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THE DEVELOPMENT OF ECONOMIC IDEAS

The underlying hypothesis in this paper is that there are two fundamental views of the world in which Economists operate: the participatory and the observational. A consequence of these different views is in the extent to which the world can be understood and controlled. Economics was created in a period where the scientific (observational) view was in the ascendant and has benefitted and suffered because of it. The paper examines Economic thinking in this context and illustrates by apposite examples that although there has been a move by Economists to move from a rigorous mathematical straitjacket, not enough has been done. The paper suggests that the future of Economics depends on maintaining a continuous and necessary interchange between the two views. The basic premise underlying this paper is that we experience a physical presence- we are 'embodied minds.' This creates a worldview (the Soft Systems Methodology uses the word 'weltanschauung') that is subjective and experiential.

Keywords: economics, economic theory, participatory and the observational approach.

INTRODUCTION. This is a conceptual paper that examines the development of economic ideas and methodology. Its aim is to stimulate debate among economic theorists and practitioners. The views expressed are the authors albeit they are backed by extensive research and experience. The underlying hypothesis in this paper is that there are two fundamental views of the world in which Economists operate: the participatory and the observational. A consequence of these different views is the extent to which the world can be understood and controlled. Economics was created in a period where the scientific (observational) view was in the ascendant and has benefitted and suffered because of it. The paper examines Economic thinking in this context and illustrates by apposite examples that although there has been a move by Economists to move from its rigorous mathematical straitjacket, (observational) not enough has been done. The paper suggests that the future of Economics depends on maintaining a continuous and necessary interchange between the two views.

LITERATURE REVIEW. The paper references articles and books on a wide-ranging set of topics including Economics, Politics, Philosophy, Behavioural Studies, Utility Theory, Cybernetics, and Ethics.

METHODOLOGY. This article develops a view that there are two fundamental views of the world – the observatory and the participatory. The present state of economics is through these two different lenses and conclusions are drawn.

The Two Worldviews. The basic premise underlying this paper is that we (human beings) experience a physical presence- we are 'embodied minds.' This creates a worldview (the Soft Systems Methodology uses the word 'weltanschauung') that is subjective and experiential (in this paper it will be termed 'participatory'). In this worldview, life, the universe, reality is a process. Cyclical behavior can occur, but, in general, the future is changeable and unpredictable (chaotic). Things are 'what they are'. Homo sapiens is a part of nature, not its controller. Mankind strives for certainty and perfection but knows that these are elusive. Things are implicit and metaphor is used to convey 'truths'

which only exist in context. "We allow things to be present to us in all their embodied particularity, with all their changeability and impedance and their interconnectedness as part of a whole which is forever in flux." (Beaumont 2006).

Individual things are distinguishable but, only so far as the 'betweenness' between them can be recognised, stimulating feelings of social connections and, thence, empathy. There is an emphasis on putting together rather than taking apart on synthesis rather than division, on the whole rather than the parts (the Gestalt view). Opposites can co-exist as the either/or dichotomy does not dominate (called complementarity in Quantum Mechanics, where, for example, an electron can be both a particle and a wave). This worldview is visionary, aware of context and celebrating existence in all its triumphs and failures. It is personal (as opposed to impersonal) and has breadth, depth, and wisdom (as opposed to knowledge). It promotes flexibility, tolerance, reason (as opposed to rationality), cooperation, emotions, care, and unification.

Another worldview tries to find meaning in the unpredictable, and in doing so establish some sort of control. To achieve this, our minds have created an alternative weltanschauung (observational worldview), which is abstract and rational. This worldview steps outside the flow of experience and 'experiences experience' in a special way. It abstracts from the participatory world and re-presents it in a form that is less complex, clearer, and therefore more easily manipulated. This worldview is explicit, abstracted, compartmentalised, fragmented, static essentially lifeless. Because it is detached from this world, there is the belief that control is possible. This worldview is strongly connected to the Scientific paradigm and has provided writing, mathematics, development of laws, geography, educational structures, orders of architecture, geometry, and physics. As it is extremely conscious of itself, it encourages analysis of motive and self-interest [37].

There are many examples that reflect the differences between the two worldviews. Brunelleschi's great dome in Florence is the product of a participatory worldview which was the product of his genius. The mathematical underpinning of such a structure had not been discovered.

