UNDERSTANDING EPISTEMOLOGY AND METHODOLOGY IN ADOLPH LOWE'S POLITICAL ECONOMICS

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ABSTRACT

Owing to scientific overspecialisation of economics in present days, modern economic theory considers economic system as a closed system amenable to methods of hard sciences. This often ignores any discourse on methodological aspects of economics. Purpose: This paper aims to add to the methodological discourse in economics by delineating Adolph Lowe's political economics and its method of instrumental inference. It is argued that Lowe's political economics provides a logical framework for public policy in the era of modern capitalism, giving economics a goal-seeking orientation. Approach: The essay first brings out the epistemological foundations of Lowe's political economics and explains the need for a new method in the era of modern capitalism. It then critically analyses the method of instrumental inference with a proposed application in contemporary national planning. Practical implications: The paper argues that the framework of instrumental inference is a plausible open system framework for public policy and can also be useful in designing policy processes. This becomes more relevant in recent days as development planning has gained pace and the number of countries with development plans has increased greatly especially in pursuit of Sustainable Development Goals (SDGs). With a revived global interest in planning, a reliable framework to look at local and national planning may be the framework of political economics propagated by Adolph Lowe.

Keywords: Adolph Lowe, Instrumental Inference, Political Economics, Economic Methodology, Public Policy

JEL classification: B31, B40, O21, P11

INTRODUCTION

"Why did no one see it coming?" was perhaps the most difficult question of the great crisis year of 2008 thrown at the economists by a curious non-expert queen Elizabeth while on a visit to London School of Economics. The question prompted a flurry of brainstorming within the global scholar community ruing upon the state of macroeconomics.

Over the time a larger consensus emerged that the macroeconomists perhaps did not grasp the consequences of complex interconnectivities in global financial markets and the regulators could not catch up with the emerging scenario in financial markets (See, Taylor, 2009; Coffee Jr, 2009). Economists often blame a crisis in economic methodology for the failure (Baker, 2016; Hoover, 2016; Syed and Yilmaz, 2019).

Economics is essentially a social science and its method cannot resemble the method of hard sciences. It is often argued that modern economics has not been able to form a social orientation as it considers an economic system as closed system unlike some heterodox economic streams which attempt to establish a social ontology and consider economic system as an open system e.g., Institutional Economics school (Soylu, 2022). The frailties of modern economics can be traced to its methodological foundation which is rooted in unsound epistemology as far as modern capitalism is concerned. The methodological foundations of mainstream economics have been cited as one of the main reasons for its failure to account for the economic crisis of 2008 and the same is due to the persistent aversion towards methodological discourse by most mainstream economists (Drakopoulos, 2016). The mainstream economic theory failed to re-invent itself with the developments in the world of economics and finance as it did after 1930's great depression (Palma, 2022). One of the central questions in economics is prediction (Papaandreou 1959, Sen et al. 1986, Gonzalez 2011), however, it is not easy to predict and prediction often fails (Desai, 2015, p 165-201). Keeping in view the idea that past intellectual ideas must be acknowledged as a lighthouse for the future (Bogenhold, 2021), This article adds to the methodological discourse in economics by aiming to delineate Adolph Lowe's political economics and the novel method of instrumental inference which gives a goal-seeking orientation to economics as a science of public policy as opposed to science of prediction.

Adolph Lowe's political economics lays down a sound epistemological foundation for economics and propounds the method of instrumental inference for public policy. Ideas enshrined in Lowe' political economics come from his three major works spanning over almost four decades. First major work of Adolph Lowe was *Economics and Sociology* (1935) in which Adolph Lowe gave a clarion call for collaboration of social sciences while pointing out the failures in traditional economic theorizing focused on equilibrium and marginalism. The second major work, *On Economic Knowledge* (1965), brings out the epistemological foundations of political economics and advocates an instrumental approach towards public policy (instrumentalism). The third major work, *Path of Economic Growth* (1976) focuses on structural and force analysis aspect of political economics. Structural analysis is concerned with the elements of an economic system e.g., input, output, employment, savings, investments and so on and their arrangement to achieve the final goal.

On the other hand, *force analysis* is concerned with studying the pattern of behaviour and motivations which are required to keep the system on a path determined by *structural analysis*. From these three works of Adolph Lowe, emerges main pillars of Lowe's political economics. First is cooperation among social sciences for better understanding of society and policy making process. Second is orientation of economic theory towards public policy through instrumental inference and the third is structural and force analysis.

This essay first brings out the epistemological foundations of Lowe's political economics and explores the need for a new method in the era of modern capitalism in section 2 and section 3. The method of instrumental inference is expounded upon in section 4 and further application of instrumental inference in the contemporary national planning is discussed in section 5. In section 6 and 7, the essay critically analyses Lowe's method of instrumental inference and argues that Lowe's Political Economics provides a feasible and logical framework for thinking about public policy, planning and their implementation from an open system perspective. Finally, it summarises and concludes with future research agenda in section 8.

