour force leaves unemployed individuals with feelings of despair or worthlessness. And the anti-globalisation lobby is quick to point out how mass production and product homogenisation by multinational companies can wipe out cultural differences across the world. Marxian theory attempted to reduce everything to the Lower-Right quadrant, but nevertheless showed many of the ways in which consciousness is influenced by the techno-economic base (Wilber 2000b:147).

## Reconciling micro and macro

As mentioned in the introduction, one of the persistent thorns in the flesh of orthodox economic theory is the uneasy relationship between microeconomics and macroeconomics. The mirror relationship between human socio-economic and intentional systems (or more generally between the four quadrants) has enormous potential to bridge this gulf. In the first place, it provides a far more comprehensive set of microfoundations for macro analysis, by including the full spectrum of development lines and levels (and types) in the Upper-Left quadrant. But more than that, it shows that microfoundations are not the whole story, literally: the whole is greater than the sum of its parts. Therefore, the macroeconomic and social context affects individuals in ways which orthodox microeconomic theory does not accommodate. Ormerod (1998) gives one specific example of this, namely that individual’s socio-economic behaviour is influenced by the behaviour of others (or the collective).

Ultimately, the conventional distinction between macro and micro levels of analysis is somewhat arbitrary. Individual development cannot be dissociated from social (or economic) development. The two processes are inextricably linked (actually, they are different views of the same phenomenon) and must be addressed simultaneously. To take a concrete example, unless an individual has his or her basic needs met (such as water, food, shelter and clothing), she cannot effectively develop and use ‘higher’ faculties of reflection and reason since she will be preoccupied with physical survival.

# Conceptions of Human Agency

Microeconomists study the economic actions, behaviours and activities of individual humans (as well as firms and households). In order to predict and model such behaviours (which are visible in the objective, Upper-Right quadrant), they need to make assumptions about humans’ preferences and motivations, which are determined in the Upper-Left quadrant. This section outlines three main conceptions of the psychology of the ‘representative human agent’, drawing on some of the developmental waves and streams that arise in the Upper-Left quadrant. The purpose is to show that the mainstream conception of human agency is based on but a thin slice of the spectrum of human psychological potentials. [[11]](#footnote-11)

This section focuses mainly on the cognitive and moral streams of development, and identifies the primary capacities and values that give rise to particular types of economic behaviours. Jean Piaget (e.g. 1926, 1953) was the psychologist whose pioneering research culminated in his widely accepted model of stages of cognitive development, which refers to a person’s capacity for apprehending or understanding exterior objects, and more narrowly to their logico-mathematical competence (Wilber 2000b: 20). Piaget’s stages move from sensorimotor, to preconceptual/preoperational, to concrete operational, to formal operational. Wilber (2000b), drawing on other researchers, identifies a further stage which he terms polyvalent logic, or the ability to comprehend systems of systems. Likewise, Lawrence Kohlberg’s (1981, 1984) celebrated research on moral development also showed that individuals progress through several levels or stages, which he called magic wish, punishment/obedience, naïve hedonism, approval of others, law and order, prior rights/social contract, universal ethical, and universal spiritual.[[12]](#footnote-12) In the following subsection, three of these stages are fleshed out briefly as they relate to economic motivations and behaviours.[[13]](#footnote-13)

## *Homo traditionalist*: ‘conformist economic man’

Piaget’s concrete-operational stage of cognitive development involves thinking that is based on rules and schemas, and this in turn allows a person to adopt roles in society – hence it is sometimes referred to as the rule/role mind. This type of cognition is based on right-or-wrong thinking, and mythical symbols and concepts are taken to be literally true (such as literal interpretations of biblical texts). It underpins fundamentalist belief systems, whether religious in nature or secular (where there remains a sense of an absolute Order in the world). Beck and Cowan (1996) refer to the self-conception as the ‘saintly self’.

The morals at this level are ethnocentric, i.e. the individual is identified with a certain group (e.g. a racial group, religious group, or national identity). What’s right is what’s right for my ethnic group. This corresponds to Kohlberg’s moral stage of conformity, law and order. It is expected that everyone adheres to group norms and rules; these are often, but not necessarily, guided by religious beliefs. The individual accepts a given hierarchical social structure and his or her place within it. The needs of the self are subordinated to the needs of the group. Individual material gain is not the major driver, but rather conforming to the norms of the group.

The behaviour patterns of a person at this level of psychological and moral development tend to be conformist, with individuals acting according to their ‘station’ in life. Individuals are expected to act according to ethical norms laid down by their group. For example, this could involve charging fair prices or paying fair wages, and spending within one’s means – not to impress others. There may be an expectation of monetary contributions to the group, whether it be in the form of tithes to the church or duly paying taxes. This traditional level is also associated with a strong work ethic (as one example, the so-called ‘Puritan work ethic’ described by Max Weber (2002)).

This brief description of the cognitive capacities, morals and values of ‘homo traditionalist’ is not recognised in economic textbooks, but conforms to economic ideas expressed by pre-modern writers from the Ancient Greeks to the Middle Age scholastics (see section 5.1). The mainstream conception of the ‘representative economic agent’, or *homo economics*, is underpinned by the next stage of consciousness.

## *Homo economicus*: rational economic ‘man’

Following the concrete operational stage, the next level of cognitive development in Piaget’s scheme is called formal operational: the ability to use abstract reasoning and logic, which facilitates the formulation of more generalised and universal ideas. Rationality implies the capacity to take multiple perspectives, including objective orientations to the world, which underpin scientific enquiry. Formal operational reasoning also supports world-centric moral perspectives, namely that all humans are equal, irrespective of race, colour, gender or creed. Principles of fairness apply universally, not just to a chosen ethnic group (as in ethno-centric moral judgements). This corresponds to Kohlberg’s moral stage of social contract orientation. In terms of emotional development, there is a level of empathy towards all other humans, and not just those from one’s own ethnic group. Beck and Cowan (1996) refer to the self-conception as the “achiever self”. There is an emphasis on personal freedom and the pursuit of individual self-interest (as recognised by Adam Smith). This gives rise to meritocratic, achievement-oriented values. Materialism also tends to be a strong drive, including the profit motive.

The typical behaviours resulting from this rational mode of cognition and the related individualistic value system give rise to optimising behaviour: do as well as possible materially, whether it be personally, in the household or in terms of profit maximisation within companies. People operating from this level also tend to be competitive, putting the interests of self above others, but within a framework of social rules and contracts (legal property rights).

This stage is clearly the one that forms the basis of *Homo economicus* in economics textbooks and models. However, many economic theories have turned rationality into an extreme version of hyper-rationality, with individuals assumed to have access to all requisite information and to make vast numbers of optimising calculations on which to base all their economic decisions.

## *Homo socialus*: ‘Relational economic person’

Beyond formal operational cognition, there can emerge a new kind of capacity called polyvalent logic, or vision-logic, which is the ability to understand systems and to think laterally rather than just linearly (Wilber 2000b). This stage of development combines intuitive capacities with rational/logical/linear cognition. According to Wilber (2000b: 22), “these postformal stages generally move beyond the formal/mechanistic phases (of early formop) into various stages of relativity, pluralistic systems, and contextualism (early vision-logic), and from there into stages of metasystematic, integrated, unified, dialectical, and holistic thinking (middle to late vision-logic).” A new altitude of perspective emerges, which allows reflection on the rational mode and also on its moral position.

The world-centric moral position evolves further: not just all humans, but all life is valued; the rights of minorities should be protected. This corresponds to Kohlberg’s moral stage six, of universal ethical principles. In terms of emotional and interpersonal development, there is a high level of empathy towards other humans, and not just their own ethnic group. In many cases this empathy extends to the natural world as well. This gives rise to strongly egalitarian values, care for others, protection of minority rights, embrace of diversity, and sensitivity to the feelings of others. There is a strong sense of reciprocity, and relationships with others are of great importance. Beck and Cowan (1996) refer to the self-conception as the “sensitive self”.

The typical behaviours expressed at this stage include altruism rather than pure self-interest; for example, volunteer work and the open source movement. There is an emphasis on cooperation and sharing rather than competition. Related behaviours include car-pooling or ride-sharing, and tool libraries. Individuals tend to be in favour of progressive taxes and social safety nets to ensure that everyone’s basic needs are met. The moral stance gives rise to social entrepreneurs and activists who fight for women’s rights, minority rights, environmental protection, and so on. It is also reflected in conscious consumers: sufficiency, recycling, fair trade, and purchasing organic produce so as to limit harmful impacts on the environment. It is worth noting that these values and behaviours tend to emerge when individuals’ more basic needs (such as physical survival, security and individual freedom) have been met.

## Conclusion: limitations of the orthodox assumptions

The brief sketch of different stages or levels of individual psychological capacities – including cognition and moral values – clearly demonstrates that while there is a lot of truth to the conventional conception of the rational economic agent, it is certainly not the whole truth. Not every individual reaches the level of formal operational cognition, and some surpass it to operate with polyvalent logic or systemic thinking. The same applies in the case of ethno-centric, world-centric and universal moral positions. Some of the key differences between individuals operating from the rational and relational stages are highlighted in Figure 6. The competitive, rational pursuit of (mainly material) self-interest is but one possible orientation among many.

Figure 6: Two conceptions of a representative economic agent

|  |  |
| --- | --- |
| **Rational economic man** | **Relational economic person** |
| * formal operational cognition * rational, linear thinking * self-interested * meritocratic * individualistic * optimizing * masculine bias * left-brain * “cold and calculating” | * polyvalent logic * intuitive, relational thinking * co-operative * egalitarian * community-oriented * values sharing * gender balance * right-brain[[14]](#footnote-14) * “warm & sensitive” |

*Source: Author*

In recent times relatively new approaches to microeconomics, namely experimental and behavioural economics, have used new methodologies to test assumptions about human nature and to understand microeconomic behaviours. The assumption that humans are essentially self-interested, in the sense that they consider the gains and losses only to themselves in any (economic) interactions, has been challenged by recent experimental economics research, which has provided compelling evidence that *Homo economicus* may in fact be a scarce type of individual (Gintis 2000; Heinrich et al 2001). My contention is not that *Homo economicus* does not exist (there is plenty of calculating, self-interested behaviour observable in the world today, and no more so than in the business world), but that it is a special case rather than a general rule.

This implies that the assumption that all individuals are alike, and therefore that economic decision-making and processes can be modelled using a single ‘representative agent’, is clearly false. The question is, can a theory be developed which is able to differentiate to some extent between – and within – human beings, and yet still maintain theoretical coherence and practicability? Advances on the interface of psychology and economics suggest the answer is yes. Another potentially interesting avenue of research would be to investigate the role of personality types (e.g. as per the Enneagram system) in the expression of varied economic behaviours. This could be tested empirically, since tests have been developed for personality type classification, which can then be augmented with more conventional economic survey data or economic experiments.