The work was based on classical designs and the personality (emotions) of the architect. The Burj Khalifa can be placed in the observational view as it could not be constructed without excellent mathematics and material science. Art, Drama, Poetry and Music belong to the participatory worldview. Mathematics, Chemistry and Logic – to the observational. Homer, Shakespeare, Beethoven, Mozart originate in the participatory. Pythagoras, Aristotle, Newton, Russell – in the observational. Plato took us from the existing world to the world of ideals. Rousseau brought us back! The theory of colour provides another example of the two worldviews in action. Newton analysed light and showed that white light was composed of seven different primary colours each with a unique wavelength. There is no black colour just the absence of white. This theory is firmly in the observational worldview. Goethe violently disagreed. Working with individual paints, he showed that it is impossible to combine them to construct the colour white. Black is a colour – derived from coal. This is firmly in the participatory worldview [21].

The difference between the worldviews rests on whether it is believed that there are deep, profound structures hidden under the seemingly chaotic world, and through rationality, it should be possible to uncover them [49]. This will then provide meaning and subsequently allow predictions. There is a proviso – meaning or prediction from the observational worldview must approximate to what happens in the existential (participatory) worldview. Everything starts and ends with experience. The observational worldview (which concentrates on the 'what') needs to be grounded in the participatory one (which concentrates on the 'why') [37].

The authors recognise the usefulness of both worldviews and posit that the way forward is by connecting them. A possible relationship is shown in Fig. 1. All economic problems concern humanity and begin in the participatory. For further investigation, elements of the problem are transferred to the observational where they are abstracted, worked on, modified, and solved using rationality, science, and logic. It is important, however, that there is finally a representation back to the participatory worldview

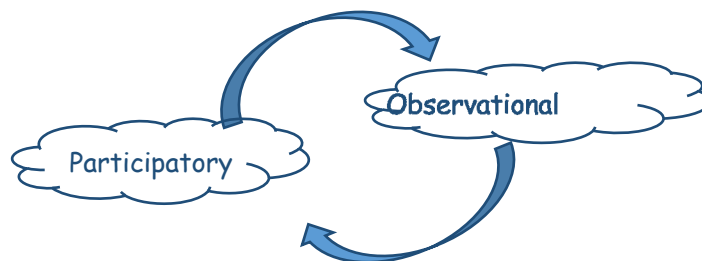


Fig. 1. Transfer between Worldviews Source. (The Authors)

Historians of economic thought frequently attribute the beginning of current economics thinking with Adam Smith in the 18th Century, but the 14th century North African scholar, ibn Khaldun, made significant contributions, which place him as a major forerunner, if not the 'father' of Economics. (Irwin 2008). The origins of his Economic thinking probably arose from barter which is a social activity involving emotional decision-making. In this sense, Economic roots were firmly set in the participatory worldview. But the 18th century was a time when scientific materialism was at its zenith. Economics, as a new area of knowledge, and being a 'child of its time' adopted the observational worldview in the guise of Scientific Thinking. There has thus always been a dilemma at the heart of Economics – to which worldview does it belong?

Mainstream economists are notoriously slow to incorporate contemporaneous trends into their theories, (Cascio & Aquinis [12]) although it seems that the legacy of positivism has in most cases disappeared (Caldwell [11]). Compared to forty years ago, there is a pluralism evident in economic theory such as in the rapid development of game theory, behavioural economics, experimental economics, neuroeconomics, public choice theory, and the new institutional economics. Decision theorists now eschew axiomatic approaches analysing choice. A similar plurality may be observed in agent-based computational economics and other endeavours to represent complex systems. Moreover, the frequency of field experiments, natural experiments, and randomised control trials is increasing. Theorists are now hypothesising about multiple selves, and empirical economists are adopting multiple standards for hypothesis testing. In many ways, the practice of economics is no longer a prisoner enforced by the positivist view of what constituted 'proper science'. These

developments raise the question: "Has Economics really broken out of its scientific straitjacket?" [26].

Development of Ideas. It is instructive to analyse how the two world views have shaped the development of different economic ideas. Two key values are Truth and Certainty. There is no certainty in the participatory worldview. There is continuous dynamic change. Certainty is believed to exist in mathematics but even there, it is a tautology. In the same sense, what exactly is truth? Do immutable laws exist? Even in Physics, in order to explain the existence of mass, it is now mooted that the laws of physics may have been (or had to have been) different at the time immediately after the Big Bang. Certainly, there are Economic laws but only in the observational worldview. There is need for reconciliation The paper now examines how this reconciliation affects the concepts of control, utility theory, welfare economics and aggregation.