LOWE'S POLITICAL ECONOMICS- EPISTEMOLOGICAL FOUNDATIONS

The practice of modern economics in its bid to project itself as a science, seems to be forgotten that its domain includes myriads of social constructions which may not be accurately mathematized. The traditional conception of economics has been founded upon the unrealistic axiomatizations and abstractions. In this framework, economic action is based on the individual's rational choice, devoid of all its social dimensions. Drifting away from the traditional naturalistic abstractions in economics, Adolph Lowe's political economics supports the approach based on the detailed knowledge of how a group of men behave in larger social setting. Lowe gives a substantive definition of economic action as restricted to those activities which always claim, in addition to the use of immaterial resources, the use of some material resources. The advantage of this definition, according to Lowe is that it carves out a different domain of specific activities by doing away with the universal "logic of choice" and highlights the historical role which "scarcity of natural resources" plays in shaping the economic activities (Lowe 1965, p.10). Lowe is of the view that the generalized notion of scarcity misrepresents the economic activity by placing it side by side with other human activities.

Defining the economic action in the aforesaid manner, Lowe views the man-matter relationship as technological core of the economic activity and the man-man relationship leading to socialization of this technological core processes. The satisfaction of wants through choices made is conditional upon rules relating various input combinations to output or we can say engineering rules which themselves are dependent upon various laws of nature.

This otherwise simple man-matter relationship defined by the unchanging engineering rules and laws of nature gets complex, when seen in terms of establishing a symbiotic relationship vis-a-vis man-man relationship in a society. The attainment of aggregate output in a social economy needs setting up a disaggregated production mechanism based on known rules and coordinating actions of many individuals at different stages. The most pronounced problem here is how to coordinate and maintain the requisite social patterns of behaviour amenable to attainment of our final goal. Psychological manipulation of each other is an indispensable part of this process. In Lowe's view, two kinds of institution namely *system of communication* which serves to express intentions and compliant reactions and the *system of sanctions* which rewards or punish the actions according to appropriateness of the same, are needed for the survival of economic society.

The basis of traditional theory of market is law of supply and demand based on premises of how market participants react to price signals. Analysis of households, firms, interregional trade and even modern theory of output and employment is based on this general law and its basic premises (Lowe 1965, p.35). The law of supply and demand presupposes effective communication through price signals and resulting expectations, and sanctions through pecuniary gain and loss and thereby compliant reactions from market participants.

For the law of demand and supply to be operative, it is imperative that sellers must maximize money receipts and buyers must minimize money expenditure, Lowe calls it the "*extremum principle,"* culminating into specific expectations. Stabilizing expectations and compatible motivational patterns are needed for market participants acting in accordance with the law of demand and supply. Lowe identifies two constituents which shape motivational patterns namely incentives or *action directives* which represent purposive intent and *expectation* which represent strand of cognition (Lowe, 1968).

While identifying the persistence of "*extremum principle*" and seemingly logical operation of equilibrating forces in classical as well as neoclassical reasoning, Lowe underscores the necessity of discovering the truth value in traditional theory by its empirical presence or absence. He suggests of a prevalent tendency towards extremum principle in early periods of classical economics, but on the other hand doubts the neat operation of the principle in presence of wide variety of incentives and their combinations constantly manipulating the market space in modern times. In modern times, uncertainty has increased much and expectations have no definite pattern, this feature of modern industrialism makes it difficult to visualize any determinate rule of the market.

Economics is visualised as an open system in Adolph Lowe's book *On economic knowledge*. As an open system, Economics cannot have the methodological advantage of hard sciences and disequilibrium in the system may be due to intra as well as extra-systemic effects.

Positing economic action in terms of man-matter and man-man relations, man is essentially identified as the entity having capability to act autonomously thus dealing with man and its society is not the same as dealing with physical processes involving inanimate particles. Myriads of environmental factors pose obvious psychological constraints on human behaviours in the process of choosing micro goals.

Lowe identifies two types of factors that create psychological constraints on motivation and behaviour: dynamic and structural factors. Dynamic factors are pressures that are either automatic, contrived, or institutional and affect expectations directly. Structural factors, on the other hand, create barriers to economic motion and affect expectations indirectly. Lowe discusses the decreasing resource mobility, which consists of social mobility and technical mobility. Social mobility consists of degree of competition, price and wage control, tariff, and banking policy etc.- and technical mobility consists of the feature of industrial forms of production such as specificity and indivisibility of capital. There has been outstanding decrease in the technical and social mobility in the modern capitalism; however, this growing immobility is not the only factor affecting the expectations in the modern times (Lowe 1965, p.64-66).

Lowe examines the traditional theory in three different historical periods namely the "classical" stage i.e., industrial revolution, the "neoclassical" stage i.e., industrial capitalism under laissez-faire and the modern stage i.e., organized capitalism. Lowe finds the theoretical construct of 'an economic man' a genuine abstraction from the experience of classical stage when the economic system was conditioned by external pressures, such as mass poverty, competition and a puritan work ethic that created a general climate favouring wealth accumulation (Hagemann and Kurz, 1990). Owing to the highest social and technical mobility and least hindrances to market adjustments in the classical age, expectations were stabilizing (Lowe 1976, p.69-71).

In the second phase of industrial capitalism under laissez-faire i.e., from middle of the 19th century, the neoclassical economics carried on the tradition of orthodox economic theorizing based on the concept of utility maximization. The structural and institutional complexity increased to high extent obstructing the social and technical mobility while the neoclassical theorizing did not catch up with the ensuing change and resorted to ad-hoc explanations while confronting the phenomena of business cycles and other hard facts affecting the stabilizing expectations. The orthodox reasoning was not able to integrate the changes in economic theorizing, while vouching for inherent equilibrating tendencies, the orthodox theory tried to explain digressions as special cases and this led economics to be divided into two non-communicating separate compartments, equilibrium analysis and theory of economic development (Lowe 1965, p.73-75).