As was mentioned in section 3, individual consciousness, including intentions and motivations, are partially shaped by the cultural context in which people find themselves. The following section examines the collective aspect of human interiors, namely the Lower-Left, cultural quadrant, with an emphasis on how economic theory has evolved over time.

# Stages in the Evolution of Economic Thought

The central question explored in this section is whether the evolution of economic thought can be mapped according to the basic waves or levels that have been identified in the Lower-Left quadrant of worldview and value systems (see some prominent examples in Figure 7). Leaving aside the early cultural waves (archaic and magic) – which did not produce any body of economic literature – we focus here on three main stages, which can most broadly be termed pre-modern (mythic/traditional), modern (rational-scientific) and post-modern (pluralistic-relativist).[[15]](#footnote-15) These three stages are the Lower-Left, cultural correlates of the three individual waves of development discussed in the previous section.[[16]](#footnote-16)

Figure 7: Waves of cultural evolution: worldview and value systems

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Ken Wilber** | **Jürgen Habermas** | **Jean Gebser** | **Spiral Dynamics (Beck & Cowan)** | **Where seen (social structures):** |
| archaic | archaic | archaic | archaic | survival bands |
| magic | animistic-magical | magic | tribal-magical | tribes |
| magic-mythic | mythological | mythic | power gods | feudal empires |
| mythic | mythic-rational |  | mythic order | ancient nations |
| rational | rational-reflective | mental | scientific-rational | nation states |
| pluralistic-relativist | world citizens | integral-aperspectival | pluralistic | value communities |
| integral |  |  | integral | integral commons |
|  |  |  | holonic | holistic meshworks |

*Source: Adapted from Wilber (2000b, Charts 9A & 9B, pp.214-15) and Beck & Cowan (1996)*

## The pre-modern, traditional worldview

The great classical economist Adam Smith, who published his seminal work on economics – *The Wealth of Nations –* in 1776, is widely regarded as the ‘father’ of modern economics. However, this is not to say that there were no writings on economics before Smith. Many books on the history of (Western) economic thought begin with the writings of Greek philosophers, then analyse economic ideas contained in the texts of the monotheistic religions (Judaism, Christianity and Islam), and continue with the works of scholars from the Middle Ages.

According to Backhouse (2000:11), the society of the earliest Ancient Greek writers such as Homer and Hesiod was “ordered and hierarchical, based not on market relationships, but on the distribution of wealth through gifts, theft, prizes for winning competitions, plunder received in war, and tribute paid by defeated cities to their conquerors.” Trade and commerce were generally viewed as inferior forms of exchange and wealth acquisition than agriculture and military conquest. Already one can see that ideas about economics are informed by moralistic concerns and relate to the hierarchical social order. Of central importance was the landed estate, and in fact the term ‘economics’ is derived from the Greek word for household or estate management. The keys to such management, according to Xenophon, were efficient organisation and effective leadership. The great philosophers Plato and Aristotle also gave some attention to economics. Plato emphasized the efficient organisation of society based on principles of justice, while his protégé Aristotle also investigated justice (applied to distribution and exchange) along with management of the household and state. Aristotle was against the unchecked accumulation of wealth, and by extension exchange or commerce that was driven purely by the profit motive (money making). In his view, “order was produced not through individuals pursuing their own ends, but through efficient administration” (Backhouse 2000:24). In Ancient Rome there was a similar belief that wealth acquired from trade was morally inferior to wealth generated from the land (Backhouse 2000:26). In the words of Backhouse (2000:28), “these two themes – justice and the morality of commerce – dominated discussions of economic issues right up to the seventeenth century, by which time the existence of a market economy and a commercial mentality had come to be accepted.”

In the Middle Ages, the development of economic thought was inseparable from religion, being informed by Judaism, Christianity and Islam. In Judaism, there was suspicion of trade and lending money at interest (usury). Man was seen as a steward of the land and work was viewed as a noble endeavour. The Old Testament contains laws that regulate economic activity, including freeing slaves after six years, and cancelling debts every seventh year (Backhouse 2000). Pursuit of individual wealth (especially through money-lending) was regarded as ungodly, although wealth accumulated through hard work was not. The New Testament encouraged early Christians to give up their material possessions and seek salvation and riches in heaven. In a similar vein, the Koran advocated taxation to support the poor and forbade usury. These ideas were taken up by scholars at the first universities, which were established as part of the twelfth-century renaissance in Western Europe. So-called ‘scholastic economics’ was based on a foundation of theology and law, with a focus on ethics and morality. The main focus during this period was on just prices, just measures, interest and usury, ethics, charity and the poor (Backhouse 2000). These scholastic writers advanced rational arguments based on ‘natural law’ to support religious teachings on economic issues. These pre-modern economic writings related closely to the economic systems of their times, which were essentially based on agrarian modes with limited manufacturing and commerce.

The preoccupation of pre-modern economic thought with issues of morality, justice and order is congruent with Beck and Cowan’s (1996) description of the fourth level of worldview and cultural values, or what they call the Blue vMeme (short for values meta-meme). Termed Mythic Order, this vMeme emphasizes law and order, with strongly conventional and conformist beliefs. Wilber (2001: 9-10) summarises this perspective as follows:

Life has meaning, direction and purpose, with outcomes determined by an all-powerful Other or Order. This righteous Order enforces a code of conduct based on absolutist and unvarying principles of “right” and “wrong.” Violating the code or rules has severe, perhaps everlasting repercussions. Following the code yields rewards for the faithful.

These pre-modern perspectives on economics clearly had major limitations, some of which can be expressed in terms of elements of the integral model. First, the four quadrants were inadequately differentiated. Pre-modern economics failed to distinguish between the quadrants, especially in terms of separating ethics and values from economic processes and systems – reflecting the lack differentiation between ‘art, morals and science’ that characterised the pre-modern worldview (Wilber 2000b). In effect, many traditional writers effectively conducted their analysis of economics through the restrictive lens of the prevailing ethical code. They lacked the application of the scientific method of hypothesis formulation and testing against objective empirical evidence, which is the hallmark of the right hand quadrants. The pre-modern writers failed to clearly identify the role of culture (shared worldviews and values, Lower-Left quadrant) and of socio-technical systems and modes of economic production (Lower-Right quadrant) in determining economic behaviour and activity. Second, pre-modern economics did not have a conception of evolutionary levels of development, whether in terms of the evolution of economic thought itself (which was seen in an absolutistic, right-or-wrong manner) or stages of techno-economic development. Of course, pre-modern economic theories predated the industrial revolution, and the largely agrarian economies these scholars and philosophers ruminated upon were relatively simple by modern standards.

## The modern, rational-scientific worldview

The ‘modern’ era is associated with the emergence of the Western Enlightenment around the 15th and 16th centuries. This brought with it the ‘age of reason’ and the scientific method of objective observation, experimentation and rational analysis. The use of deductive and inductive modes of thinking were developed by Ancient Greek philosophers, but now came to be applied more systematically. There was also a gradual separation of science from ethics (especially religious dogmas) and the arts. Formal operational capacities were unleashed from their ethical straight-jackets to explore the world as it really was, not how it ‘ought’ to be. Gradually, distinct disciplines emerged and later proliferated in natural sciences (physics, chemistry, biology, etc.) and social sciences and humanities (political science, sociology, anthropology, psychology, etc.).

The development of economic thought from the sixteenth century onwards reflects these broader changes in the dominant mode of Western thought, although it was a gradual process. Backhouse (2000:65) notes that over the course of the sixteenth century,

“To a still greater extent, moral questions were pushed aside in favour of analysing what was actually going on in the world and what could be done. Instead of disputing the morality of profit, such writers were beginning to take profit-seeking behaviour for granted and attempted to work out its implications…”

Adam Smith, whose work the *Wealth of Nations* is generally regarded as signalling the beginning of modern economics, was actually a moral philosopher. He, together with the other great classical economists (such as David Ricardo, John Stuart Mill, Jeremy Bentham and Karl Marx) studied ‘political economy’, a broad subject that included issues of distribution and justice as well as economic efficiency. Thus the disengagement of economic theory from ‘moral sentiments’ did not occur overnight.

In fact, economics only really became a distinct discipline a little more than a century ago. The ‘Marginalist Revolution’ of the 1870s, led by William Stanley Jevons and Leon Walras, sought to make economic theory more rigorous and scientific by applying the methods of mathematical calculus. Their work was extended and synthesized as ‘neoclassical economics’ by Alfred Marshall in the early 20th century. From this point on, economics became more distinct – and increasingly isolated – from other fields of inquiry. As the 20th century wore on, the core of economic theory tended to become more mathematical, and to focus increasingly on the right hand, objective quadrants. The key modus operandi became the development of abstract models – increasingly expressed mathematically – which were then (sometimes) tested empirically against real-world data.

Over the course of the 20th century, economics adopted and applied most of the typical tenets and methodologies of the modern, rational-scientific worldview. The underlying ontology is realist, namely that an objective reality exists independently of our thinking. This epistemology assumes that knowledge progresses cumulatively towards ultimate truth. There are universal economic laws that apply always and everywhere. Positivism and empiricism became thoroughly entrenched in economics. The favoured methodological approach became methodological individualism, i.e. causal explanations of economic phenomena must be derived (or derivable) from the motivations and actions of individual agents (in integral terms, the upper, individual quadrants are dominant). When it came to assumptions about such individual motivations, rationality and self-interest were taken as universally applicable (as discussed in section 4.2), while preferences were taken as exogenous. This gave rise to rational choice theory, which came to dominate microeconomics (and made inroads into other disciplines like political science). Rationality also – later in the century – had a major impact on macroeconomics, with rational expectations theory supplanting Keynesian arguments about ‘animal spirits’ driving collective behaviour.

This brief characterisation of modern economics essentially conforms to Beck and Cowan’s (1996) Orange vMeme: Scientific Achievement, which Wilber (2001:10) summarises as follows:

At this wave, the self “escapes” from the “herd mentality” of blue, and seeks truth and meaning in individualistic terms – hypothetico-deductive, experimental, objective, mechanistic, operational – “scientific” in the typical sense. The world is a rational and well-oiled machine with natural laws that can be learned, mastered, and manipulated for one’s own purposes. Highly achievement oriented, especially (in America) toward materialistic gains.