The two worldviews have different purposes. In the participatory worldview, life is seen as a never-ending process – there is no perfect goal or nirvana. Researchers attempting to understand why shocks happen face an almost impossible task since everything is inter-connected with many concomitant possible causes and effects. In the observational worldview (using rational thinking) there are possibly perfect situations which are attainable. There is the feeling of control that is not present in the other worldview. This then is an acute dilemma for Economics – is it an attempt to understand or an attempt to control?

General Equilibrium Theory was a dominant research programme in the middle of the last century. Scores of explorations of the existence, stability and determinateness of equilibrium were published, and this was at the very time that positivist rhetoric was at its apogee. Yet, most would

agree with the observation of Blaug that General Equilibrium Theory is empirically empty, which, from a positivist's point of view, is grounds for it being considered pseudo-scientific [6]. The concept of equilibrium comes from the machine age and only exists in the abstract (observational view) It does not exist in nature.

This complements but goes beyond Keynes' famous peroration for The General Theory regarding the influence of the ideas of past economists on current policy:

"...the ideas of economists and political philosophers, both when they are right and when they are wrong, are more powerful than is commonly understood. Indeed, the world is ruled by little else. Practical men, who believe themselves to be quite exempt from any intellectual influences, are usually the slaves of some defunct economist. Madmen in authority, who hear voices in the air, are distilling their frenzy from some academic scribbler of a few years back. I am sure that the power of vested interests is vastly exaggerated compared with the gradual encroachment of ideas." But ideas do not only affect policymakers, but they also affect the economists whose ideas affect policymakers". Keynes [38].

The economist should not be regarded as a control engineer. Predictions need to be made but it should be recognised that these are not absolutes and have to be reinterpreted by the participants. Shocks and unpredictability are to be acknowledged.

RESULTS. The results of our deliberations are not applied to three major economic topics: Utility Theory, Welfare Economics, and the Aggregation problem.

Utility Theory. Although Utilitarianism did not become prominent until the 19th century, its origins have a long history [15]. In its most general form, this principle contends that a morally right action is defined as an action that produces the most good. Thus, action is evaluated by its consequences – the end justifies the means. The Classical Utilitarians, Jeremy Bentham and John Stuart Mill, like Epicurus, identified 'good' with pleasure. This school proposed the creation of the greatest amount of good for the greatest number. This type of utilitarianism is also distinguished by impartiality and agent-neutrality.

The notion of Utility has been elaborated and embroidered within the neoclassical framework and can be placed in the observational school. Utility functions are used to convey the value of various outcomes for rational agents allowing agents to plan actions with the goal of maximising the utility (or value) of choices. Joan Robinson critically challenged utility theory for being a circular theory: *"Utility is the quality in commodities that makes individuals want to buy them, and the fact that individuals want to buy commodities shows that they have utility"* (Robinson [45]). Robinson also contended that because consumer theory assumes that tastes are fixed, this implies that utility is not an empirically testable idea *"because if we take changes in peoples' behaviour in relation to a change in prices or a change in the underlying budget constraint we can never be sure to what extent the change in behaviour was due to the change in price or budget constraint and how much was due to a change in preferences"* (Robinson [45]). Robinson's conundrum links directly with Keynes view on Marshall's approach to demand/ utility issues. However, the idea of rational expectations developed by Muth [41] argues that, despite any impasse created by circularity, agent behaviour

based on rational expectations meant that agents optimise according to the predictions of economic theory, which in an uncertain world of unknown unknowns offers a degree of predictability. Muth's breakthrough idea formed the basis of the new classical revolution in macroeconomics.

