

# Linking “adaptive efficiency” with the basic market functions: A new analytical perspective for institution and policy analysis

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## Abstract

This conceptual paper develops a new perspective linking the concept of “adaptive efficiency” with the allocative, discovery and creative functions of the market from an institutional perspective. The efficacy of the adaptive efficiency of market functions in improving economic performance is proposed to be measured by changes in transaction costs. This perspective enables an analysis of the independent and interrelated effects of these functions, provides a more complete understanding of entrepreneurial activities and the efficient allocation of resources, better deals with the central problems of economic system and organisation, namely, adaptation and the coordination of knowledge, and has useful implications for public policy.

## KEYWORDS

adaptive efficiency, entrepreneurship, market functions, public policy, transaction costs

## 1 | INTRODUCTION

This paper proposes and develops a new analytical perspective that applies the concept of adaptive efficiency (North, 1990) to the allocative, discovery and creative (Buchanan & Vanberg, 1991; Hayek, 1978) functions of the market. The efficacy of the adaptive efficiency of market

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functions in improving economic performance is proposed to be measured by the economisation of transaction costs. This measure is considered appropriate given that transaction costs are the costs of running the economic system, and the central problems of the economic system and organisation are considered to be adaptation (Barnard, 1938, p. 4) and the coordination of knowledge (Hayek, 1945), respectively.

The decomposition of the market into the allocative, discovery and creative functions and linking the concept of adaptive efficiency enables an analysis of the independent and interrelated effects of these functions and provides a more complete understanding of entrepreneurial activities and the efficient allocation of resources in the context of dynamic institutional change. Understanding the functions of the market in the context of the dynamics of institutional change first requires a perspective that recognises the cumulative and persistent effects of history on the present, as well as the indeterminacy and unknowability of a future that “is in construction, a construction that is going on in all existing activities” (Prigogine, 1985, p. 117). Second, incorporates the concept of uncertainty introduced by Frank Knight and recognises the deficiency of the assumptions of the neoclassical model when applied to a complex and uncertain reality (Knight, 1921). Third, this perspective must also identify the mechanisms that efficiently communicate knowledge among individuals who possess incomplete and imperfect information (Hayek, 1945) and motivate the creative, innovative, and imaginative capacity of individuals.

This paper is organised in six parts. Institutions are defined for initial context. The following section introduces and redefines the concept of adaptive efficiency and the three market functions. The third section details how transaction costs are proposed to be used as a measure of the efficacy of the adaptive efficiency of market functions in improving economic performance. The next section relates to the insights that can be drawn from game theory and moral theory. The final section provides a discussion of adaptive efficiency and provides an example of the adaptive behaviour of entrepreneurs in an environment of economic transition. Concluding remarks and suggestions for further study follow.

## 2 | DEFINING INSTITUTIONS

In defining institutions as “settled habits of thought common to the generality of men” (1909, p. 626), Thorstein Veblen rejected the strict assumptions of orthodox economics. The assumption that institutions were immutable or given a priori was replaced with a theory of evolved social institutions where institutions were not only the result of a “selective and adaptive process” they were themselves “efficient factors of selection” (Veblen, 1899, p. 188). This approach permitted the pursuit of scientific enquiry “into the nature, origin, growth, and effects of [...] institutions and of the mutations which they undergo and which they bring to pass in the community’s scheme of life” (Veblen, 1909, p. 627). Veblen also emphasised the relationship between time, the mental models of individuals, and institutions. Institutions, like mental models, “are products of the past process, are adapted to past circumstances, and are therefore never in full accord with the requirements of the present” (Veblen, 1899, p. 191). This implies that, as an economy develops and grows over time, the process of adaptation will be continuous that mental models and institutions based on the past must continuously evolve in an attempt to adjust to the present.