The firm rooting of modern, mainstream economics within the rational-scientific worldview and mode of analysis has led to a proliferation of useful models and insights about economic behaviour and processes. Nevertheless, it has serious limitations when viewed from more encompassing perspectives. First, orthodox economics commits the typical reductionism of modern science, in that the left-hand quadrants are largely ignored or their significance for economic phenomena are downplayed. In particular, modern economics reduced the attention it gave to issues of culture, values and ethics. Another form of reductionism is the insistence that explanations of macroeconomic phenomena have microfoundations, i.e. the behaviour of whole economic systems must be reducible and reduced to the behaviour of individuals. Second, partly because of the right-hand focus, mainstream economics has been criticised for excessive quantification and abstraction – particularly the use of mathematical models, which often require highly restrictive (and unrealistic) assumptions about human nature. Third, as the discussion in section 4 demonstrated, not all economic ‘agents’ operate only or even primarily from their rational (formal operational) capacities. Furthermore, mainstream economics generally assumes a rather extreme version of rationality. It also takes individuals’ tastes and preferences as fixed and exogenously determined, not influenced by cultural forces (Lower-Left quadrant). Fourth, at least until the past decade or two, mainstream economics largely cut itself off from other disciplines, including other social sciences, which many economists derisively regard as ‘soft’. It also divorced itself from ecology, and came to view the environment as a set of inputs to the economy, rather than the economy being a subset of the environment. Neoclassical economics was formulated in an era when natural resource constraints were generally speaking not binding on economic growth; growth became assumed as a normal and unending process. Now, however, there is accumulating evidence that this is no longer the case as environmental limits – both sources and sinks – are reached (Meadows et al. 2004; Rockstrom et al. 2009; Fischer-Kowalski & Swilling 2011).

In sum, my argument is not that much of modern economics (including its assumptions and modes of analysis) are necessarily *incorrect*, but rather that they represent *partial truths*. What is needed, therefore, is not an *alternative* set of assumptions and analytical techniques, but a more *encompassing* one, which includes more aspects of human nature and experience. With this in mind, we consider next the emergence of a new worldview that is critical of the limitations of the rational-scientific perspective.

## The post-modern, pluralistic-relativist worldview

Beginning in the 1960s, chiefly in the USA but also in Europe, there began to emerge a new worldview. This has most broadly come to be termed ‘post-modern’, as it followed – and criticised – the modern worldview as described above. Some of the pioneers of this mode of thought were Martin Heidegger, Jacques Derrida, Michel Foucault, and Jean-François Lyotard. Some of the major tenets of post-modernism are as follows. First, *relativism* holds that all knowledge is context-specific, relative and socially constructed. Thus truths describing ‘reality’ are relative to personal, cultural and historical circumstances. Reality is not independent of our individual or social thinking (subjectivism). Second, the methodology is *pluralist*: there is no single correct methodology or perspective, since each depends on the particular context. Among the primary methods of post-modern analysis are deconstruction (showing that any text has multiple meanings, some imputed uniquely by the individual reader), hermeneutics (interpreting texts and behaviour) and discourse analysis. Post-modernism is strongly critical of ‘scientism’ (the assertion that the scientific method is the only valid approach) and essentialism (the assertion that there is an absolute truth). This post-modern approach gradually came to prominence in many of the leading universities in the Western world, but mainly in the humanities and (some) social sciences.

In addition to the post-modern worldview, a new set of cultural values emerged in parallel. These emphasized the rights of minorities, who often get marginalised in the meritocratic modern world. This included the civil rights movement, the feminist movement, and (gradually) the protection of LBGT rights. As part of this new wave of consciousness, the 1960s also witnessed the birth of the environmental movement, led by seminal publications such as Rachel Carson’s *Silent Spring* (1962) and the Club of Rome’s *Limits to Growth* (Meadows, Meadows, Randers & Behrens 1972). This is not to say that no-one had considered or advanced civil rights and environmental agendas before, but previously it tended to be lone voices, whereas at this point in history there was a broad wave of new values that emerged as a meta-meme – the Green vMeme in the language of Beck and Cowan (1996). This Green vMeme abhors dominator hierarchies and disputes the contention of the modern worldview that there are universal truths (Wilber 2000a). Wilber (2001: 10-11) summarises the Green vMeme (the Sensitive Self) as follows:

Communitarian, human bonding, ecological sensitivity, networking. The human spirit must be freed from greed, dogma, and divisiveness; feelings and caring supersede cold rationality; cherishing of the earth, Gaia, life. Against hierarchy; establishes lateral bonding and linking… Emphasis on dialogue, relationships… Strongly egalitarian, antihierarchy, pluralistic values, social construction of reality, diversity, multiculturalism, relativistic value systems… Subjective, nonlinear thinking; shows a greater degree of affective warmth, sensitivity, and caring, for earth and all its inhabitants.

While post-modern pluralistic relativism has had a major impact on the humanities (including cultural studies and history) and several social sciences, it has not (yet) had a substantial impact on mainstream economic thought. Nevertheless, several ‘heterodox’ schools of economic thought exhibit many of the key features of the post-modern worldview as sketched above.[[17]](#footnote-17) These schools include post-modern economics, feminist economics, socio-economics, institutional economics, ecological economics, evolutionary economics and complexity economics.

Some scholars have sought explicitly to introduce post-modern ideas to economics (e.g. McCloskey 1983) or to develop a post-modern approach to economics (e.g. Cullenberg, Amariglio & Ruccio 2001). In characteristic post-modern ‘voice’, Cullenberg et al. (2001: 5) write that “modern economics has run up against certain anomalies and fragmentations that have proliferated diverse knowledges in addition to putting on the agenda concepts and approaches that lead away from rather than toward a universalist science.” Post-modern economics challenges the formalism of orthodox economics, i.e. it disputes the presumption that one language (mathematics) is better than others at representing truth; neoclassical economics is seen as but one economic discourse amongst a plurality. It also criticises the conception of *Homo economicus* as a unified, rational, intentional agent, arguing that individuals are more commonly fragmented, non-rational, and habitual.

Feminist economics, which attempts to address a male and patriarchal bias in economics, largely adopts post-modern epistemology and methodologies (Nelson 1995; Benería, May & Strassmann 2009). For example, it points out the social constructions of modern/orthodox economics (for instance, the excessive use of ‘masculine’ ways of thinking) and calls for broader methods, data and assumptions about human motivations. It also addresses normative issues such as power relations, and gender, racial and ethnic discrimination. Feminist economics criticises the orthodox assumptions about human nature, motivations and values, arguing that they resemble the stereotype of ideal masculinity.

Socio-economics is a school of thought, founded in the late 1980s, which attempts to merge economics with other social sciences, such as sociology, psychology, anthropology and politics (see Etzioni & Laurence 1991). The basic premises of socio-economics are that: (1) people are not “cold-blooded, self-interested, rational calculators”; the economy is embedded within culture and society; and power is of central importance in theory (Etzioni 1986). It seeks to add realism to economics through empirical and inductive methods, to understand the endogenous formation of preferences, and to investigate the influence of culture and institutions on the market and economic processes and behaviour. Socio-economics also challenges the *Homo economicus* assumptions, arguing that this conception has been devised to make the mathematical analysis of economic behaviour tractable. The school analyses the impact on economic behaviour of psychological factors (e.g. unconscious behaviours, instinct, impulses, emotions, habits, personality types and myopia) and cultural factors (e.g. social conditioning, norms and rules, and class, ethnicity and gender).

Ecological economics is yet another heterodox school that emerged in the late 1980s (Costanza 1989). It studies the interactions between two complex systems, namely human and ecological systems (Daly & Farley 2004). Ecological economics is explicitly pluralistic in its methodology, with the flagship journal positioning it as a transdisciplinary field that is problem-oriented rather than discipline-specific. The field is critical of what it sees as many limitations of mainstream economics, and argues that the economy is a subset of the environment and hence infinite (physical) economic growth is impossible on a finite planet. There is a co-evolution between the economy and culture, and both impact on and are affected by the environment. Ecological economics advocates that values and normative issues should dealt with explicitly, and not assumed away as in orthodox economics (Daly & Farley 2004). It accepts a range of methods, without a strong preference for formalism.

American institutional economics was pioneered in the early 20th century by Thorsten Veblen in opposition to (what he termed) neoclassical economics, and was subsequently extended by writers such as John R. Commons and Wesley Mitchell, and resurrected in the 1970s by John Kenneth Galbraith.[[18]](#footnote-18) Veblen was influenced by Darwinian thought and the recent emergence of new social sciences, especially anthropology, sociology and psychology. Institutionalist thinkers analyse “the impact of technological change on the structure and functioning of the economic system, the power relations among economic interest groups, the logic of the process of industrialisation and the determination of national goals and priorities” (Gruchy 1977, in Screpanti and Zamagni 2005: 301). Institutional economics views human motivations and ends, as well as the legal-institutional structure or environment in which they act, as endogenous aspects of the socioeconomic system. It deals with institutions in the cultural quadrant (in the sense of customs, habits, traditions, rules, modes of thinking) as well as organisations in the social quadrant (e.g. firms, central banks, government agencies, etc.). The economy is viewed as embedded in society and culture, so that economics interacts with politics, sociology, law, ideology, customs, history, etc. The epistemology is relativist, while the methodological approach is pluralist and interdisciplinary, with empirical, historical and inductive methods being preferred to axiomatic theories. Individualism is seen as reductionist.

Evolutionary economics studies evolutionary processes or endogenously caused change, and employs evolutionary concepts (e.g. Darwinian notions). Klaes (2004: 370) argues that evolutionary economics “is not a closely integrated field of research, with commonly accepted core concepts or sharply defined boundaries” but rather an “agglomerate of loosely connected themes”. These strands include Veblenian/institutional evolutionary economics, neo-Schumpeterian economics, Austrian (Hayekian) evolutionary economics, and evolutionary game theory. The institutional strand views the economy and society (and economic theory) as evolving over time, and sees institutions (in the sense of cultural norms etc.) as being subject to a Darwinian-type process of natural selection. It is strongly critical of orthodox economics, especially methodological individualism and the *Homo economicus* assumptions, asserting that institutions shape collective (and therefore individual) behaviour. Schumpeterian evolutionary economics focuses more on the dynamics of development within the capitalist system (Lower-Right quadrant), rather than on the realm of culture; nevertheless, it shares with other heterodox schools an emphasis on the importance of historical context.

Another recent branch of economic thinking, called complexity economics, possibly also fits within the (broad) post-modern worldview, critiquing as it does the largely linear approach of mainstream economics (see, for example, Ormerod 1998; Beinhocker 2006). According to this approach, economies and societies are more than the sum of their parts. This means that the economy cannot be modelled in a reduced form on the basis of a representative economic agent (Ormerod 1998). Furthermore, individuals’ tastes and preferences change, and are influenced by those of other people.