The Von Neumann–Morgenstern utility theorem yields necessary and sufficient conditions under which the expected utility hypothesis holds. (Neumann, & Morgenstern [43]). Theorists concur that though some sufficient conditions may be violated by actual agents, the ceteris paribus postulates should be interpreted as 'axioms' of rational choice. Consumer theorists argue that choice axioms seek to predict the pattern of demand. Proponents of such models, especially those associated with the Chicago School of Economics, contend that, although the model's assumptions are not an accurate description of reality, they, nevertheless help generate falsifiable hypotheses [20]. In this view, heroic assumptions are acceptable if the particular theory delivers strong forecasts /predictions. In recent years, the dominant version of rational choice theory, namely, expected utility theory, has been challenged by the empirical results achieved by behavioural theorists. Notwithstanding, Foley provides a vital criticism of the concept of rationality and its crucial role in economics. He proposed:

"Rationality has played a central role in shaping and establishing the hegemony of contemporary mainstream economics. As the specific claims of robust neoclassicism fade into the history of economic thought, an orientation toward situating explanations of economic phenomena in relation to rationality has increasingly become the touchstone by which mainstream economists identify themselves and recognize each other. This is not so much a question of adherence to any particular conception of rationality, but of taking rationality of individual behaviour as the unquestioned starting point of economic analysis" (Foley [18]).

Here one can see the strong influence of the observational viewpoint. Sustaining this theme, Nell & Errouaki [42] contend that: the core of pure consumer theory is flawed because neither the induction problem nor the problems of methodological integrity/consistency are solved by using utility theory. Economic relationships that reflect rational choice should be computable. However, this notion ascribes such a huge quantum of deductive power to agents to identify optima that it cannot consistently coexist with positivist postulates. So, within the logical positivist paradigm, the rationality postulate appears defective. Moreover, the rational choice obiter dicta allow preferences to be configured as real-valued utility functions. Economic decision-making then becomes a problem of maximising a utility function, subject to constraints. This has many benefits. It provides a compact theory that offers empirical predictions using a parsimonious model not merely a description of the agent's goals and constraints. Furthermore, optimisation theory is a well-developed field of mathematics. These two factors make rational choice models tractable compared to other approaches to demand theory. Most crucially, this framework looks to have significant universal application. Thus, it has been applied not only to consumer choices like consumption and savings, but also to long-term choices about education, marriage, migration, crime, as well as key business decisions, however, with variable gradations of success. (Becker [3]). However Becker bypassed the Robinson-Keynes

conundrum on utility/preferences by applying a notional budget income constraint which fundamentally underlies Muth's concept of rational expectations (1961).

Welfare Economics. Is the purpose of economics to explain and predict perceived economic behaviour or, as Stafford Beer states "to promote a state of well-being in the community", which he called 'eudemonia'? [38]. Happiness deals with well-being, quality of life, life satisfaction, and related concepts, and can encompass other fields such as psychology, health and sociology [35]. Not all happiness states count equally. There is a difficulty in deciding what is meant by 'the good.' G. E. Moore believed in 'intrinsic value' i. e., that the good included far more than what could be reduced to pleasure. One of Moore's important contributions was to put forward an 'organic unity' or 'organic whole' view of value where 'organic' is used to denote the fact that a whole has an intrinsic value different in amount from the sum of the values of its parts" [40]. Keynes was a student with Moore and was profoundly influenced by his views stating *"economics is essentially a moral science and not a natural science. That is to say, it employs introspection and judgments of value"* (Keynes [31]). Here, Keynes draws our attention to an important point regarding the nature of 'welfare' or 'wellbeing', as differentiated from 'utility maximisation'. When Keynes refers to 'judgements of value', this highlights that value is not something that can be measured aggregative across a single index in the same way that wealth or income, can be. In doing so, Keynes raises the important point that it is the quality of 'value', rather than the sheer quantity of 'value' that is conducive to the 'welfare of flourishing.' This reflects a divergence from the classical maximising utilitarianist view which measures welfare based upon a purely quantitative rather than qualitative basis.

The field called Welfare Economics has matured substantially since the late 20th century, for example, in the development of methods, surveys, and indices to measure happiness and related concepts. This typically treats happiness-related measures, rather than wealth, income or profit, as quantity to be maximised. Its findings have been described as a challenge to the economics profession (Easterlin [17]). Any wellbeing development has its origins in the precipitative view. To progress, it moves into the observational, but the danger is that it stays there and does not re-present itself to the people. This can result in cognitive dissonance. In 2019, New Zealand introduced its first well-being budget (World Forum [52]). This constituted the first practical attempt to enunciate happiness as a state of Aristotelian 'flourishing', an activity rather than state of being as the dominant economic telos.

In the Ramsey model, the pursuit of a bliss point could be extracted as the dominant goal of economic theory. [44] This forms an interpretation of growth and happiness for different generations and different income groups in society. The Ramsey model predicts nonetheless that the rich will get richer, and the poor will get poorer, in any normal growth case. The concept is used to model relative prices or value. Its usage has progressed over time. The utility function thus represents consumer's tastes over a choice set and has become a more intangible concept, particularly in pure theory [39].