In the phase of modern organized capitalism, with the advent of welfare state, obstacles to resource mobility are multiplying and decision making has increasingly become highly decentralised, interfering with the motivational and behaviour patterns. Lowe's political economics draws our attention to the need of a new economic theory in commensurate with the new economic realities with all its intra and extra-systemic intricacies and individuals' cognitive power.

MODERN CAPITALISM AND THE METHOD IN ECONOMICS

The classical theoretical framework had integrated environmental, institutional, political, and socio-psychological constants into one comprehensive framework. From the middle of 19th century, the classical system of theorizing got abandoned gradually and was replaced by a formal framework in which prediction was conditional upon some assumptions about initial conditions and behaviour. This formal framework was neoclassical economics which was characterised by marginalism and abstractions. Focus of analysis in the new framework was individual, not social. The dominant method of neoclassical theory emerged as hypothetico-deductive or falsificationism. Hypothetico-deductive method was propounded by Karl Popper. In Popperian view, theories are free creations of human mind and the test of scientific theory is its falsifiability. This method gave impression of economics as an autonomous discipline which was purely scientific and gradually economics as a social science was separated from larger social fabric (Blaug 1992, p. 94-125).

Economic theory based on deductive reasoning alone is not sufficient for the purpose of achieving a macro-goal. Economics is a science of man and society, the human dimension necessitates taking individuals' autonomous cognition, history, goals sought and motivational aspects into consideration while making an explanatory attempt. Explanation in social science demands specifying the specific motivations and behaviours as antecedent, as opposed to strict scientific explanation.

Lowe as an economist was the admirer of classical style comprehensive theorizing. In modern capitalism when decentralised decision making is the norm and economic agents have different motivational and behavioural factors at different times, it is imperative to design and implement a policy in a controlled environment with dynamic feedback mechanism to achieve a macro-goal in an economy. Thus, the main goal of political economics is not the prediction but the goal is to steer the society on a chosen path which can lead us to the coveted goal and it can be achieved through the method of instrumental inference.

Task of new political economics is the act of goal-setting along with designing appropriate policies to achieve the goal. The task consists of recapturing the formal determinacy of classical analysis and to design a public policy capable of achieving the macro-goal by shaping the preferences.

The political economics in its integrated approach combining the economic processes with the dominant socio-political environment is not new as it was there in classical days too; Lowe's political economics explicitly recognises its instrumental character and combines that in its method called instrumental-deductive method or instrumental inference in contrast to traditional hypothetico-deductive method of economics.

INSTRUMENTAL INFERENCE

A primary task of political economics in the era of modern capitalism is instrumental inference (or instrumentalism) (Murray, 2022). Lowe's methodological framework of *instrumental inference* calls for the collaboration of other social sciences with economics to devise a controlled path of economic development. In the instrumental approach, we first determine organizational rules amenable to reaching the macro-goal which is known. This is the instrumental part of the method of political economics which is based on regressive inference. It starts from a known goal and reaches the initial state discovering the behavioural, motivational, and organisational patterns needed to achieve the macro-goal. In the next step, which is the deductive part of the method, the configurations and operational principles discovered serve as premises and the instrumental analyst goes from cause to effect using progressive inference.

Instrumental inference inverts the mode of inquiry in traditional positive analysis (Murray, 2022). In traditional analysis, behavioural, motivational, and organisational patterns are given and based on these given premises economists try to achieve the economy-wide goal or predict the future path. In the instrumental analysis, the motives and patterns first become objects of inquiry and once these patterns are discovered a progressive inference is used to chalk out a path to achieve the macro-goal and thereafter suitable controls are established. The process provides realistic premises for deductive analysis to be based on.

The instrumental approach to economic policy incorporates heuristic reasoning from the works of George Polya, Charles Sanders Pierce, and Michael Polanyi. Adolph Lowe's political economics combines analysis and synthesis methods from George Polya's "How to Solve It; a new aspect of mathematical method" where analysis involves regressive reasoning and synthesis involves progressive reasoning (Polya 1988, p. 142).

Abductive reasoning, also called retroductive reasoning that involves provisional adoption of hypotheses based on instinctive guess and experience of facts (Peirce 1935, p. 151-75). Applying abductive reasoning, we can guess the preconditions from the consequents, that is what we attempt in the instrumental part of political economics. Once premises are formed based on motives and behaviours, deductive inference is used to move towards the terminal goal. This approach differs from hypothetico-deductive reasoning, as retroductive reasoning can be better in choosing hypotheses and discovering goal-adequate requirements.

Michael Polanyi also advocates for the logic of discovery as a heuristic exercise, where instrumental analysis is like crossing over a logical gap by drawing conclusions from existing knowledge and experience. Political economics provides a logical framework for discovering solutions to economic problems by correctly assessing, identifying, and understanding the problem (Hanson 1965, Polanyi 1962, p. 126-39).

Instrumental analysis starts from identification of the knowns and the unknowns in the system under investigation. In this inferential procedure, unknowns are derived from the knowns. Unlike traditional theory where the final state or macro-goal is unknown, we take this macro-goal as known in the instrumental analysis. For example, in traditional mathematical models of planning like Mahalanobis' model, Feldman's model or Harrod-Domar model, we put certain values of parameters in a given equation and thus arrive at the final goal. The final goal is not postulated before-hand, it is observed later. The "Knowns" in the instrumental procedure are a specified macro-goal, initial state of the system under investigation, concerned law of nature, engineering rules and related psychological laws linking specific behaviours to specific motivations and certain generalization about economic motivations and environmental influences like political control. The unknowns to be discovered from the "Knowns" are probable paths of the system to achieve the final state, suitable patterns of behaviour and related suitable motivations and finally a system of political control suitable to generate such motivations (Lowe 1965, p.253-54). The strict description of initial state and final goal can help us discover the suitable paths more easily but the inferential procedure as a process of discovery may well differ for different macro goals.