These heterodox schools of thought have several common features, which appear to locate them within the post-modern worldview (or Green vMeme in the Spiral Dynamics framework). First, they are all critical of orthodox economics and point out several of its epistemological and methodological limitations, and its narrowness of scope (including its restrictive conception of the representative human agent). Second, all advocate a pluralistic methodology, arguing that there is no single correct way of ‘doing’ economics. Some are explicitly inter- or transdisciplinary in their approach (for example, socio-economics and ecological economics). Third, these schools all recognise the importance of historical and social context in determining economic relations and processes. Fourth, these schools generally embrace a set of post-modern values, including the importance of human relationships, cooperation, egalitarianism, multiculturalism, inclusivity, sharing, and (in some cases) emphasizing nature for its intrinsic value, not just its utilitarian value.

Heterodox schools of economic thought that fall broadly within the post-modern worldview of pluralistic relativism and related egalitarian values, are still very much on the fringes of mainstream economics, which remains firmly rooted in the rational-scientific paradigm. Perhaps this is because the post-modern lens is mostly directed at the Lower-Left quadrant (focusing on the role of cultural context in shaping knowledge formation), whereas conventional/modern economics, as we have seen, focuses almost exclusively on the right hand, objective quadrants. Post-modernism has a harder time explaining individual economic behaviours, the workings of firms, and macroeconomic dynamics (occurrences in the objective, right hand quadrants) than it does the role of context in shaping cultural values, and the effect of values on economic behaviour. However, it is possible that over time the subject of economics will shift its centre of gravity from the modern to the post-modern wave – especially as technological, environmental and other driving forces change the way economies and economic agents behave (a little more on this later). Such a shift could also be a stepping-stone towards a more holistic, comprehensive or integral approach to the study of economics. Dow (2001: 61) puts it in dialectic terms: “postmodernism evolved out of modernism as the antithesis to modernism’s thesis. … Already apparent in postmodernism is evidence of a transition to the next, synthetic, stage which goes beyond the dualism of modernism/postmodernism.”

## Summary: A holarchical history of economic thought

The preceding sections have outlined a stage conception of the history of economic thought, wherein the evolution of the discipline has been divided into three major phases according to widely accepted models of worldview development. The first phase, pre-modern or traditional writings on economics, spanned the period of (Western) history from the Ancient Greeks to the end of the Middle Ages, and was characterised in essence by a focus on morality and order in economics. Next, the Enlightenment and scientific revolution gradually gave rise to modern economics, with its emphasis on the rational, self-interested behaviour of individuals and abstract models of economic phenomena, which are (ideally) tested empirically. Starting around the 1980s, the post-modern paradigm emphasizing relativism and pluralism began to be applied in criticism of the universal precepts of modern economics. To date, however, the post-modern worldview has had less impact on economics than on other social sciences, and its perspective is largely limited to a few heterodox schools of economic thought.

The transition between waves of economic thought has by no means been discrete or clear-cut. There are strands of theory that are not straightforward to place within this scheme, and some thinkers were clearly ahead of their time in some respects. The process of worldview shift has unfolded over decades or even centuries. When a new cultural wave (worldview and value system) emerges, it is naturally critical of its immediate predecessor, as it seeks to distinguish itself. Thus, the rational-scientific approach was critical of the pre-modern perspective; and post-modernist heterodox schools are expressly critical of modern, orthodox economics. The main centre of gravity within the discipline of economics is still very much within the modern paradigm. And yet, many outsiders – both those working within heterodox schools and those in other disciplines such as ecology and sociology – see orthodox economics as disastrously out of touch with current reality and regard it as essentially in crisis.

Each of the heterodox schools brings important contributions to the study of economics, but is incomplete in itself. If the several scholars who have identified an ‘integral’ wave of worldview and culture are correct, then it stands to reason that such a perspective would be valid – and welcome – for economics as well. Such an integral economics would recognise the evolutionary spiral of economic thought, and see its history as an unfolding set of nested waves – a holarchy of ideas and approaches in which each stage transcends and includes the previous one. The key distinguishing feature of this integral worldview is that it recognises the legitimate place occupied by other worldviews, rather than regarding them as wrong (Graves 1970; Beck & Cowan 1996; Wilber 2000b).

One example of a more integral approach to economics is the recent book by Said Dawlabani (2013), *MEMEnomics*. Dawlabani applies the Spiral Dynamics framework of cultural value memes (vMemes) developed by Beck and Cowan (1996) to economic history – showing the evolutionary links between worldviews/cultures and corresponding economic structures and systems. Yet Dawlabani’s book does not try to map a four-quadrant perspective on the discipline of economics. It focuses mostly on the two collective quadrants and has less to say about either the waves and streams of individual psychology and motivations (Upper-Left quadrant) or individual economic behaviour (Upper-Right quadrant). Nor does it locate the history of economic schools of thought and paradigms along the spiral. Thus while MEMEnomics is an important component of an integral economics, it is not a full picture. However, it brings a welcome new multicultural perspective to the history of economic development, to which we now turn.

# Waves of Socioeconomic Development

This section examines waves and streams of development in the Lower-Right quadrant, which encompasses social and economic systems and the environment. As mentioned in section 2.2, there is broad agreement across several disciplines that there have been several distinct phases in the evolution of socioeconomic systems – including the techno-economic base (the key types of resources and the technologies used to harness them in order to meet human needs), forms of social organisation, political systems, and so on. Not all scholars – whether they be economic historians, anthropologists, sociologists or researchers from other disciplines – agree on exactly how many waves there have been. Nevertheless, there is clearly considerable overlap among the various models (see Figure 8 below for a summary of several examples). Gerhard Lenski’s (1966, 2005) widely accepted model identifies epochs of social evolution according to the techno-economic base: foraging (hunting and gathering), horticultural, maritime, agrarian, industrial, and informational. Some of these stages (especially the earlier ones) have been split into early and advanced forms. Wilber (2000b) correlates these stages with forms of social organisation described by the likes of Alistair Taylor and Beck and Cowan’s (1996) Spiral Dynamics system: survival bands, tribes, villages, early states/feudal empires, ancient nations/empires, (corporate) nation-state, and global or supra-national society. Jürgen Habermas introduced a notion of successive ‘scarce resources’: power over nature (bodily security), legal security (law and order), value, and meaning. The remainder of this section examines more closely a number of stage-type models of economic development from the economics literature.[[19]](#footnote-19)

Figure 8: Waves of social evolution

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Age**  **(Wilber)** | **Techno-economic base**  **(Lenski)** | **Social organisation (Wilber)** | **Social organisation (A. Taylor)** | **Social organisation (Beck & Cowan)** | **Scarce resources**  **(Habermas)** |
| Paleolithic | simple foraging |  |  | survival bands |  |
| Mesolithic | advanced foraging | tribes, organized hunt | family, clan, band | ethnic tribes | power over nature |
| Neolithic | simple horticultural | village | tribe |  |  |
| Copper | advanced horticultural | village |  |  | legal security |
| Bronze | simple agrarian | early state | theocratic empires | feudal empires |  |
| Iron | advanced agrarian | empire |  | ancient nations |  |
| Enlightenment | industrial | nation-state | national state | corporate states | value |
| Globalization | informational | global | supra-national | integral commons | meaning |
|  |  |  |  | holistic meshworks |  |

*Source: Adapted from Wilber (2000b: Charts 9A & 9B, pp.214-15)*

## Stage models of economic development

Within the discipline of economics, stage models of development have been proposed mainly within the subfield of economic history, i.e. the study of how economic conditions, processes and systems have developed and changed over time. A few prominent examples are discussed below, with a summary of stages provided in Figure 9. The objective is to be illustrative rather than comprehensive with regard to developmental-stage models.

Perhaps the earliest major example of a stage conception of socioeconomic development – and certainly one of the most famous – was Karl Marx’s hypothesized stages in the evolution of economic systems, namely from primitive communism (survival/subsistence), to slavery, to feudalism, to capitalism, to socialism, and ultimately to communism. Marx formulated a dialectical theory of social evolution, in which each stage (thesis) runs into constraints and contradictions (antithesis), resulting in revolutionary change and the emergence of new relations of production (synthesis). Marx’s conceptions of socialism and communism have been widely misunderstood and arguably abused in their practical application. So-called ‘communism’ as practiced in the Soviet Union and Communist China was actually a form of state socialism (Brue and Grant 2012), with very hierarchical power structures reminiscent of the ‘mythic order’ Blue wave in Spiral Dynamics. Marx’s real conception of communism has not (yet) emerged on any significant scale, although there are several contemporary examples of ‘intentional communities’ that come close in some respects (e.g. Findhorn).

Writing at the turn of the twentieth century, the American institutional economist Thorsten Veblen (1899, 1904) identified three stages of societal evolution, which he named ‘peaceful savagery’ (hunter-gatherer societies), aggressive barbarism (settled, feudalistic hierarchies), and capitalism. Like Marx, Veblen believed that internal contradictions within capitalism would lead to its demise – but the nature of the contradictions he saw were different, as was the process of demise (Backhouse 2002: 197). In Veblen’s (1921) view, engineers would eventually take over as belief in ‘natural law’ gave way to cause-and-effect reasoning, showing the weaknesses of the ‘predatory’ business class.

Figure 9: Stages of socioeconomic development

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Techno-economic base**  **(Lenski)** | **Stages of social evolution**  **(Marx)** | **Socio-economic evolution (Veblen)** | **Economic age**  **(North)** | **Stages of economic growth (Rostow)** | **Socio-ecological regime (Fischer-Kowalski)** |
| foraging | primitive communism | peaceful savagery | traditional (foraging) |  | hunter-gatherer |
| horticultural |  |  |  |  |  |
| agrarian | slavery | aggressive barbarism | agricultural | traditional (agriculture) | agrarian |
|  | feudalism |  |  |  |  |
| industrial | capitalism | capitalism | industrial | pre-conditions, take-off, maturity, mass consumption | industrial |
| informational | socialism |  |  |  | sustainable |
|  | communism |  |  |  |  |

*Source: Author’s compilation*

Walt Rostow (1971) devised a model of the stages of economic growth, which he termed traditional, pre-conditions, take-off, maturity, and mass consumption. His scheme is somewhat different from other stage conceptions, as he is essentially describing a life-cycle process of growth at the macro scale, the process beginning in the traditional, pre-industrial economy and progressing to the modern, capitalist economy. Rostow’s ‘traditional’ society, which referred to “the whole pre-Newtonian world”, was based on agriculture and “the centre of gravity of political power generally lay in the regions, in the hands of those who owned or controlled the land” (Rostow 1971: 5). Rostow’s model therefore omits the foraging epoch. The next stage, pre-conditions for take-off, involved the emergence of entrepreneurs “willing to mobilize savings and to take risks in pursuit of profit or modernization” and also the centralization of political power at the level of nation state (Rostow 1971: 6). Next, the take-off phase was generally driven by technological progress in agriculture and industry, but also required the emergence of a political power grouping that prioritized economic modernization. Subsequently, growth becomes sustained and there is a “drive to maturity” as technologies are extended across the society. The fifth stage is an “age of high mass-consumption”, in which “the leading sectors shift towards durable consumers’ goods and services”, which are widely diffused throughout the population (Rostow 1971: 10). The satisfaction of material needs can lead to the emergence of the welfare state. As in the case of most other stage-model proponents, Rostow (1981: 5-6) implicitly recognised the importance of and interactions among various streams within the Lower-Right quadrant, as well as culture (Lower-Left quadrant): “[in] the post-traditional societies,… each of the major characteristics of the traditional society was altered in such ways as to permit regular growth: its politics, social structure, and (to a degree) its values, as well as its economy.”