Welfare literature was originally characterised by dense mathematical models (observational) but the advent of happiness as a vibrant research agenda resulted in a discernible break from this tradition [50]. The quantification of subjective levels of happiness or life satisfaction by means of qualitative /quantitative mass surveys across nations which possess multiple dimensions (including

longevity, wealth, security, markets) mark the conspicuous creation of happiness-based economics. One critique of this observational based literature approach is that establishing happiness as an econometric measurement has been frequently overplayed to serve political goals. Hence there has been concern that happiness research may be used to advance authoritarian ambitions. Some contenders, in happiness literature debates argue, that happiness criteria should not be used as a tool of public policy but rather as an information database for agents. This creates controversy since the debate may lead to political aspirations and goals (Bruni & Porta [9]). The use of statistical surveys may have delivered spurious outcomes according to Bond (Bond & Lang [7]) because modal scores can be heavily skewed towards respondents around introspective scales of happiness such as: very happy, fairly happy and not very happy. Consequential rounding errors may yield perverse results. Nonetheless, creating comprehensive measures of happiness for individuals has created areas of research into such concepts as: gross national happiness, wellbeing, gender development, green national product, and disability adjusted life spans. These analyses have included researchers such as Easterlin [16; 17] and Layard [34; 35], both of whom are theoretical economists. Other significant analysts in this novel sphere include Van Praag (2004) and Frey (2002).

Simon [46] argued in his ground-breaking research on behavioural theories of organisations that, an alternative goal set for a firm would be for entrepreneurs to aim for satisficing /goals rather than profit maximising goals. This was revolutionary in the 1950's and Simon was awarded the Nobel prize in 1978 for this work. Having laid the foundations, Simons' ideas were elaborated by Cyert et al. [14] in the 1960s and subsequently refined by Richard Thaler [47] and Kahneman et al. [8]. Following Simon, Thaler and Kahneman disparaged the notion that agents possessed stable preferences such that they consistently behaved in rational ways. Applying adjudications from psychological experiments, they found explanations for anomalies in economic decision-making that seemed to contravene rational optimising theory. After publishing a rich variety of papers in the Journal of Economic Perspectives, Thaler highlighted numerous ways in which observed economic behaviour in markets deviated from pure theory. An income/wealth endowment effect undermines fundamental welfare theorems based on axiomatic derivations in pure microeconomic theory [1].

The Aggregation Problem. The participatory worldview recognises individuality. This what makes the world interesting, exciting and contributes towards the onward unpredictable flow of life. But it also recognises that individuals are social beings, who communicate and form groups, societies even nations. Can these nebulous aggregates be treated as individuals? Are there any dominant national characteristics e.g. some nations that are industrious and others that are lethargic? The observational worldview with its ability to abstract and aggregate can do this but at what cost? In any nation so characterised, it is easy to identify a sizeable portion who do not have these features. This can be compared to the move from micro to macroeconomics

The aggregation problem (how to encapsulate the behaviour of individual agents (as portrayed in atomistic, equilibrium theory) with macroeconomic entities has long been a knotty issue in theoretical expositions [25]. Some classic examples of aggregates are the general price index vs commodity prices, capital stock vs. Industry-specific physical/human capital, the interest rate vs securities yields

on corporate bonds and cyclical unemployment rates vs. regional /structural unemployment rates. Economic Theory erects a facade by using the 'ceteris paribus' assumption for a composite good. One example is allowing the price of one good to change proportionately to the composite good and, yet, a constant marginal utility function is used to preserve monetary income. To derive the law of demand, strict constraints for indifference functions are required. These constraints are part of the observational worldview and are required to make the Economic Theory functional.