Based on the above discussions based on Lowe's book *On Economic* Knowledge (1965), instrumental inference can be summarised in the following diagram:

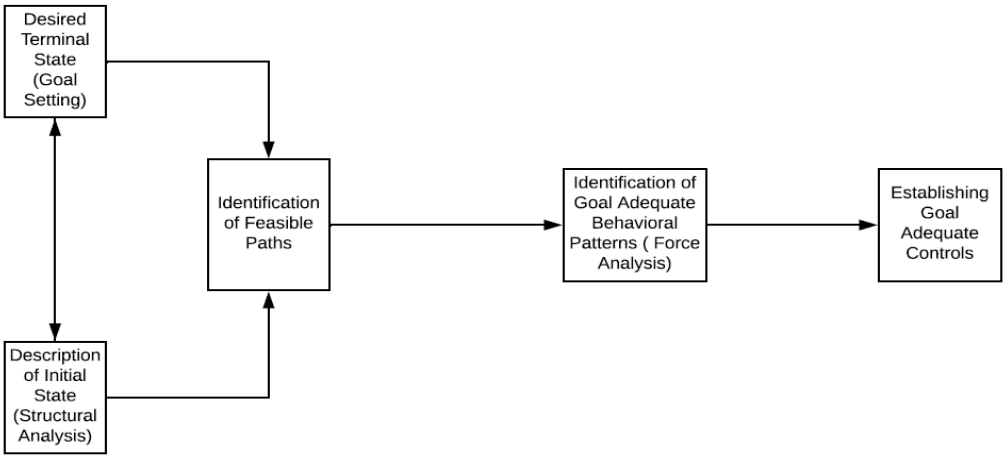

Fig.1. Adolph Lowe's Political Economics, Source: Ranjan (2016)

Establishing suitable controls is about balancing freedom and order in an economy (Hagemann and Kurz, 1990). Suitable controls are indispensable in Lowe's political economics for establishing this balance. The establishment of paths and motivational and behavioural patterns are the primary tasks of instrumental analysis, however, the knowledge of paths and patterns themselves do not tell us about spontaneous achievement of the macro-goal. Here comes the necessity of suitable controls designed to direct and sustain micro motivations and behaviour towards a path conducive to macro-goal. Control has important function when independence of micro-units in their behaviour and decision making often leads to conflict with suitable behaviours and motivations for attaining the macro-goal. Design and establishment of controls are steps of intervention driving economy towards a goal. Lowe has not used control in socialist sense; however, he has talked about manipulative and command controls and command controls look like socialist controls. The aim of political economics is to keep command controls at minimum (Oakley, 1987).

RELEVANCE IN CONTEMPORARY DEVELOPMENT PLANNING

Development planning is being re-envisioned across the world in pursuit of Sustainable Development Goals (SDGs) of agenda 2030. Number of countries with some kind of national development plan has more than doubled between 2006 and 2018 (Chimhowu et al, 2019). This new age planning has witnessed some fundamental shift from the development planning of later half of 20th century. Chimhowu et al. (2019) have found varieties of plans and planning strategies across the countries after analyzing more than 100 national development plans. Majority of the plans (62%) were found to be collaborative involving increased citizens' participation and communication. Planning exercises traditionally have been overwhelmingly based on investment planning and sectoral balancing through technocratic modelling. Although, traditional planning has taken a backseat, still more than twenty five percent of national development plans rely on expert-led top to bottom approach, Togo, China, Saudi Arabia, and Zimbabwe are few examples (Chimhowu et al., 2019). This type of planning conceived only as a technocratic exercise tends to miss on vital socio-political cues necessary for realizing the desired outcomes through policy implementation.

If we consider national planning as an exercise to achieve a macro-goal in an economy, any planning exercise in modern market economy or a mixed economy can be thought of as an exercise in steering micro-units in the market towards a macro-goal. In this context, Adolph Lowe's method of instrumental inference gives us a sound theoretical basis to deal with various micro-motivations in the economy. The approach steers the system towards a macro-goal through well-designed political, economic, and behavioural controls.

Through the lens of instrumentalism, a planning process can be envisioned in five steps. The first step is goal-setting, which is essentially a political process in Lowe's political economics (Lowe 1968; Oakley 1987). A passive role for community in the planning process may lead to ill-informed and misperceived aggregation of social preferences at the central level which may ultimately derail the public- friendly plan. In this context flow of information and relevant messages across the political system, bureaucratic system and civil society is important. Processing of available information and knowledge to arrive at an optimal decision is crucial in planning. A deliberative and democratic process of goal-setting is amenable to operationalising control to achieve the macro-goal.