Institutions, as defined by Douglass C. North, are the humanly devised constraints that provide structure and order to the lives of individuals (North, 1990). They are not designed to be efficient, they are the rules of the game that reduce the uncertainty and transaction costs associated with human interaction in the political, social, and economic spheres. Consisting

of formal rules, informal constraints, and enforcement mechanisms, institutions constrain the choice sets of individuals and structure incentives to guide their behaviour. In doing so, institutions not only shape the way an economy evolves but also determine its performance (North, 1989, 1990). In a similar vein, Greif regards institutions as the “engine of history” (Greif, 2006, p. 379). An institution “is a system of rules, beliefs, norms and organisations that together generate a regularity of (social) behaviour”; composed of “man-made, non-physical factor[s] that [are] exogenous to each individual whose behaviour [they influence]” (Greif, 2006, p. 30).

The “invisible hand,” as defined by Craig Smith, is a social mechanism composed of a “series of evolved social institutions [for example moral, property rights, and law] that allow the efficient discovery and coordination of knowledge in the pursuit of human desire for material comfort” (C. Smith, 2006, p. 168). This reinterpretation of Adam Smith’s invisible hand provides a starting point to the development of a new perspective that places adaptation as the central problem of the economic system (Barnard, 1938), the coordination of dispersed knowledge as the central organisation problem (Hayek, 1945) and “transaction costs [as] the costs of running the economic system” (Arrow, 1969, p. 48). Accordingly, the new perspective proposed in this paper places adaptive efficiency, the three market functions and a decentralised decision-making process as the central solutions to these problems and the economising of transaction costs. Furthermore, the morality and propriety of the decision-making process is the central determinant of whether the spontaneous orders created by the invisible hand “promote a perverse” or beneficial outcome; whether an outcome is to be determined perverse or beneficial depends on the institutions within which individuals act (Vaughn, 1987, p. 998).

### 3 | THE NEW ANALYTICAL PERSPECTIVE

#### 3.1 | Adaptive efficiency

Adaptive efficiency is “an ongoing condition in which the society continues to modify or create new institutions as problems evolve” (North, 2005, p. 169). Specifically, adaptive efficiency is concerned with how the formal and informal rules of a society shape the evolution of an economy over time, influence the direction of learning and the willingness of individuals or entrepreneurs of organisations to acquire knowledge and skills, and provide the incentives and environment conducive to innovation and entrepreneurial activity (North, 2005). These characteristics of adaptive efficiency not only enable institutions to flexibly adjust in response to both incremental changes and unexpected exogenous or endogenous shocks but also provide the stable framework of an economic system that is key to good economic performance over time (North, 2005).

Understanding the institutional and organisational processes that affect the adaptive efficiency of the market system requires a departure from the rigidities of neoclassical theory. A theory of dynamic change is necessary because we live in a non-ergodic world where the problems, opportunities, and institutional environment of the future are both indeterminate and uncertain (Greif, 2006; Knight, 1921). In terms of the organisation, uncertainty precludes the maximisation of profits as an achievable objective because it is not possible to know *ex ante* what is the most efficient mode of production or the most efficient allocation of resources (Alchian, 1950). Furthermore, there are consequences of choices and actions that cannot be predicted *ex ante*—They are unforeseeable. Consequently, organisations are driven by the pursuit of positive profits, and the means to achieving that goal is a process of trial-and-error driven by entrepreneurial activity, herein, known as the creative function of the market

(Alchian, 1950). The freedom to fail is as vital to this process as success; without failure the learning process is impeded and entrepreneurial freedom stunted.

Innovation and adaptation within the market system is a result of the experimentation and evaluation undertaken by individuals and organisations. The capacity and willingness to undertake these activities despite an indeterminate and uncertain future is largely dependent on the environment created by the institutional framework (North, 1992). It is therefore the role of the state, through public policy, to provide certainties and predictability by establishing robust formal rules and enforcement mechanisms so as to facilitate the learning process and to instil willingness in society to undertake risk and exploit the imaginative–creative capacity of the human mind.