Another prominent stage conception was proposed by the economic historian Douglas North (1981), who views economic history through the lens of neo-institutional economics, which supplements neoclassical economics with analysis of institutions, property rights, the state and ideology. North identified three major economic ages, namely traditional (hunting and gathering), agricultural, and industrial. In his view, tensions between population pressures and resource constraints culminate from time to time in ‘economic revolutions’, of which he identifies two, namely the ‘agricultural revolution’ and the ‘industrial revolution’.[[20]](#footnote-20) North identifies a sequence (a ‘stream’ in integral terminology) of property rights development, which begins with communal rights (foraging bands), to exclusive-communal rights (settled tribes defending their crops), to individual-private (as is the norm in modern industrial nations). North (1981: 58) also provides a neat summary of the limits of Upper-Left quadrant reductionism when it comes to explaining the evolution of economic systems, in effect arguing that the Lower-Left quadrant (culture and ideology) is also important:

The simple fact is that a dynamic theory of institutional change limited to the strictly neoclassical constraint of individualistic, rational purposive activity would never allow us to explain most secular change… Secular economic change has occurred not only because of the changing relative prices stressed in neoclassical models but also because of evolving ideological perspectives that have led individuals and groups to have contrasting views of the fairness of their situation and to act upon those views.

A relatively new field of research, pioneered by a group of industrial sociologists at the University of Vienna from the 1990s, considers the interactions between human societies and natural systems within integrated social-ecological systems (Fischer-Kowalski 1998; Fischer-Kowalski & Haberl 2007; Fischer-Kowalski 2011). A central concept in this literature is the ‘metabolism’ of a society, which refers to the fundamental ways in which energy and materials are used to satisfy collective human needs and wants. Three established and one emerging socio-metabolic regimes have been identified in the literature (Sieferle 2001; Fisher-Kowalski & Haberl 2007): hunter-gatherer; agrarian; industrial; and ‘sustainable’. The *hunter-gatherer regime* is based on ‘passive’ use of solar energy, which is stored in edible plants and animals that are gathered or captured. This limited the size of human societies to clans or small tribes, which led a nomadic existence in pursuit of their food. There was very little specialisation, and since even chiefs had to contribute to foraging, such societies tended to be very egalitarian. The *agrarian regime* is based on ‘active’ use of solar energy, which involves deliberate intervention by humans in the process of transforming solar energy, using breeding techniques and mechanical devices to exploit cultivated plants and livestock. The division of labour is limited by the need for most of the population to engage in agriculture and forestry to produce a net energy surplus to sustain the non-agricultural population. The *industrial regime* is based on the exploitation of fossil fuels (coal, oil and natural gas) and is characterised by mechanised production processes, extensive transport networks and predominantly urbanised societies. Agriculture also becomes mechanised and involves the application of fossil fuel derivatives in the form of synthetic fertilisers, pesticides and other inputs. There are indications of a new ‘*sustainable*’ or ‘ecological’ regime emerging in various parts of the world, based (largely) on modern renewable energy sources (solar, wind, geothermal, tidal, wave energy) and agroecological or organic food-production systems, with industrial systems mimicking closed-loop ecological systems and processes (Fischer-Kowalski & Haberl 2007). Clearly, these stages are similar – but not identical – to the stages listed above in Figure 8. In particular, Fischer-Kowalski and Haberl do not include a separate horticultural regime, but subsume it within the agrarian regime. Also, since they focus on material-energy systems, they refer to a ‘sustainable’ regime rather than an information regime or epoch.

A possible way to resolve this apparent inconsistency between ‘sustainable’ and ‘information’ epochs is to recognise that these two systems (socio-ecological regimes and Lenski’s techno-economic base) are overlapping but somewhat different *streams* of development. Information technology does not directly transform energy and materials into useful forms that meet basic human needs (such as food and shelter). But when applied to energy systems, information technology enables the creation of smart-grid systems that balance intermittent sources of renewable energy. Another point to note is that each successive wave involves much greater complexity than the previous one. Hence, there are more elements and processes to describe, which could also lead to different labels being valid on one level.

## Industrial long waves and techno-economic paradigms

Rostow’s model of the stages of economic growth as outlined above deals largely with the industrial capitalist economy (although he begins with a description of the prior, traditional/agricultural stage). Several other scholars have developed strands of research that investigate waves or stages of economic and technological development *within* the industrial epoch. This subsection briefly outlines a few examples, including Kondratiev long waves, Perez’s (2002, 2010) concept of ‘techno-economic paradigms’, the notion of several ‘industrial revolutions’ (e.g. Greenwood 1997; Mowery 2009; Rifkin 2011; Schwab 2017), and a lifecycle/stage model of capitalist economic ‘dynasties’ formulated by Power (2002). Several of these stage conceptions are summarised in Figure 10.

Figure 10: Sequences of industrial revolutions according to various authors

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Power**  **(2002)** | **Perez**  **(2013)** | **Rifkin**  **(2011)** | **Mowery**  **(2009)** | **Schwab**  **(2017)** |
| factory | industrial revolution in Britain (cotton etc.) |  |  |  |
|  | steam & railways | steam, steel & railways |  | steam power & mechanised production |
| heavy industry, engineering | steel & heavy engineering |  |  |  |
| mass production | oil, autos & mass production | oil & autos | chemicals & electrical machinery | electricity & mass production |
| mass marketing |  |  |  |  |
| managerial/ computerisation | ICT | ICT & renewable energy | ICT & biotech | IT & automated production |
| information/ knowledge | clean-tech & biotech |  |  | fusion of physical, digital and biological technologies |

*Source: Author’s compilation*

Nicolai Kondratiev (1892-1938) was a Russian economist who proposed a theory of ‘long waves’ or cycles of economic development (Kondratiev 1935). His ideas were supported and expanded upon by Joseph Schumpeter (1939). Although Kondratiev himself focused on shifts in prices and interest rates, subsequent scholars have suggested that waves are driven by investments in long-term infrastructure (embodying specific clusters of technologies), and typically last between 40 and 60 years. About five such Kondratiev cycles or long waves have been identified in the literature, although there is no consensus on precise start and end dates of the various waves: the steam engine and cotton; railways and steel; electrical engineering and chemistry; petrochemicals and automobiles; and information and communication technologies. It should be noted that the idea of long waves has been widely criticised and is not generally accepted as part of mainstream economic theory, which does not favour the underlying inductive approach that searches for patterns in historical data (for some reviews of long wave theory, see Broadberry 2007; Fagerberg 2003; Rosenberg and Frischtak 1983; Verspagen 2005 as cited in Swilling 2013). Nevertheless, researchers working in the evolutionary economics tradition, especially the neo-Schumpeterian stream, continue to investigate the theory (see also Gore 2010).

One scholar who has developed a developmental model with similarities to long wave theory is the Venezuelan economist Carlota Perez, who has written extensively about what she terms ‘techno-economic paradigms’ and the role that financial crises play in them (Perez 2002, 2004, 2009, 2010, 2013). Perez (2013) identifies five major techno-economic revolutions. The first began in 1771 with the onset of the industrial revolution in Great Britain. The second, beginning in 1829, was the age of steam and railways (also originating in Britain). The third age, of steel and heavy engineering, began in 1875 (and this time occurred in Germany and the United States in addition to Britain). The fourth paradigm, starting in 1908, was the age of oil, automobiles, electricity and mass production (led by the US). The fifth era was the information and communication (ICT) revolution, which began in 1971 (again, initially in the US). For each techno-economic era, Perez posits an S-curve pattern with installation and deployment phases, which are separated by an inflexion point marked by a financial crisis, which redirects financial capital from speculative to productive uses.

Some scholars have suggested that a sixth wave is emerging, centred on biotechnology and/or ‘green tech’, involving clean/renewable energy, smart grids, and so on (see, for example, Bradfield-Moody & Nogrady 2010; Perez 2013; Swilling 2013). Rifkin (2011) appears to be on a similar track, but instead refers to a “third industrial revolution” involving a combination of distributed renewable energy sources collected on buildings, electric and hydrogen based transportation systems, and Internet-based ICT systems facilitating smart energy grids. (For Rifkin (2011), the Second Industrial Revolution was based on oil, automobiles and petrochemicals). For Mowery (2009), the Second Industrial Revolution (in the US) centred on chemicals and electrical machinery, while the Third Industrial Revolution was driven by ICT and biotechnology. Greenwood (1997) and Helfgott (1986) similarly identified the Third Industrial Revolution – in the US – as being driven by ICT, especially computers. (Perez’s first and second technological revolutions took place in Britain but perhaps not as distinct periods in the US, which began industrialising later; this could explain the difference in labelling.) Schwab (2017) has recently introduced the notion of a ‘fourth industrial revolution’, which is “characterized by a fusion of technologies that is blurring the lines between the physical, digital, and biological spheres”. The Fourth Industrial Revolution, according to Schwab, will be based on “emerging technology breakthroughs in fields such as artificial intelligence, robotics, the Internet of Things, autonomous vehicles, 3-D printing, nanotechnology, biotechnology, materials science, energy storage, and quantum computing.” In his view it builds on, but is distinct from, the ICT revolution.