The second step is structural analysis, which is about knowing the initial state of the economy. As earlier pointed out, it is concerned with the elements of an economic system e.g., input, output, employment, savings, investments and so on and their arrangement to achieve the final goal. The third step is to identify the feasible paths for the economy (goal-adequate paths/adjustment path) connecting the macro-goal and the initial state of the economy. Adjustment path of a system is a path defined by progressive succession of states which are achieved by a system in due course of achieving a macro-goal. The succession of states is concerned about the arrangement of micro activities in a certain manner. Path describes itself as structured states defined in terms of physical and price relationships among different variables e.g., employment, income, savings, investment and soon. At each different stage these variables shift and adjust to achieve the terminal state.The fourth step is behavioural analysis (force analysis) to find goal-adequate behavioural and motivational pattern to keep economy on its adjustment path. For example, to achieve certain level of savings, investment and growth, certain behavioural and motivational pattern among civil society, bureaucracy and investors' community is required.

The last and the most important step, keeping in view the decentralized decision making among various actors in the modern economy, is the establishment of goal-adequate controls. Political economics as a controlled economic system strives to design controls for keeping the economy on goal-adequate path based on the findings of instrumental analysis. Controls here are only to shape preferences and behaviours of economic agents to conform to the desired macro-goal. Design and establishment of controls are steps of intervention which drive economy towards a goal. For Lowe, control means providing an 'environment' that will motivate microeconomic decision makers to conform to behaviours that are goal-adequate. The choice of controls is immediately constrained by the specification that the maximum degree of freedom consistent with the achievement of the goals pursued must be sustained (Oakley, 1987).

The spectrum of controls can be too broad and can include wide arrays of incentives, punishments and sometimes supplanting the micro-actions by centralized decision. Finding the suitable controls is the task of instrumental analysis while applying the controls in real context is the practical aspect of political economics. Political economics envisages controls as an operational principle which differs from the controls of conventional economic policy in the sense that latter takes the behaviour of micro-units for granted while the former concerns influencing the behaviour and motivational patterns themselves. Controls work at multiple levels and may also take form of coercion or direct government intervention to remedy the situation. Controls are to be seen in the context of goal-adequate behaviour and regularly assessed of its efficacy through a feedback mechanism.

Fig. 2 below represents a logical framework of development planning based on Adolph Lowe's model of instrumental inference. It shows wide range of controls categorized into price and non-price controls.

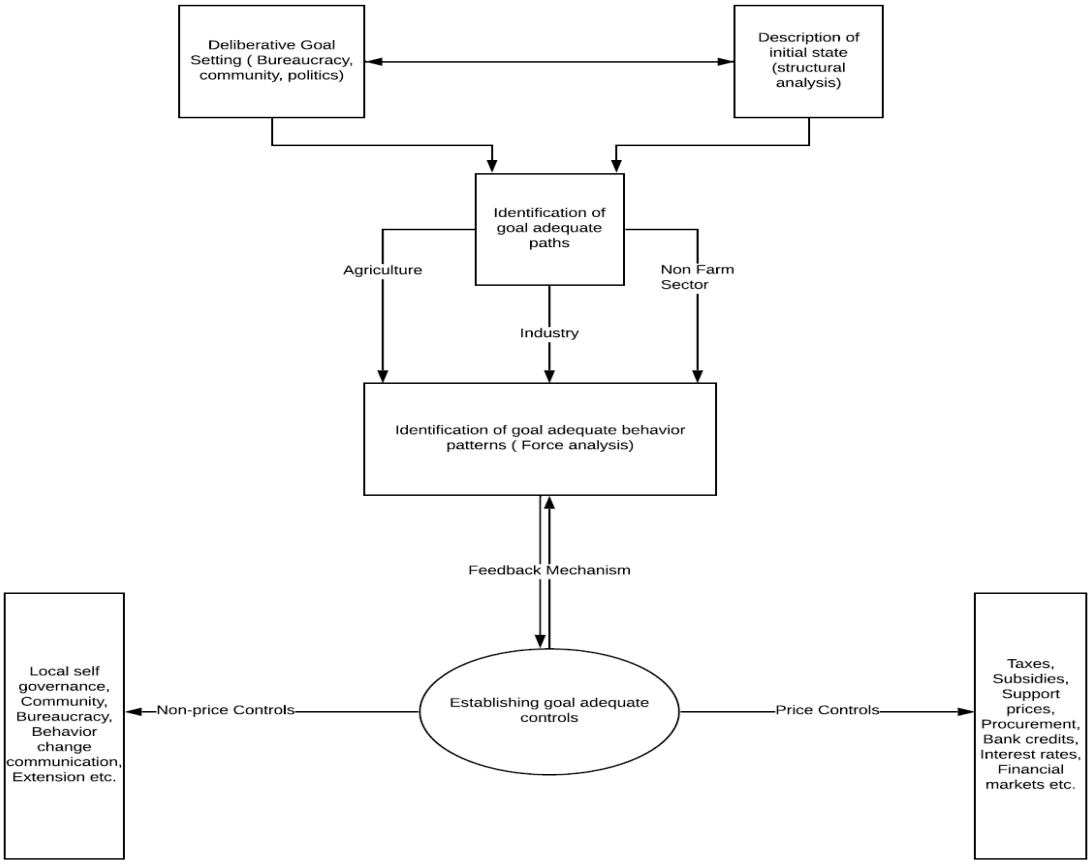

Fig. 2 Development planning based on Instrumental Inference
Source: Created by author

The above schematic diagram is indicative of steps required in economic planning based on instrumental inference. Goal setting and the description of initial state should inform each other as the description of initial state should be relevant to the macro-goal. The diagram shows that the feasible goal-adequate paths may involve all the three sectors namely industry, agriculture and services and the motivations and behaviours of economic actors in all the three sectors are assessed for establishing goal-adequate controls, which must be chosen from a bouquet of price and non-price controls.