### 3.2 | A new definition of adaptive efficiency

The generality of the current definition of adaptive efficiency limits its scope and application. This paper proposes that the extension of North's (2005, p. 169) definition to incorporate the three market functions as detailed by Buchanan and Vanberg (1991, p. 391) and Friedrich Hayek (1978) provides the basic principles of a new perspective that attempts to address the problems associated with the coordination of knowledge, adaptation of the economic system, and the economising of transaction costs. Therefore, *adaptive efficiency* is redefined as *an ongoing condition of innovation and modification in which the market, through the allocative, discovery and creative functions, responds to the incentive structures that confront choice-makers, utilises localised information, and exploits the creative potential of man to provide solutions to problems and novel situations as they arise*.

Just as Koopmans advised that the profit maximisation postulate should “be made conditional on the factors that influence the efficacy of the process of natural selection”; it is also the case that the adaptive efficiency of the market functions is conditional on the institutional framework and its mechanisms, and the efficacy of the selection process is conditional on a society's institutional elements (Greif, 2006; Koopmans, 1957, p. 141; Williamson, 2003, p. 4). To be more precise, adaptive efficiency would be expected to be most effective when the completeness of the market system is such that all three functions can operate freely within a robust, flexible institutional framework characterised by a decentralised decision-making process underpinned by morality and social norms (Williamson, 2003).

This redefinition of adaptive efficiency and its conditions has a number of implications on individual choice and entrepreneurial activity. The first is that the formal rules, informal constraints, and enforcement mechanisms of an adaptively efficient economy are such that individuals can efficiently allocate their scarce cognitive resources to entrepreneurial activity, allowing the entrepreneur to maximise the number of trials undertaken (North, 1990). Second, the incentive structure embodied in the institutional framework guides the learning process and facilitates the dissemination of knowledge improving the efficiency of the market functions, and lastly, that institutional rules eliminate failed economic and political organisations (North, 1990). In this context, the market has the capacity to be an adaptively efficient institution, and as an adaptively efficient institution that facilitates technological advancement it can be argued that the market is a key determinant of the performance of an economy.

### 3.3 | The market functions

The market primacy argument contends that markets can operate in an institutional vacuum and, in doing so, limits the study of their origin and formation (Williamson, 1975, p. 20). Further, the

notion that markets naturally and spontaneously develop in response to the requirements of society is contradicted by the events of history (Arrow, 1974; Chang, 2001, p. 9; Stewart, 1858, p. 68; Stiglitz, 1992). Markets are not, in of themselves, self-creating; self-regulating; self-stabilising; or self-legitimising (Rodrik, 2007). Instead, these are the roles of incentive structures, enforcement mechanisms, institutions (formal and informal), and the state.

From the capitalist perspective, the market is a component of the capitalist system, consisting of “markets as institutions of exchange, firms as institutions of production, and the state as the creator and regulator of the institutions governing their relationships” (Burlamaqui, Castro, & Chang, 2000, p. 14). In this regard, there is a role for the state, particularly in the early stages of industrialisation and capitalism, to establish the formal institutions and enforcement mechanisms that influence the creation and subsequent evolution of markets (Chang, 2001, p. 9).

Adam Smith “was preoccupied, in all his economic writings, with the imperfections of markets, and with the obstructions to commerce imposed by insecurity, oppressive institutions, and imperfect communications” (Rothschild & Sen, 2006, p. 362). These preoccupations are of foremost importance to this new perspective. The role of the market versus the role of state is reconsidered in the context that market failure is an inevitable by-product of a “dynamic economy driven by technological innovation” (Burlamaqui et al., 2000, p. 12). Market imperfections provide the scope for the discovery and creative functions to operate, and it is by overcoming or removing the obstacles of oppressive institutions, insecurity and imperfect communication that the adaptive efficiency of the market can be measured. That is through the reduction or economisation of transaction costs.<sup>1</sup>

The function of the market is more complex than the allocation of scarce resources through the price mechanism, and the dynamic processes of the market system do not coincide with the assumptions of orthodox theory. Accordingly, the strict assumptions of the neoclassical model must be relaxed. Relaxing these assumptions means that disciplines such as sociology and cognitive science must be unified with economic theory in order to understand the informational, cognitive, and coordinative elements associated with the learning process (Greif, 2006). Such a framework must recognise and integrate the interrelationship between culture and formal institutions (Greif, 2006, p. 22), acknowledge the epistemic limitations of the human mind which lead to an incomplete distribution of knowledge, and better understand the environment which facilitates the creative–imaginative potential of man (Buchanan & Vanberg, 1991; Hayek, 1945; North, 2005). To do so requires that the concept of the market be broadened to include the discovery and creative functions.