Most of these authors, therefore, identify an ICT revolution as one of several industrial revolutions – as opposed to Lenski, who as we saw above defined an information era (techno-economic base) as distinct from the industrial era. This points to the difficulty of clearly defining what constitutes a major wave versus a nested, ‘minor’ wave of development. Swilling (2013) makes a similar point regarding the difficulty of distinguishing between the emergence of a ‘sustainable’ socio-ecological regime (major wave) versus a sixth techno-economic paradigm centred on green-tech (minor wave within the industrial regime). My own suspicion is that green-tech and Rifkin’s Third Industrial Revolution are actually part of the transition to the fourth, ‘sustainable’ epoch. A further complication is that ICTs have been evolving for millennia, with an acceleration (as with many other technologies) from the late 1800s. One might tentatively identify a ‘communications technology’ stream or line of development roughly as follows: human voice, musical instruments (drums, horns, etc.), telegraph, telephone (fixed line), two-way radios, television, mobile phone networks, and Internet-based communications (voice-over-internet-protocol etc.). One could add another line of written communications, starting with symbols, to hand-written languages, to printing presses, to digital media like fax and email. Perhaps it would be more useful to relabel the ICT revolution as the ‘computer revolution’ or ‘digital revolution’, with the microprocessor arguably being the single most important breakthrough invention or disruptive technology.

Power (2002) proposes a seven-stage model of economic development, with its roots in empirical research into microeconomic product life-cycles (PLCs) in six corporate case studies. He argues that “the evolution of value through PLCs at the micro level underpins evolution of national wealth at the macro level” (Power 2002: 354). The macro-micro link is established by grouping commercial product clusters and industries into seven economic ‘dynasties’, which form around seven critical factors and ‘functions’ of production that are used intensively at each stage. The first three are the well-known factors of production, namely land, labour and machine capital. The next three are what Power calls *functions* of production: the capacities for mass production (the chief innovation being the assembly line), mass marketing (branding), and cost management (made possible by information technology). The seventh factor is knowledge, which gets applied to all the levels, over time upgrading the technology employed at each stage. Power applies his dynastic model to the historical macroeconomic development of the Unites States, arguing that this was the only economy to have reached a centre of gravity at the seventh dynasty as of his writing. He also places 60 countries along the developmental spectrum according to which dynasty is dominant in each economy, based on their largest corporations. Some of the main elements of Power’s dynastic model of economic development are summarised in Figure 11.

Figure 11: Power's economic dynasties and factors/functions of production

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Dynasty/ Economic Age** | **Economic Revolution** | **Factor/Function of Production** | **Industry Cluster Examples** |
| 1 | natural resources | agricultural/ mining revolutions | land | raw food & 1st level beneficiated products; cotton; iron-ore |
| 2 | factory | factory revolution | labour | clothing; textiles; construction; food processing |
| 3 | heavy industry | engineering revolution | machine capital | oil refining; railways; steel; ship-building; cement; paper mills |
| 4 | mass production | firm’s supply-side revolution | assembly | automobiles; aircraft assembly; petrochemicals; consumer durables |
| 5 | mass marketing | firm’s demand-side revolution | branding | branded goods; franchises; entertainment; fashion; mass media |
| 6 | mass computerisation | firm’s cost management revolution | information technology | computer hardware; information management |
| 7 | knowledge | information revolution | intellectual property | computer software; education; pharmaceuticals; biotechnology |

*Source: Adapted from Power (2002)*

Power argues that each dynasty becomes commoditized over time, i.e. the scale of production increases until there are only a few large producers left, and ‘excess’ profits gradually decrease to zero. At this point, financial capital migrates to a higher level dynasty in search of new value creation. One of the intriguing aspects of Power’s thesis is the fractal-like correlation between levels of economic development at the micro scale (individual firms) and the macro scale (national economies) – both following an S-curve pattern. This type of pattern correlation, of course, is an inherent aspect of Wilber’s integral model.[[21]](#footnote-21)

## Conclusion: holarchical development with fractal patterns

The brief reviews of several stage models of social and economic development provided above lead me to a few key observations and conjectures. First, it seems that there are similar patterns of unfolding waves of development occurring at different scales: for example, on an ‘inter-epoch scale’ (foraging, agrarian, industrial, informational/sustainable…) and an ‘intra-epoch scale’ (e.g. industrial techno-economic paradigms or economic dynasties). In some sense, it appears as though there is a (rough) fractal pattern to human development (bearing in mind that there are always historical and spatial specificities as well). If we broaden our view to include all four quadrants, then I would suggest there may be holographic properties to the integral model.[[22]](#footnote-22)

Second, the sequential movement through the major epochs clearly involves a successive increase in the degree of complexity. In addition, when a society moves up a stage, a cascading process of technological upgrading of earlier structures or levels occurs. For example, an industrial society transcends and includes agriculture, which gets upgraded to industrial methods (mechanisation and fossil fuel inputs), as well as forms of hunting and gathering (e.g. industrial-scale fishing). Similarly, the information age has brought a cascading application of digital technology to industry (software-driven machines), agriculture (e.g. GPS-guided harvesters, smart irrigation systems) and fishing (e.g. computerised technologies for tracking shoals).

Third, although the long-term history of humanity appears to be pointing towards the evolution towards higher or more complex stages, regression to earlier stages is certainly possible along the way. Plenty of examples of how previous agrarian societies have reverted to lower levels of complexity are discussed, for example, in Joseph Tainter’s (1990) *The Collapse of Complex Societies* and Jared Diamond’s (2005) *Collapse: How Societies Choose to Fail or Succeed*. Some writers who have been concerned about the phenomenon of ‘peak oil’ have suggested that the depletion of fossil fuels – the main energy source underpinning the industrial epoch – could lead to the collapse of industrial (and informational) society (e.g. Heinberg 2003; Kunstler 2007; Greer 2008). However, if the next (post-oil) energy-materials regime emerges quickly enough, industrial civilisation could make it to the next (‘sustainable’) level.

Fourth, some of the apparent contradictions between different stage models of development could potentially be resolved by recognising that there are different streams or lines of development within the Lower-Right quadrant of social systems. Specifying the sequential waves on distinct streams could help to bring greater clarity to the model. Some prominent streams include: energy systems (passive solar, active solar, fossil fuels, modern renewables…); transport systems (walking, domesticated animals, internal combustion engine, electrified transport…); property rights regimes (communal; exclusive-communal (tribal); feudal/state-owned; private property, integral commons…), communication technologies (human voice, musical instruments, telegraph, telephone, radio, television, mobile networks, Internet…); money systems (sharing of foraged foods, barter, coinage, fiat paper currencies, digital currencies…); and so on.

Fifth, it is as yet unclear whether stages of socioeconomic development can be skipped. Thus far, there are no societies that have progressed directly from a hunter-gatherer to an industrial techno-economic base, or directly from an agrarian to an informational base, so it does seem likely that major epochal stages cannot be skipped. However, some nations do specialise more in information-related, service-type sectors of the economy rather than industrial manufacturing. This is made possible by international trade. Thus local anomalies might arise in the holarchical pattern of development because virtually all economies (aside from a few remaining indigenous tribes in remote forests) are now plugged into the globalised economy. Furthermore, when it comes to certain lines of technological development, perhaps skipping of stages – or ‘leap-frogging’ – is possible. The classic example is on the telecommunications line of development, where some countries (notably in Africa) have largely skipped the stage of widespread rollout of terrestrial (land-line) telephone connections, and moved straight to wireless cellular networks. Another example could be the emergence of renewable-energy networks in areas that had no fossil-fuel based power generation or distribution (e.g. much of rural Africa). Yet another example is the rapid adoption of mobile money systems among previous unbanked people (again especially in Africa).

Finally, there are some encouraging signs of elements of a new, greener, more sustainable and more inclusive economy emerging.It seems to me that two of the defining characteristics of this new wave are: (1) the emergence of decentralised, horizontal network structures (e.g. peer-to-peer networks, employee-owned firms, etc.) to replace centralised, hierarchical control systems, and (2) the rise of closed-loop production/consumption systems that emulate the zero-waste functioning of ecosystems (including agroecological farming) to replace linear production/consumption flows. This transition process is being driven by changes in both technology and culture. The quintessential technological advance is the Internet, and all the new modes of economic transaction and organisation that it facilitates (notably also social networking). One exciting example is blockchain technology – which brings the possibility for increasing transparency and trust as a basis for human exchange. Another is the ‘internet of things’ and potentially massive increases in efficiency generated by interconnected, distributed and smart energy systems powered by renewable energy and linked to transportation systems (as envisaged by Rifkin 2011).

An additional driver of the emerging new economy is a new set of cultural values. Using Spiral Dynamics terminology, Orange vMeme values of competition, self-interest and meritocracy are gradually being eclipsed by Green vMeme values of cooperation, sharing, egalitarianism and inclusivity – at least in the most advanced nations. We are witnessing the accelerating emergence of social entrepreneurs and millennials, who have grown up in the interconnected age of the Internet, and who give paramount importance to their relationships with peers. Such values are giving rise to new transactional modes such as peer-to-peer networks, exemplified by the ‘open source’ phenomenon, where people share their expertise to co-create new knowledge and products. This is having a democratising impact on economic value chains by joining independent contractors together in horizontal networks, rather than hierarchical corporations. Another example is the so-called ‘sharing economy’, which is spawning rapidly growing new businesses, from Airbnb to Uber.

# Conclusions

This paper has attempted to paint in very broad brushstrokes a holistic map of economics; it represents the very beginnings of a project to apply the integral theory of Ken Wilber to the discipline of economics. The main conjectures or contentions are as follows. First, it is useful to apply to economics a four-dimensional perspective based on the objective exteriors and subjective interiors of both human individuals and collectives. Second, human development – in all four quadrants – appears to progress in a holarchical manner, as a series of unfolding waves. The holarchical pattern is evident in individual psychological development, the evolution of economic thought, and the evolution of economic systems. Each wave represents a greater level of complexity, and transcends and includes its predecessors. When a higher stage is reached, the new capacities/perspectives/technologies are cascaded down through earlier stage-structures. Some technological leapfrogging may be possible, and may help accelerate a society’s movement up the cultural levels. Third, the integral economics model could have holographic/fractal properties: nested waves within waves exhibiting similar patterns at different temporal and/or spatial scales; and reflection of the same basic waves in all four quadrants. Fourth, the temporal sequencing of waves is not a discrete process; rather, waves overlap, with a new wave beginning to emerge while the previous wave is still dominant. Furthermore, the overall evolutionary process appears to be accelerating (the span of time for foraging, agrarian, industrial and informational waves has been contracting by roughly an order of magnitude each time). This suggests that we cannot necessarily assume a fixed wave-length for nested waves within a major epoch – for example, why should successive industrial long waves or techno-economic paradigms have the same wave-length, especially the more recent ones? Fifth, the four quadrants are not separate, but are mutually interdependent. For example, economic history and the history of economic thought evolve in parallel, like a double helix: historical events influence economic ideas, while economic theories influence economic conditions (for instance through new policies being introduced).