INSTRUMENTAL ANALYSIS: AN APPRAISAL

Moving on to operational difficulties with instrumental inference, a situation which may arise in the process of instrumental reasoning is the absence of any path relating the initial and terminal states. In that case the planner must see whether the description of initial and final states is compatible or not as we know that the description of initial states can be done in multiple ways but the relevant way to describe initial state is to describe in accordance with different parameters of final state. If despite the description of initial and final states being compatible, there is absence of any path then the planner has option to assess what changes can be brought in the initial state itself to have a connecting path to the final state, after that attempts should be made to achieve the changed initial state first and then progress must me made towards the final state. Certain goals can be incompatible with the initial state and demands altering the initial state itself first. For example, the goal of equitable distribution may not be compatible with the existing property relations in a society and thus first altering the property relations may pave the way towards the achievement of equity.

Instrumentalism's engagement with behaviour and motivation is not about knowing all kinds of them possible in the universe; rather it is concerned with only those motivations and behaviours which are contextually relevant for achieving the goal in order to find certain controls to discipline the existing motivations and behaviour on those lines. Unlike conventional economics, if behavioural assumptions are unfounded, instrumentalism does not fail. As earlier pointed out that instrumental analysis is a discovery procedure and if target remains same, we can always arrive on existing behaviours and motivations with some probabilities through an ongoing process. This conceptualisation of economic knowledge in Lowe's political economics may be seen as an epistemological reconstruction of economic knowledge which not only offers an evolutionary perspective on economic theory embedded in a society but also a theoretical basis for decision making in economics.

Attempting to design the edifice of control conducive to achievement of macro-goal is the most challenging task in the Lowe's political economics because in contemporary globalised world, high degree of freedom of individual units has become order of the day.

Designing and establishment of controls while upholding an appreciable level of freedom in a democratic setup may entail institutional and organisational innovations which economic theory has paid little attention to. The idea of freedom is enhanced in political economics by control, as control helps in achieving the macro-goal and thus helps society enjoy prosperity and freedom which may be hampered otherwise. This may seem to be a constrained freedom for overall welfare and a prosperous economy. This notion of control must be recognised among the controlled, this recognition may then create a support for controls among the controlled. The overall awareness regarding control in the society comes from education and credibility of the controller.

While talking about the framework of political economics in real world context, the existence of time lag may seriously hamper the efficacy of policy decisions. Though the Lowe's framework is theoretically designed to reduce the uncertainties and lags in policy sphere, in real practice the efficacy of framework depends upon the design of control and institutional mechanism to deal with it which may itself take a long time and may emerge as a trial-and-error process. This trial-and-error process may be overdrawn in many contexts and the nature of process itself raises the question of efficacy in emergency or shock management in the context of planning and policy.

The contemporary globalised world with its international flow of trade and capital presents a challenge to a controlled economic system as envisaged in Lowe's political economics. Increasing globalisation has increased uncertainty, which impacts public policy when many things may not be under public control, emanating from across national boundaries. Obsession with controls may lead to retrograde policies, including competitive devaluation and erecting high tariff barriers. Understanding globalisation from a multidisciplinary perspective may be the first step towards addressing the problem, followed by using tools and techniques from other social sciences to manage the destabilising forces in a dynamic setting.

There are many technical, political, and philosophical problems which remain matter of further investigation in Lowe's political economics. Nevertheless, Political economics is a novel attempt to widen the economic thinking and changing its method with cooperation among social sciences. Talking in Kuhn's sense, Lowe's methodological framework is in response to anomalies observed in the practice of normal economic science. Paradigm in its initial stage is limited in scope and further research is needed to acknowledge its relevance with facts. In Kuhn's words, to be accepted as a paradigm theory must seem better than its competitors but need not explain all the facts with which it can be confronted (Kuhn 1970, p.17-18). Lowe's paradigm provides a puzzle-solving heuristic to handle the same data regarding economics and promises a better understanding of economics, society, and its course of development.

LOWE'S POLITICAL ECONOMICS AND ECONOMIC POLICY

Various strands of economic theory have informed economic policy differently. One of the early pioneering works in the area of economic policy has been done by Jan Tinbergen and Ragnar Firsch. They essentially brought mathematical modelling into the practice of economic policy. Tinbergen's theory does give primacy to model building as a major step in policy making and thus less importance goes to relations which are non-quantifiable or non-discoverable through mathematical models. Tinbergen's theory is apt for a closed system approach while Lowe's instrumental approach follows an open system approach.

Theories are broader than the models, they may also encompass several models. Theories when defined by models are closed, but closed models can well be embedded into open theoretical systems (Chick and Dow, 2005). Open theoretical systems can accommodate different economic situations and problems. Systemic openness involves multiplicity of actors and variables whose interaction is subject to evolving circumstances (Ramazzotti 2021). Lowe's instrumental analysis as an open theoretical system, is open to a trial-and-error process through which we can discover an appropriate policy for specific goals in different economic situations. Non-quantifiable aspects like goal-adequate behaviour, motivations are also well integrated into the logical framework of instrumental inference.

There are two major approaches to look at theory for economic policy, a mainstream approach which is price centred and other non-mainstream approaches which are institution-centred (Ramazzotti, 2022). Price-centred mainstream approach while not refuting the role of institutions gives importance to prices as tool to assess and coordinate in the economy and on the other hand institution centred approach while not refuting the role of prices give importance to institutions. Institution-centred approach cannot be fit tightly into a deterministic model as institutions are interdependent and their change entails change in relative prices.