Decomposing the market into its three basic functions, the allocative, discovery, and creative functions, and linking them to the concept of adaptive efficiency permits an analysis of the independent and interrelated effects of these processes and the mechanisms of dynamic institutional change. It permits the study of the three market functions in terms of contemporary institutions, the price mechanism, and the coordination of knowledge (Hayek, 1945; Schumpeter, 1947). Furthermore, the dynamics of the economic system can be studied in terms of the adaptive efficiency of “the market as an allocative process, responding to the structure of incentives that confront choice-makers; the market as a discovery process, utilising

<sup>1</sup>For example, the institutions, incentive structures, and enforcement mechanisms of capitalist market systems like the United States enable firms, such as Airbnb and Uber, to spontaneously develop and provide novel solutions to market imperfections in an environment characterised by rapid technological advancement. The emergence of these types of firms is an example of entrepreneurs being able to allocate their scarce cognitive resources (the allocative function), exploit localised information and knowledge of a market imperfection or gap (the discovery function), and develop a new solution to deliver a service (the creative function). (We thank the referee for suggesting these examples.)

localised information; or the market as a creative process that exploits man's creative potential" (Buchanan & Vanberg, 1991, p. 391).

### 3.3.1 | The allocative function

In line with the observations of Harold Demsetz (1983) and Oliver Williamson (2003) that the firm of the neoclassical model should not be confused with the real world firm, nor should the individual of the neoclassical model be confused with the real world individual. Knowledge "never exists in concentrated or integrated form" such that each individual possesses the complete set of knowledge continuously through time (Hayek, 1945, p. 519). Instead, knowledge exists "as the dispersed bits of incomplete and frequently contradictory knowledge which all separate individuals possess" (Hayek, 1945, p. 519). The problem of allocative efficiency, therefore, becomes a problem of how to achieve the most efficient allocation of resources given that knowledge is dispersed across innumerable individuals who happen to live in a world characterised by uncertainty (Hayek, 1945, pp. 519–520).

The mechanisms that coordinate knowledge and effectuate the adaptation of an economy in order to most efficiently allocate scarce resources over time are the price mechanism and social institutions. Therefore, allocative efficiency relies not only on the price mechanism to convey accurate information and signals but also on the series of evolved institutions that have acquired and accumulated knowledge over time; defined herein as the invisible hand (C. Smith, 2006). Furthermore, while allocative efficiency is itself a static concept and its function is to allocate resources at a point in time, the manner and method by which those resources are allocated over time changes as the modes of production and the methods of distribution change. These changes are a result of the technological advancement and institutional changes driven by the refinements, adaptations, and innovations generated by the discovery and creative functions of the market.

### 3.3.2 | The creative function

Schumpeter argued that an economy reacts to shocks or "changes in condition" in two ways (1947, p. 150). The economy can adapt to a shock in the orthodox sense; that is, the economy, through the forces of supply and demand and the price mechanism, will transition to an equilibrium within the existing constraints of the economy. Alternatively, the economy or the organisations constituting that economy can respond to change by doing "something that is outside the range of experience" (Schumpeter, 1947, p. 150)—That is, through innovation, the economy adapts to changes in conditions by expanding the production possibilities frontier. This is the creative response.