The universal application of portmanteau terms such as: 'labour', 'capital', 'real output', and 'investment', belies the fact these fundamental constructs are without rigorous foundation in economic analysis. However, such ideas are the foundation of core theorems in Economics. The observational worldview uses the same term 'trader' to cover workers in the Grand Bazaar in Istanbul to Wall Street. There are significant cultural and individual differences, yet, an 'ideal trader' – the rational man – is abstracted from this multitude of differences. Highly elaborate and verifiable (within the worldview) consequences are developed, and predictions made. One difficulty is in the transference of these predictions to the participatory, where they can be interpreted and seen in the light of existence. This difficulty in interpretation is perhaps a contributor to the paucity of accurate predictions. As an example, this is evident in the vast empirical literature on structural exchange rate models, where very sophisticated econometric models fail to outperform naïve random walks (Meese & Rogoff 1983). The mainstream view remains that nominal exchange rates are impossible to forecast using structural models due to the pervasive impact of estimation errors in short-term samples. However, this view was challenged by Ca'Zorzi et al [10] for real exchange rate behaviour estimation over the long term. These core difficulties, however, have not prevented theorists from continuing to employ such concepts (Hansen & Hodrick [24]).

A key aggregation issue concerns the fundamental concept of aggregate consumption whose demand curve is a summation of individual consumer demand functions (Milgrom [39]). This aggregation process retains only two characteristics of utility preference: theory-continuity and homogeneity. This rather severe abstraction has consequences for marginal utility theory, as any change in relative prices would bring about a redistribution of real income whenever there is a separate demand curve for every set of relative prices. This is aptly summarised by Kreps below:

"total demand will shift about as a function of how individual incomes are distributed even holding total (societal) income fixed. So, it makes no sense to speak of aggregate demand as a function of price and societal income" (Kreps [33]).

Moreover, he further proposes:

"what can we say about aggregate demand based on the hypothesis that individuals are preference/utility maximisers? Unless we are able to make strong assumptions about the distribution of preferences or income throughout the economy (everyone has the same homothetic preferences for example) there is little we can say" (Kreps [33]).

It requires heroic assumptions to square this circle such as that all consumers possess the same tastes and that all consumer's tastes remain static when relative prices change. This may allow marginal income to be allocated in a constant proportional ratio, but how can this be maintained if relative income distribution moves non – proportionately? The

ceteris paribus rule is undermined. A recent attempt to escape this conundrum has been the use of agent-based modelling [23]. In Economics, an agent is a decision maker linked with some perspective of the economy. Typically, agents make decisions by solving a well characterised optimisation problem and make decisions by solving some utility optimisation problem. This may become exceedingly mathematised as in the dynamic programming case. Macroeconomic models, especially, dynamic stochastic general equilibrium models, (DSGE) are explicitly based on micro economic foundations, which feature households, firms, and governments or Central Banks as agents in the economy. In macroeconomic configurations, DSGE models' agents maximise an objective utility function, subject to constraints, hence the microeconomic aspect is respected. (Bicchieri [4; 5]). Moreover, the new neoclassical synthesis (Goodfriend & King [22]) not only integrates the views of new Keynesians and new classical theorists but also accepts Simon's seminal notion of bounded rationality [46]. This is readily exploited in a universal way by using the breakthrough represented by Big Data analysis. The advent of new, powerful intelligent software that can spot trends can now be a basis for a macro analysis (Katal & Goudar [29]). If economists can apply these technological advances, then possibly they will be able to produce more accurate predictions.

As an example of aggregation, mainstream theories posit that the real wage may exceed the level that equilibrates labour supply and labor demand because of minimum wage laws, the monopoly power of unions, and efficiency wages. These cause wage rigidity which prevent wages from falling to equilibrium levels. Efficiency wage theories suggest that high wages make workers more productive which may clarify why firms do not cut wages despite an excess supply of labour. Such theorizing raises the following debates:

- What is a real wage? It is obviously some abstraction from reality, probably based on a weighted average. A left leaning political philosophy will have a different meaning to the concept of a real wage than a right leaning one;
- The propositions inherently assume that stable equilibriums exist and are achievable;
- The relationships between labour supply and demand are deterministic and amoral. They assume a single causal link whereas in fact there are many causes of changes in real wages. Marx took the labour theory of value from Ricardo where wages followed an iron law – the value depended on labour content/time in production, or supply of workers;
- 'Wage rigidity' is a mechanical metaphor that may or may not describe the situation and is it the reason why wages behave so?

• New Keynesians argue that Efficient Wage Theory suggests that high wages make workers more productive. Much economic research shows that beyond a certain level of income (minimum living wage) there is no causal relationship between wages and work effort supply [8].

CONCLUSIONS. This paper posits that there are two worldviews in existence and that all thought (including economic thought) needs a continuous interchange between both. Accepting this view, every Economic process can be thought to pass through the following four stages.