An integral approach to economics has several benefits. First, it places the theory learned in modern core economics courses in comparative perspective: both over time (historical evolution) and within a pluralistic framework of alternative approaches. Second, it provides a novel way of linking microeconomics and macroeconomics, which goes beyond simplistic ‘microfoundations for macroeconomics’ by recognising that wholes are sometimes greater than the sum of their constituent parts (and that the wholes influence the parts). Third, it helps to identify some of the major short-comings of the existing orthodox paradigm and theories (as well as earlier theories). In particular, the integral perspective highlights various forms of reductionism inherent in orthodox economics: its limited conception of human psychological capacities and motivations; reducing subjective psychological and cultural interiors to objective, observable behaviours and systems; a limited perspective on values, assuming that materialism and individualism are universally applicable or at least preferable; and in its more extreme expression, reducing collective systems to individual units – as in the insistence of microfoundations for macroeconomic theories. Fourth, a more fully-developed integral economics would draw on existing knowledge in various social sciences (including economics, sociology, political science and psychology), and integrate them in a novel way which affords greater insight into the requirements for sustainable human development. Third, an integral approach allows a more comprehensive, inclusive framework for understanding economic development, which includes the human dimension more explicitly. In particular, it shows that sustainable development requires not just new systems (institutions, infrastructures, political systems, technologies, renewable resources, etc.), but also shifts in individual consciousness (including greater awareness about the state of humanity and the planet) and collective culture and worldviews (which will, in turn, engender altered behaviours). Finally, an integral perspective implies that the health of the entire developmental holarchy is important. In other words, attention needs to be given to each wave of existence, to make it as healthy as possible. This will likely facilitate the evolutionary progression of human societies to expanded levels of consciousness and being.

To be sure, an integral model of economics – especially such a brief sketch as in this paper – is not without its anomalies and limitations. For one thing, the reliance on inductive reasoning to formulate ‘orienting generalisations’ means that some of these generalisations may be disproved by new (or indeed old) evidence. Moreover, there are certain difficulties in specifying the integral model. For example, it can be difficult to reconcile different stage-developmental models, where different scholars have identified different major levels of socio-economic development. And it is not always easy to distinguish between different lines of development within a quadrant. Importantly, this paper has been mainly descriptive rather than explanatory; it has not done much to unpack the actual dynamics of development. Just as important, while much of the emphasis has been on long-run historical trends, geographical specificity has not been addressed and should be in a truly integral model.

As these limitations suggest, this paper has merely begun the enormous task of developing a truly integral approach to economics; a vast amount of work is required to validate (or refute), expand, refine and apply the framework. Some potentially fruitful questions for further investigation are as follows. How do individual waves of consciousness – and different personality types – express themselves in different kinds of economic behaviour? How do the dynamics of integral development operate? What factors cause shifts (of individuals or societies) from one level to the next (or, indeed, regression to the previous level)? Is ‘leapfrogging’ of stages possible, and if so under what circumstances? What are the relevant economic ‘types’, especially in the context of the Lower-Right quadrant?

The integral model has potentially extensive applicability on more narrowly focused topics within economics (and indeed in related social sciences). Examples of topics and sub-disciplines which particularly lend themselves to an integral approach include: poverty; well-being; sustainable development; labour economics; industrial organisation; economic and social rights; natural resource management; and so on. In addition, the integral model can potentially also inform new approaches to microeconomic and macroeconomic policies – and in a way which integrates both aspects of economic policy with greater coherence. This will ultimately determine the usefulness of an integral economics: whether it helps to address the current polycrisis, improve the material existence of people across the world, and advance the evolution of human consciousness.

Economic theory needs to move with the times: history and context matter. A university course in integral economics would need to include the evolution of economic thought as well as economic history. It would need to study the interface between economics and related disciplines, especially ecology, psychology and sociology. This would give students a keener sense of the limitations of current theory and also chart a course toward a more inclusive, transcending paradigm that maintains the core truths of the orthodoxy but develops larger, more encompassing wholes. Integral theory holds great potential to help diagnose economic problems and identify appropriate solutions on all levels and streams of development. Conversely, I also believe that improved economic policies and systems can help to accelerate the evolution of consciousness. To paraphrase E.F. Schumacher, we need an economics not just as if people and the planet mattered, but as if consciousness mattered.

# References

Backhouse, R.E. 2002. *The Penguin History of Economics*. London: Penguin.

Backhouse, R.E. 2000. Progress in heterodox economics. *Journal of the History of Economic Thought*, 22(2): 149-155.

Beck, D.E. & Cowan, C. 1996. *Spiral Dynamics: Managing Values, Leadership and Change*. Cambridge, Mass.: Blackwell Publishers.

Beinhocker, E.D. 2006. *The Origin of Wealth: Evolution, Complexity, and the Radical Remaking of Economics*. Boston: Harvard Business Press.

Benería, L., May, A.M. & Strassmann, D.L. 2009. Introduction. *Feminist Economics: Volume 1*. Cheltenham, UK and Northampton, MA: Edward Elgar.

Bradfield-Moody, J. & Nogrady, B.T. 2010. *The Sixth Wave: How to Succeed in a Resource-Limited World*. Sydney: Vintage Books.

Broadberry, S., 2007. Recent developments in the theory of very long run growth: a historical appraisal. Department of Economics Research Papers. Warwick Research Paper No. 818. Warwick University, Warwick.

Brue, S. & Grant, R., 2012. *The Evolution of Economic Thought*. Boston: Cengage Learning.

Carson, R. 1994. *Silent Spring*. New York: Houghton Mifflin.

Costanza, R. 1989. What is ecological economics? *Ecological Economics*, 1(1): 1-7.

Cullenberg, S., Amariglio, J. & Ruccio, D.F. (eds.) 2001. *Postmodernism, Economics and Knowledge.* London: Routledge.

Daly, H. & Farley, J. 2004. *Ecological Economics: Principles and Practice*. Washington, DC: Island Press.

Dow, S.C. 2000. Prospects for the progress of heterodox economics. *Journal of the History of Economic Thought*, 22(2): 157-170.

Dawlabani, S. 2013. *MEMEnomics: The Next Generation Economic System*. BookBaby.

Diamond, J., 2005. *Collapse: How Societies Choose to Fail or Succeed*. London: Penguin.

Etzioni, A. 1986. Socio-economics: A proposal for a new interdisciplinary field. *Journal of Social Behaviour and Personality*, 1(4): 475.

Etzioni, A. & Laurence, P. 1991. *Socio-Economics: Towards A New Synthesis*. London: M.E. Sharp.

Fagerberg, J. 2003. Schumpeter and the revival of evolutionary economics: an appraisal of the literature. *Journal of Evolutionary Economics,* 13(2): 125–159.

Fischer-Kowalski, M. 2011. Analysing sustainability transitions as a shift between socio-metabolic regimes. *Environmental Transition and Societal Transitions,* 1: 152–159.

Fischer-Kowalski, M. & Haberl, H. 2007. *Socioecological Transitions and Global Change: Trajectories of Social Metabolism and Land Use*. Cheltenham, U.K.: Edward Elgar.

Fischer-Kowalski, M. & Swilling, M. 2011. Decoupling Natural Resource Use and Environmental Impacts from Economic Growth. Report for the International Resource Panel. Paris: United Nations Environment Programme.

Fullbrook, E. (ed.). 2004. *A Guide to What's Wrong With Economics*. London: Anthem Press.

Fullbrook, E. (ed.). 2007. *Real World Economics: A Post-autistic Economics Reader* (Vol. 1). London: Anthem Press.

Gintis, H. 2000. Beyond *Homo economicus*: evidence from experimental economics. *Ecological Economics*, 35(3): 311-322.

Gore, C. 2010. Global recession of 2009 in a long-term development perspective. *Journal of International Development*, 22: 714–738.

Greer, J.M. 2008. *The Long Descent: A User's Guide to the End of the Industrial Age*. Gabriola Island: New Society Publishers.

Heinberg, R. 2003. *The Party's Over: Oil, War and the Fate of Industrial Societies*. Gabriola Island: New Society Publishers.

Henrich, J., Boyd, R., Bowles, S., Camerer, C., Fehr, E., Gintis, H. and McElreath, R. 2001. In search of *Homo economicus*: Behavioral experiments in 15 small-scale societies. *American Economic Review*, 91(2): 73-78.

Graves, C.W. 1970. Levels of existence: An open system theory of values. *Journal of Humanistic Psychology*, 10(2): 131-155.

Graves, C.W. 1974. Human nature prepares for a momentous leap. *The Futurist*, 8(2): 72-85.

Greenwood, J. 1997. *The Third Industrial Revolution: Technology, Productivity, and Income Inequality*. Washington, DC: American Enterprise Institute Press.

Helfgott, R.B. 1986. America’s Third Industrial Revolution. *Challenge*, 29(5): 41-46.

Klaes, M., 2004. Evolutionary economics: In defence of ‘vagueness’. *Journal of Economic Methodology*, 11(3): 359-376.

Kohlberg, L. 1981. *Essays on Moral Development, Volume I: The Philosophy of Moral Development*. San Francisco: Harper & Row.

Kohlberg, L. 1984. *Essays on Moral Development, Volume II: The Psychology of Moral Development*. San Francisco: Harper & Row.

Kondratiev, N.D. 1935. *The long waves in economic life*. Review of Economic Statistics, 27(1): 105–115.

Kunstler, J.H., 2007. *The Long Emergency: Surviving the End of Oil, Climate Change, and Other Converging Catastrophes of the Twenty-First Century*. London: Grove/Atlantic, Inc.

Lenski, G. 1966. *Power and Privilege: A Theory of Social Stratification*. New York: McGraw-Hill.

Lenski, G. 2005. *Ecological-Evolutionary Theory: Principles and Applications*. Boulder, CO: Paradigm Publishers.

Maslow, A.H. 1954. *Motivation and Personality*. New York: Harper & Row.

McCloskey, D.N. 1983. The rhetoric of economics. *Journal of Economic Literature*, 21(2): 481-517.

Meadows, D.H., Meadows, D.H., Randers, J. & Behrens III, W.W. 1972. *The Limits to Growth: A Report to the Club of Rome*. New York: Universe Books.

Meadows, D., Randers, J. and Meadows, D. 2004. *Limits to Growth: The 30-year Update*. London: Chelsea Green Publishing.

Meyerhoff, J. 2010. *Bald Ambition: A Critique of Ken Wilber's Theory of Everything.* Inside the Curtain Press.

Morin, E. 1999. *Homeland Earth*. Cresskill, NJ: Hampton Press.