The creative function of the market refers to the exploitation of "man's creative potential" (Buchanan & Vanberg, 1991, p. 391). Two of the essential characteristics of the creative function are that the innovation or creative response can be understood *ex post* by an external observer but cannot be predicted *ex ante*, and second, that it shapes the evolution of an economy by creating new situations that could not exist independently of that creative activity (Schumpeter, 1947, p. 150). It is a mechanism of change that promotes the dynamic forces that lead to technical progress and whose operation is dependent on the stability, transparency, and legitimacy of a society's political and economic frameworks (North, 1990).

Underlying the willingness and ability of society to undertake activities that generate technological change is the complex interplay between the demographic quality and quantity, the learning process and the stock of knowledge, the institutional framework of a society, and

the purposive activities of entrepreneurs (North, 2005). The learning processes that lead to technological innovation motivate the creative capacity and influence the choice processes of entrepreneurs in an environment of imperfect information and uncertainty where mental models must continuously adapt to changes in the external environment. Given this environment and given that innovation is largely an incremental process the institutional environment must facilitate the dissemination of knowledge and the diffusion of technological innovations across society (North, 1992). Therefore, to increase the frequency and quality of entrepreneurial activity, institutions must create an environment that provides order, nurtures the entrepreneurial spirit, and encourages trial-and-error and experimentation.

Through experimentation and trial-and-error, individuals discover and create alternatives to the *status quo*; alternatives which have the potential to reduce the transaction costs of the economic system and improve the efficiency of an economy's organisations and institutions. This continual process of search is motivated by a multitude of factors that range from the incentives embedded in institutions to exogenous or endogenous shocks (Nelson & Winter, 1982). Central to this search is the individual whose behaviour and actions are constrained and influenced by institutions and institutional elements such as morality and propriety (Greif, 2006). Individuals are not merely members of a household endeavouring to improve their lot; they also comprise the entrepreneurial workforce of firms and the state. They are the entrepreneurs who are continuously modifying, innovating, and adapting the way things are done in order to better accord with an ever-changing world with which they can never keep pace.

### 3.3.3 | The discovery function

The definition adopted in this paper is a shift away from the perspective that the “discovery of error” is the purpose of the discovery function (Kirzner, 1985, p. 50). This perspective implies that all discoveries are lying in wait; they just have not yet been discovered. But, as Buchanan and Vanberg succinctly state, “different parts of a present market exist, they are present, and differences in their characteristics can be discovered. Future parts of a market simply do not exist; they are by definition not present” (1991, p. 176).

The choices and actions undertaken by entrepreneurs shape and create future choice sets and opportunities. Therefore, it is not the technologically feasible set of alternatives that matter, it is the actions that are undertaken that matter, because it is from these actions that “success” is selected and the future reality is created (Alchian, 1950; Buchanan & Vanberg, 1991, p. 178). In terms of the discovery and creative functions, the creative function creates the future reality and the initial conditions on which discoveries can be made; but that reality does not exist in the absence of that entrepreneurial activity.

For the purposes of this new perspective, the discovery function relates to the utilisation and exploitation of localised knowledge (Buchanan & Vanberg, 1991, p. 391). In situations where the changes in conditions that lead to adaptive and creative responses are specific to a particular place and time, those who are best equipped to innovate are those with localised knowledge; be they individuals, organisations, or local government (Hayek, 1945). Therefore, the purpose of the discovery function is to adjust, refine, and improve the existing technological alternatives and mechanisms of the market by exploiting localised information—information not readily available to a central planner or the state.

Decentralised decision-making processes and market structures are fundamental to overcoming the constraints of imperfect knowledge, the scarce cognitive resources of individuals, and the novel problems associated with the “variability and individual diversity at the



microscopic level” (Buchanan & Vanberg, 1991, p. 379). This is because it is only through the innumerable socialisations and interactions of individuals that knowledge can be disseminated and it is only through the possession of local knowledge that novel solutions can be found for novel problems (Buchanan & Vanberg, 1991, p. 391).