Lowe's political economics with its open theoretical structure gives closed models while doing structural analysis in the light of macro-goal to be achieved while simultaneously establishing an ontological openness with dynamic feedback mechanism to revise and adapt structural analysis and establishing controls as per behaviours and motivations of economic agents. Thus, instrumental inference of Lowe is an ongoing phenomenon where feedback loops keep on revising and adapting structural analysis, goal-adequate paths, and suitable controls as per the macro-goal.

Mainstream neoclassical theories and models start from equilibrium and assume equilibrating tendencies in an economy while disturbances are exogeneous (Ansperger and Varoufakis 2006; Kuehnlenz et al. 2022).

Lowe's political economics emphasizes uncertainty in the capitalist system and this emphasis gives large scope for introducing social dimensions to an economic system, as in most post-Keynesian theories (Dymski 2014). Lowe's theoretical approach is embedded in socio-political and environmental structures to conceptualize a modern capitalist economy. This systemic openness makes it imperative to consider that changes in an economy can happen in variety of unpredictable ways and people's preferences can also change with changes in economy (Ramazzotti 2021).

Lowe's political economics brings us to the idea of cooperation among social sciences to deal with this evolutionary nature of an economy, economic agents, and their myriad expectations. Thus, goal setting in Lowe's political economics falls in the realm of politics and description of initial state is done keeping in mind the macro-goal and both inform each other, identifying goal-adequate behaviours of various economic agents fall in the realm of sociology, psychology, and other social sciences while goal adequate path is more in the realm of economics. Overall, the major task of economics is to achieve a macro-goal through public policy in a policy environment with dynamic feedback which makes the models and policy to evolve with evolving society to achieve the goal, thus economic system becomes a goal-oriented controlled economic system. Lowe envisaged controls as a major component of this controlled economic system and have a major role in keeping the economy on a desired path. As described previously, controls have a wide spectrum encompassing incentives, persuasion, and education to coercion.

Lowe's framework of instrumental inference can also be seen as a guiding principle of policy processes. Theories in pure economics rarely talk about policy processes to achieve a goal. Policy processes have been studied in political science. Lowe's framework does not give any specific policy conclusion about any economic parameter; however, it gives us a framework to think about goal-seeking economic policy and the associated policy processes. Lowe's framework of controlled economy is different from Abba Lerner's controlled economy where Lerner developed specific rules of policy from pure theory and proposed that to maximise social welfare, government should follow these rules e.g., Lange-Lerner rules and functional finance (Colander 2005). Lerner prescribed policy rules as goals to be achieved but does not provide rules for elements of policy processes like policy design, policy agenda, policy implementation policy learning etc.

From conceptualization to implementation, public policy in a modern capitalist economy with varieties of actors and motivations pose a challenge. Policy design and policy learning as components of larger policy processes play an important role in making a policy successful in a complex economy (Cairney 2021, Moyson et al. 2017). Emerging policy design orientation calls for examining combination of instruments, interaction among policy actors in an evolving scenario (Howlett et al. 2015).

Studying policy processes especially policy design and policy learning in the light of Lowe's theoretical framework can be an interesting agenda for future research. Further, Controls as an instrument in policy design are less studied, in a democracy formulating and implementing controls in policy design can be a practically challenging exercise and calls for further research.

CONCLUSION

Adolph Lowe's political economics offers two theoretical novelties: it reconceptualizes economics as a social science aimed at establishing a controlled economic system that works towards a macro-goal rather than seeking only to predict outcomes, and it provides a logical framework for specific policies and their implementation through instrumental inference. This logical core is absent from neoclassical economics, which focuses solely on the conditions of establishing equilibrium. Obstacles to resource mobility and highly decentralized decision making in modern economies reduce the analytic capability of traditional economics. Political economics, with its idea of public control, aims to give a new direction to economic theorizing that revives the economic theory as a science of achieving goals, not just prediction. Lowe's ideas have contemporary relevance for public policy, planning, and economic methodology.

The article first delineated the epistemological conception of Adolph Lowe's political economics while moving on to its method of instrumental inference. While bringing out various steps involved in instrumental inference, the article discussed its relevance in contemporary national planning and argued that the framework of instrumental inference is a logical framework to improve policy making in a goal-oriented economy. From the discussion, further interesting research agenda emerges like choice, design, and operationalization of control in a globalized democracy, designing and implementing controls within and without planning bureaucracy, application of instrumental inference framework to policy processes amid opportunities and challenges related to big data in policy making and specific channels of policy learning within the framework of Lowe's instrumental inference.

REFERENCES

Arnsperger, C., & Varoufakis, Y. (2006). What Is Neoclassical Economics? The three axioms responsible for its theoretical oeuvre, practical irrelevance and, thus, discursive power. Panoeconomicus, 53(1), 5-18.

Beker, V A. (2016). "From the economic crisis to the crisis of economics". In *Modern Financial Crises, Argentina, US and Europe*, edited by Beniamino Moro and Victor A Beker, 183-98. Springer International: Switzerland.

Blaug, M. (1992). *The methodology of economics: how economists explain*. Cambridge: Cambridge University Press.

Bögenhold, D. (2021). History of economic thought as an analytic tool: Why past intellectual ideas must be acknowledged as lighthouses for the future. In *Neglected Links in Economics and Society: Inequality, Organization, Work and Economic Methodology*, 161-180.