Stage One. Activity begins in the participatory world as all embodied objects have existence. In this world, certain phenomena are identified.

Stage Two. These phenomena are abstracted from the physical into the observational world.

Stage Three. A purpose is established which will usually entail maximising some utility function. Current Economic paradigms are used to predict chosen variables. These paradigms will use an amalgam of different theories and mathematical techniques.

Stage Four. The findings (predictions) should be transferred back to the physical world to be meaningful and better understood.

These stages encapsulate the thread of the paper. Stage one recognises a need but the difficulty in attaining it. The participatory worldview does not recognise the causality between the recognition of a desire and its satisfaction. To obtain this connection one must engage the process shown Fig. 1 and transfer to the observational stage. Here the concepts (such as supply, demand, value, price) are identified. A goal is set and elaborate theories are used to yield a prediction which is matched to the original experience. If the prediction does not match what happens in practice, the paradigm is improved or changed. There is always the possibility that, by chance, a bad model can produce acceptable results. The Duhem-Quine Hypothesis defines every model to have a core postulates and auxiliary hypotheses. (Cross [13]) and hypothesises that, in the face of apparently contradictory evidence, it is possible to preserve the core theory, *T*, by adjusting the auxiliary hypotheses. It is posited that the current phase of economic thinking is engaged in this type of firefighting (equivalent to the heroics of Ptolemy). Keynes [32] views on such issues are consistent with the Lucas Critique [36]. In a participatory vein, he maintains: "*it is of the essence of a model that one does not fill in real values for the variable functions. To do so would make it useless as a model. For as soon as this is done, the model loses its generality and its value as a mode of thought. The object of statistical study is not so much to fill in missing variables with a view to prediction, as to test the relevance and validity of the model*" (Letter to Harrod 1938).

DISCUSSION. The authors realise that the views expressed in this article are subjective and therefore will generate much discussion. Economics concerns economic events caused by economic actors. But the economic actors are humans capable of reflection and learning. These human actors have ideas (sound or unsound), they make decisions (good or bad) and the behave sensibly or foolishly. Thus, in a critical analytical sense, the actors themselves constitute the core economic event. Perhaps psychology, society, religion, arts, and culture are more relevant to economics than the Black-Scholes equation, cointegration or the Kalman filter?

Is economics useful? Surprisingly, (because of the criticisms raised), the authors believe that the answer is affirmative. The reason being that 'Economics' opens up a dialogue. It creates a space for discussion. By defining terms (such as price, value, supply, demand), it provides us with a language (however imprecise it is). *Where of one cannot speak, thereof one must be silent*" (Wittgenstein [51]).

The human mind is the rudimentary tool of survival. Life is given, survival is not. To remain alive, we must think. But to think is an act of choice – we are beings of 'volitional consciousness'. Reason does not work automatically: thinking is not a mechanical process: logical connections are not made by instinct. Society cannot survive without gaining knowledge and reason is means of achieving a Darwinian survival of the fittest. Reason is the faculty that perceives, identifies, and integrates the material provided by the senses. The task of human senses is to give evidence of existence,

but the task of identification belongs to reason: the senses instruct what something is, but what it is must be learned: "*To think is easy. To act is hard but the hardest thing in the world is to act in accordance with your thinking*" (Goethe [21]).

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РОЗВИТОК ЕКОНОМІЧНИХ ІДЕЙ

Викладено основну гіпотезу про існування двох фундаментальних поглядів на світ, у якому працюють економісти: партисипативний і спостережувальний. Наслідком цих різних поглядів є те, наскільки світ можна зрозуміти та контролювати. Економічна наука була створена в період, коли науковий (спостережливий) погляд перебував на підйомі, і через це виграв, а надалі і постраждав. Розглянуто економічне мислення в цьому контексті та на доречних прикладах показано, що хоча економісти і намагалися відійти від суворої математичної викладки, однак зроблено було недостатньо. Зроблено припущення, що майбутнє економіки залежить від підтримки постійного та необхідного взаємобміну між двома поглядами. Основна передумова, покладена в основу дослідження, полягає у нашому відчутті фізичної присутності – ми є "матеріальним розумом". Це створює світогляд (у методології Soft Systems використовується слово "weltanschauung"), який означає "суб'єктивний" і "емпіричний".

Ключові слова: економіка, економічна теорія, підхід до участі та спостереження.