Alfred Marshall foresaw the significance of the concentration of industry to a particular locality and prefigured the interrelated nature of the creative and discovery functions of the market when he observed:

*The mysteries of the trade become no mystery, but are as it were in the air [...] if one man starts a new idea, it is taken up by others and combined with suggestions of their own; and thus it becomes the source of further new ideas. (Marshall, 1920, p. 271)*

This can be illustrated with an example from Silicon Valley as described by Paul Krugman and Maurice Obstfeld (2003). Due to the rapid rate of innovation and the highly specialised nature of the technology industry, the transfer of knowledge and ideas in informal settings such as restaurants and cafés is so important “that it is easier for companies in the Silicon Valley to stay near the technological frontier than it is for companies elsewhere” (Krugman & Obstfeld, 2003, p. 149). It is for this reason that the discovery function should not be viewed as any less important than the creative or allocative functions. The discovery process operates at the local level in situations where only local knowledge can offer solutions to problems and bottlenecks as they arise.

The entrepreneurial choice processes of the creative function that shape the innumerable potential future states of the world through an unending sequence of innovation, together with the discovery of more efficient alternatives by utilising local knowledge continuously alters the optimal allocation of scarce resources over time (Buchanan & Vanberg, 1991; de Soto, 2009). Therefore, it is difficult to describe the dynamic process of change without the simultaneous consideration of all three market functions. The efficiency of new alternatives and solutions created through entrepreneurial activity are realised through the allocative function and are refined and modified using localised knowledge through the discovery function. This is the adaptive efficiency of the three market functions that drives economic performance over time.

When all three functions operate efficiently, the market system is operating within a robust and flexible institutional framework, the institutional setting allows for a decentralised decision-making process, and the price mechanism and social institutions convey the information necessary for scarce resources to be allocated in an efficient manner. The institutional setting, thus, described is of a mature, developed economy characterised by an adaptively efficient market system.

#### 4 | TRANSACTION COSTS AS A MEASURE

By pushing the assumption of zero transaction costs to completion, Ronald Coase (1960) showed that negotiations between parties would eliminate negative externalities, regardless of the initial allocation of property rights. This finding demonstrated “that only in the absence of transaction costs” will the equilibrium conditions of the neoclassical model obtain; thereby, establishing a need for the study of positive transaction costs (North, 1992, p.6; Williamson, 2003, p. 9). Transaction costs are defined as “the costs of running the economic system,” and as Kenneth Arrow pointed out these costs “in general impede and in particular cases completely block the formation of markets” (Arrow, 1969, p. 48). In order to better understand how to affect the

performance of an economy, we must, therefore, identify market and non-market factors that affect transaction costs, understand how those costs affect the workings of the economic system, and identify proxies, where appropriate, that can be used as empirical measures.

John R. Commons considered the transaction to be the ultimate unit of activity correlating law, economics, and ethics and required that it must contain in itself the three principles of conflict, mutuality, and order (Commons, 1932, p. 4). Williamson noted that, in defining the transaction in this way, Commons prefigured the field of transaction cost economics which takes “the transaction to be the basic unit of analysis” and takes governance to be “the means by which to infuse order, thereby to mitigate conflict and realise mutual gain” (Williamson, 2003, p. 7). The objective of transaction cost economics is to isolate the attributes of transactions that make them “different” and the attributes of governance structures that affect their “cost and competence” so that the costs of running the economic system can be economised (Williamson, 2003, p. 16).

Adaptive efficiency is a dynamic concept, therefore, in order to ascertain whether the allocative, discovery, and creative functions of the market have improved the functioning of the economic system over time empirical analysis must be undertaken to determine if transaction costs have reduced. It is the change in transaction costs that is important, not the absolute level (Wang, 2003). Proxy measures are often used because transaction costs are, in general, difficult to measure empirically. In relation to this framework, potential measures include comparative analyses of governance mechanisms (Williamson, 2003); non-market transaction costs such as resources spent in waiting, getting permits to do business, cutting through red tapes, [and] bribing officials (de Soto, 1989; Wang, 2003); and the frequency of transactions and the number of businesses registered in the formal economy (Tsai, 2006; Wang, 2003).