Cairney, P. (2021). The politics of policy design. *EURO Journal on Decision Processes*, 9, 100002.

Chick, V., & Dow, S. (2005). The meaning of open systems. *Journal of Economic Methodology*, 12(3), 363–381.

Chimhowu, A. O., Hulme, D., & Munro, L. T. (2019). "The 'New' national development planning and global development goals: Processes and partnerships." World Development, 120, 76-89.

Coffee Jr, J. C. (2009). "What went wrong? An initial inquiry into the causes of the 2008 financial crisis". *Journal of Corporate Law Studies*, 9(1), 1-22.

Colander, D. (2005). From Muddling Through to the Economics of Control: Views of Applied Policy from JN Keynes to Abba Lerner. *History of Political Economy*, 37(Suppl_1), 277-291.

Desai, M. (2015). *Hubris: why economists failed to predict the crisis and how to avoid the next one*. Yale University Press.

Drakopoulos, S. A. (2016). "Economic crisis, economic methodology and the scientific ideal of physics". *The Journal of Philosophical Economics: Reflections on Economic and Social Issues*, 10(1), 28-57.

Dymski, G. A. (2014). The neoclassical sink and the heterodox spiral: political divides and lines of communication in economics. Review of Keynesian Economics, 2(1), 1-19.

Gonzalez, W. J. (2011). Complexity in Economics and Prediction: The Role of Parsimonious Factors. In Explanation, prediction, and confirmation. (pp. 319-330). Dordrecht: Springer Netherlands.

Hagemann, H., & Kurz, H. D. (1990). Balancing freedom and order: On Adolph Lowe's political economics. Social Research, 57(3), 733-753.

Hoover, K. D. (2016). The crisis in economic theory: a review essay. Journal of Economic Literature, 54(4), 1350-1361.

Howlett, M., Mukherjee, I., & Woo, J. J. (2015). From tools to toolkits in policy design studies: The new design orientation towards policy formulation research. Policy & Politics, 43(2), 291-311.

Kuhn, T. (1970). The structure of scientific revolutions. Chicago: University of Chicago Press.

Kuehnlenz, S., Andreoni, V., & Meyenburg, I. (2023). Capitalism and crises: A comparative analysis of mainstream and heterodox perceptions and related ethical considerations. Business Ethics, the Environment & Responsibility, S1, 32, 52-64.

Lowe, A. (1935). Economics and Sociology. London: George Allen and Unwin.

Lowe, A. (1965). On Economic Knowledge. New York and Evanston: Harper and Row.

Lowe, A. (1968). Toward a Science of Political Economics. In Allen Oakley, ed., Essays in Political Economics: Public Control in a Democratic Society (pp. 157-192). Sussex: Wheatsheaf.

Lowe, A. (1976). The Path of Economic Growth. New York: Cambridge University Press.

Moyson, S., Scholten, P., & Weible, C. M. (2017). Policy learning and policy change: Theorizing their relations from different perspectives. Policy and society, 36(2), 161-177.

Murray, M. J. (2022). Economic method, public policy, and society: Adolph Lowe's political economics. The European Journal of the History of Economic Thought, 29(4), 600-18.

Oakley, A. (1987). Introduction: Adolph Lowe's Contribution to the Development of a Political Economics. In Allen Oakley, ed., Essays in Political Economics: Public Control in a Democratic Society (pp. 1-24). Sussex: Wheatsheaf.

Palma, J. G. (2022). Finance as an (ever more fragile) 'perpetual mania': have they all lost their collective minds? How the new alchemists distorted Kindleberger's financial-crisis cycle, and how the abundance of easy rents led to lazy elites. Cambridge Journal of Economics, 46(4), 773-825.

Papandreou, A. G. (1959). Explanation and Prediction in Economics: The basic statements of economics may serve to explain the past but not to predict the future. Science, 129(3356), 1096–1100.

Peirce, C. S. (1935). Collected papers of Charles Sanders Peirce Vol. 5. Charles Hartshorne and Paul Weiss, eds., Cambridge, MA: Harvard University Press.

Polanyi, M. (1962). Personal Knowledge. London: Routledge and Kegan Paul.

Polya, G. (1988). How to solve it: A new aspect of mathematical method. Princeton: Princeton University Press.

Ramazzotti,P. (2021). Institutions and Economic Policy. In Bridging Microeconomics and Macroeconomics and the Effects on Economic Development and Growth (pp. 41-63). IGI Global.

Ramazzotti, P. (2022). Heterodoxy, the Mainstream and Policy. Journal of Economic Issues, 56(1), 59-78.

Ranjan, N. (2016). "Adolph Lowe's Political Economics: Methodology and an application for public policy". Unpublished M.Phil dissertation. University of Hyderabad.

Sen, A. K., Last, A. G. M., & Quirk, R. (1986). Prediction and Economic Theory [and Discussion]. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 407(1832), 3–23.

Soylu, F. E. (2022). Veblen: pioneer of open economic reality. Ekonomska misao i praksa, (2), Vol. 31, (2), 603-621.

Syed, H., & Yilmaz Genç, S. (2019). The Queen Asked: State of Mainstream Economics. Ekonomska misao i praksa, Vol 28, (2), 681-697.

Taylor, J. B. (2009). "Economic policy and the financial crisis: an empirical analysis of what went wrong". Critical Review, 21, 2-3, 341-364.