Mowery, D.C. 2009. Plus ca change: Industrial R&D in the “third industrial revolution”. *Industrial and Corporate Change*, 18(1): 1-50.

Nelson, J.A. 1995. Feminism and economics. *The Journal of Economic Perspectives*, 9(2): 131–148.

North, D. 1981. *Structure and Change in Economic History*. New York: WW Norton & Company.

Ormerod, P. 1995. *The Death of Economics.* London: Faber and Faber.

Ormerod, P. 1998. *Butterfly Economics: A New General Theory of Social and Economic Behaviour.* London: Faber and Faber.

Paulson, D.S. 2002. *Competitive Business, Caring Business: An Integral Business Perspective for the 21st Century*. New York: Paraview Press.

Perez, C. 2002. *Technological Revolutions and Financial Capital*. Cheltenham, UK: Edward Elgar Publishing.

Perez, C. 2004. Technological revolutions, paradigm shifts and socio-institutional change. In Reinert, E.S. (ed.), *Globalization, Economic Development and Inequality: An Alternative Perspective*, Edward Elgar Publishing, pp.217-242.

Perez, C. 2009. The double bubble at the turn of the century: technological roots and structural implications. *Cambridge Journal of Economics*, 33(4): 779-805.

Perez, C. 2010. Technological revolutions and techno-economic paradigms. *Cambridge Journal of Economics*, 34(1): 185-202.

Perez, C., 2013. Unleashing a golden age after the financial collapse: Drawing lessons from history. *Environmental Innovation and Societal Transitions*, 6: 9-23.

Piaget, J. 1926. *The Language and Thought of the Child*. London: Routledge & Kegan Paul.

Piaget, J. 1953. *The Origin of Intelligence in the Child*. London: Routledge and Kegan Paul.

Power, M. 2002. Commoditization and the End of Financial Scarcity. PhD dissertation, University of Cape Town, South Africa.

Reynolds, B. 2004. *Embracing Reality: The Integral Vision of Ken Wilber: A Historical Survey and Chapter-By-Chapter Review of Wilber's Major Works*. J.P. Tarcher/Penguin.

Rifkin, J. 2011. *The Third Industrial Revolution: How Lateral Power is Transforming Energy, the Economy, and the World*. London: Macmillan.

Rockström, J., Steffen, W., Noone, K., Persson, Å., Chapin III, F.S., Lambin, E., Lenton, T., Scheffer, M., Folke, C., Schellnhuber, H.J. and Nykvist, B. 2009. Planetary boundaries: exploring the safe operating space for humanity. *Ecology and Society*, 14(2).

Rosenberg, N. & Frischtak, C.R. 1983. Long waves and economic growth: a critical appraisal. *American Economic Association Papers and Proceedings,* 73(2): 146–151.

Rostow, W.W. 1971. *The Stages of Economic Growth*, 2nd ed. Cambridge: Cambridge University Press.

Schumpeter, J.A. 1939. *Business Cycles: A Theoretical, Historical and Statistical Analysis of the Capitalist Process*. New York: McGraw Hill.

Schwab, K. 2017. *The Fourth Industrial Revolution*. London: Penguin UK.

Screpanti, E. & Zamagni, S. 2005. *An Outline of the History of Economic Thought*. Oxford: Oxford University Press.

Sieferle, R.P. 2001. *The Subterranean Forest: Energy Systems and the Industrial Revolution*. White Horse Press.

Smith, A. 1776. *An Inquiry into the Nature and Causes of the Wealth of Nations*. New York Modern Library (1937).

Swilling, M. & Annecke, E. 2012. *Just Transitions: Explorations of Sustainability in an Unfair World*. Cape Town and Tokyo: UCT Press & United Nations University Press.

Swilling, M. 2013. Economic crisis, long waves and the sustainability transition: An African perspective. *Environmental Innovation and Societal Transitions*, *6*: 96-115.

Tainter, J., 1990. *The Collapse of Complex Societies*. Cambridge, UK: Cambridge University Press.

Veblen, T.B. 1899. *The Theory of the Leisure Class*. New York: Macmillan.

Veblen, T.B. 1904. *The Theory of Business Enterprise*. New York: Scribners.

Veblen, T.B. 1921. *The Engineers and the Price System*. New York: A.M. Kelley.

Verspagen, B., 2005. Innovation and economic growth. In: Fagerberg, J., Mowery, D.C., Nelson, R.R. (Eds.), *The Oxford Handbook of Innovation*. Oxford: Oxford University Press.

Visser, F. 2003. *Ken Wilber: Thought As Passion*. New York: SUNY Press.

Weber, M. 2002. *The Protestant ethic and the" spirit" of capitalism and other writings*. London: Penguin.

Wilber, K. 2000a. *A Brief History of Everything,* 2nd edition. Boston: Shambhala.

Wilber, K. 2000b. *Integral Psychology: Consciousness, Spirit, Psychology, Therapy*. Boston: Shambhala.

Wilber, K. 2001. *A Theory of Everything*. Boston: Shambhala.

Wilber, K. 2006. *Integral Spirituality*. Boston: Shambhala.

1. Email: [J.Wakeford@quantumglobalgroup.com](mailto:J.Wakeford@quantumglobalgroup.com) [↑](#footnote-ref-1)
2. Space and time do not permit a critical review of Wilber’s integral framework in this paper. Interested readers could begin by consulting books by Visser (2003), Reynolds (2004) and Myerhoff (2010). [↑](#footnote-ref-2)
3. Wilber (2000a: 313) outlines twenty tenets pertaining to holons, some of which are summarised here. [↑](#footnote-ref-3)
4. See Wilber (2001: 42-53; and 2000a: 63-75). [↑](#footnote-ref-4)
5. The level of aggregation in the ‘collective’ quadrants may range from relatively small groups of humans (e.g. tribes) through nation-states to global society. As will be discussed in sections 5 and 6, there is an evolutionary aspect to this scale, in that social units of increasing size have emerged over the course of human history. [↑](#footnote-ref-5)
6. I prefer the term ‘waves’ rather than levels or stages as the latter have the connotation of being discrete rungs on a ladder.Nonetheless, I follow Wilber and use these three terms (levels, waves, stages) synonymously in this paper in order to avoid excessive repetition. [↑](#footnote-ref-6)
7. See Wilber (2000b) for a more comprehensive list of stage-development theorists. [↑](#footnote-ref-7)
8. Wilber himself has further developed and applied his integral model to psychology (Wilber 2000) and spirituality (Wilber 2006), while Paulson (2002) applied it to the world of business. [↑](#footnote-ref-8)
9. Economists also treat firms and sometimes households as individual units of analysis, even though these units are themselves comprised of individual human beings. In this paper I use the individual human being as the individual ‘unit of analysis’, although one could in principle apply the integral framework to an analysis of firms and possibly households. Both firms and households are examples of holons. [↑](#footnote-ref-9)
10. The term ‘orthodox economics’ will be clarified in section 5, but broadly corresponds to neoclassical economics and more recent extensions that fit firmly within the modern, rational-scientific paradigm. [↑](#footnote-ref-10)
11. I use the term ‘agency’ in reference to the representative human economic ‘agent’, mindful that agency (maintaining an autonomous self) is but one drive of holons, along-side ‘communion’ (the drive to combine with other wholes into a greater whole) (see Wilber 2000: 19). [↑](#footnote-ref-11)
12. As specified in Wilber (2000: Chart 5A, p.206). [↑](#footnote-ref-12)
13. It should be remembered that individuals can be on different levels of development on different streams; for simplicity, however, I describe the representative persons below assuming their cognitive and moral lines have reached the same level. [↑](#footnote-ref-13)
14. Dow (2001: 71-2) notes that “Chick (1995), in exploring developments in fields other than economics, has argued that there is evidence of a physiological evolution among humans which is shifting the balance between dualistic (left brain) thought processes and non-dualistic (right brain) thought processes in favour of the latter.” [↑](#footnote-ref-14)
15. This paper deals only with the history of *Western* economic thought; globally, the development of economics as a discipline has been dominated by British, American and continental European scholars. It is left for further research to investigate the evolution of economic thought in other parts of the world, to the extent that it developed independently of Western ideas. [↑](#footnote-ref-15)
16. The following three sections are based on material and ideas I developed in the course of delivering a semester course on the history of economic thought between 2006 and 2008. Additional references will be added in subsequent drafts. [↑](#footnote-ref-16)
17. See Dow (2000) and Backhouse (2000) for two perspectives on the trends in heterodox economics. Not all schools of economic thought that are commonly regarded as heterodox necessarily fit into the post-modern worldview. Austrian economics and Post-Keynesian economics, for example, seem to be variants that sit along-side orthodox economics within the rational-scientific paradigm. Both schools emphasize the importance of individual economic agents; for Post-Keynesian economics this is expressed via microfoundations for macroeconomics. Neo-Marxian economics identifies stages of development and emphasizes historical materialism; it focuses largely on the Lower-Right quadrant, elevating the mode and relations of production as the predominant drivers of economic and social phenomena. [↑](#footnote-ref-17)
18. So-called ‘new institutional economics’ is a more recent strand of economic thought that embraces much of the modern, neoclassical paradigm, including rational choice theory, but investigates the role of institutions, culture, state formation, etc. (see, for example, North 1981). [↑](#footnote-ref-18)
19. The description of large temporal-scale epochs or transitions based on material flow analysis (following Fischer-Kowalski et al.) in section 6.1 and of technological cycles (following Perez) in section 6.2 have much in common with the analysis by Swilling (2013), who introduced me to both sets of literatures between 2009 and 2012. The insight that stages of economic development could be correlated with stages of personal psychological development came to me in 2002 when I first encountered the work of Power (2002), as I saw parallels with psychological development models that I had studied previously. This was before I encountered Wilber’s integral theory, which then confirmed my intuition. The idea that stages of industrial capitalist development (e.g. the ‘dynasties’ proposed by Power) are nested within a broader set of epochal developmental waves (foraging, agrarian, industrial) came to me in 2005, before I met Prof Swilling. Later, I refined my ideas while writing my PhD on ‘peak oil’ under Prof Swilling’s supervision. I owe a great debt of gratitude to Professor Swilling, my academic mentor for many years, for helping to shape my thinking about sustainable development in the broadest sense. [↑](#footnote-ref-19)
20. It is perhaps worth stating the obvious point that both Rostow’s and North’s books predated the ‘information revolution’. [↑](#footnote-ref-20)
21. The idea of a fractal/holographic pattern in human development came to me in 2002 after being exposed to Power’s (2002) work and seeing connections with stages of psychological development; this was before I came upon Wilber’s work. [↑](#footnote-ref-21)
22. This idea will be explored further in subsequent work. [↑](#footnote-ref-22)