Adaptive efficiency is the capacity of the market system and social institutions to efficiently evolve over time to better adapt to ever changing preferences and environments (both endogenous and exogenous). The three market functions are the means by which this is achieved. Measuring the efficacy of this process through the economisation of transaction costs determines whether the economic system has evolved in a way such that negative externalities or market failures which impede or prevent the functioning and formation of markets have been ameliorated or eliminated. It is also a measure of how efficiently the governance structures and *ex ante* incentive alignments are adjusted over time. The reduction or elimination of these transaction costs is fundamental to the capacity of an economy to adapt efficiently over time. The new perspective proposed in this paper can therefore be viewed as a study of how the three market functions can reduce the transaction costs of the economic system by facilitating technological change and the continual adaptation of institutions over time as new problems and bottlenecks arise, and unexpected shocks occur.

## 5 | NASH EQUILIBRIA AND MORAL THEORY

Buchanan and Vanberg argue that “adaptive behaviour does not imply that the overall process is moving toward some predetermined goal” (1991, p. 389). Instead, adaptive efficiency reflects the process of continual modification, creation, and destruction undertaken by individuals and organisations in their response to the intended and unintended consequences of agents individually pursuing their private objectives in their endeavour to improve their lot and pursue positive profits (Buchanan & Vanberg, 1991). Evolutionary game theory, considers that “with a few exceptions, evolutionary processes, tend to converge to Nash equilibria” (Vromen, 2009, p. 274). Even though the market system, as a whole, is not considered to be converging to an

equilibrium, it could be argued that if the behaviour of individuals is guided and influenced by an institutional environment conducive to socially beneficial entrepreneurial activity, and it is in the interests of people to behave in an optimal way, then adaptive efficiency could be a necessary (but not be sufficient) step or process toward a convergence to Nash equilibria.

This paper has sought to emphasise the complementary, mutually inclusive nature of moral and economic theory. To incorporate morality in the decision-making processes of the discovery and creative functions of the market has important consequences in the context of public policy intent and the types of activities entrepreneurs will undertake. Douglas Long (2006, p. 297) argued that “the ideal is that the economic proprietor will also be a man of propriety. Failing this, the society may still flourish in the absence of moral excellence provided that property is stabilized, respected and protected.” A contemporary example of where this sentiment failed to be realised is the Global Financial Crisis in 2008. Propriety did not prevail, instead the creation of convoluted financial instruments ultimately destabilised global financial markets and the predatory financial behaviours employed by financial institutions did not respect or protect the property of American citizens.

Max Weber's perception of singular causal analysis outlines that

*[t]he weighing of the causal significance of a historical fact begins with the question: whether with its elimination from the complex of factors under consideration [...] or with its alteration [...] the course of events could, according to general rules of experience, have taken a direction that somehow diverged in character. (Weber, 2004, p. 87)*

This is not to suggest that morality is the panacea to obviate crises and negative outcomes, but rather to illustrate that decision-making processes motivated by “narrow specialists without mind [and] pleasure-seekers without heart” whose “pursuit of gain [...] tends to be associated with purely competitive passions” can lead to widely divergent outcomes relative to those motivated by propriety (Weber, 2012 [1920] p. 124).

## 6 | ADAPTIVE EFFICIENCY AS A GUIDE TO PUBLIC POLICY

Adaptive efficiency is concerned with the formation and evolution of efficient institutions; it is a result of the “circle of mutual engagement between institutions, the embedded incentive structure and the behaviour of individuals” (Hodgson, 1998, p. 171). The role of the state in establishing the fundamental institutions of the capitalist system and codifying necessary institutions such as private and intellectual property rights is of first-order importance to the efficient operation of the market system and its adaptive capacity. It is therefore adaptive efficiency that should guide public policy not allocative efficiency (North, 1994).

Adaptive efficiency is a continual process that varies across economies and time. This is one of the reasons why we observe widely divergent growth outcomes across and within countries. Some countries get “stuck” in an institutional setting that impedes the functioning of markets or the adoption of new technologies, or prevents the formation of new markets and innovations (North, 1994). We have also witnessed that the imposition of a common set of rules, the Washington Consensus, for example, in different societies with different institutional structures, cultures, and histories can result in very different outcomes (Rodrik, 2006); demonstrating that

the culture, history, and institutional structure specific to a society can significantly influence the ability of its economy to dynamically adjust to change and shocks (Rodrik, 2006).

Consequently, public policy must be context-specific, taking into account the path-dependent and incremental nature of institutional change, and recognise the influence of institutional elements that have been generated through an historical process of interaction, socialisation, learning, and experimentation (Greif, 2006; Rodrik, 2006). Furthermore, it must facilitate the learning process and encourage entrepreneurial activity by establishing a robust, flexible institutional environment that allows individuals and organisations to pursue their own objectives.

In developing economies, many markets simply do not exist, and the design of the institutional framework can impede or even prevent the establishment and evolution of those markets. Moreover, it is too often the case that fundamental formal institutions, such as private and intellectual property rights, have not been established and in the event that they have been, enforcement mechanisms are not adequate to prevent corruption, bribery, and expropriation. Under these circumstances, the scarce cognitive and financial resources of entrepreneurs must, if they are to be expended at all, be divided between research and development, and negotiations with political figures. Neither the creative function nor the discovery function—to the extent that the discovery function requires more than latent skills—can operate effectively in these types of economies and, as a result, these economic systems are unlikely to display the characteristics of adaptive efficiency. It is the role of the state in these circumstances, to establish the requisite institutions for development in order to facilitate an environment conducive to adaptive change.

Adam Smith analogised that the imposition of “an ideal plan of government ... completely and in all its parts, without any regard either to the great interests, or to the strong prejudices which may oppose it” is to “mistake human society for a chessboard” (2006, p. 291). It is to ignore, that “in the great chess-board of human society, every single piece has a principle motion of its own, altogether different from that which the legislature might chuse (sic) to impress upon it” (A. Smith, 2006, p. 291).

An economy that, over recent history, has transitioned away from this form of institutional setting, through an incremental process of change, toward a market system is China. The following example, from a paper by Kellee S. Tsai (2006), illustrates the process of endogenous institutional change through the lens of the market functions and adaptive efficiency.

The first decade of China's economic reform saw the enforcement of formal institutions that restricted private enterprises to eight employees or less—a measure which severely impeded private sector development. In response, entrepreneurs exploited their knowledge of local circumstances and “devise[d] novel operating arrangements [...] to evade the restrictions of formal institutions” (Tsai, 2006, p. 118). This practice was known as “wearing a red hat” (*dai hongmaozi*) and entailed a privately owned enterprise being registered as a collective enterprise (Garnaut, Song, Yao, & Wang, 2001). Over time, this practice became so widespread that, in 1988, the constitution was amended to allow the expansion of private enterprise to more than eight employees (Tsai, 2006, p. 131).<sup>2</sup>

<sup>2</sup>A similar example whereby novel operating arrangements were devised to overcome a restrictive form of regulation is that of the Independent Grocers of Australia (IGA) in Western Australia. IGA stores can remain open outside of regulated shopping hours because it was deemed to be a small business with a smaller number of employees than the big supermarket chains. But, some IGA stores can be as large as the major supermarket chains such as Coles and Woolworths. The operating arrangements utilised by IGA to overcome this was to overlap shifts so that the actual number of employees was much larger than the stated number. This example illustrates that any form regulation that is considered to be too rigid or restrictive by the market can provide an incentive for entrepreneurs to devise novel operating arrangements. (We thank the referee for suggesting this case study.)

As Tsai explains, “both the designers and enforcers of China’s formal institutions have proven to be flexible, and even responsive, to the factors driving the country’s economic growth—private entrepreneurs” (Tsai, 2006, p. 118). This demonstrates that, even in a transition economy, the discovery and creative functions of the market can lead to endogenous change that increases the overall adaptive efficiency of the economic system. Given the ingenuity and creativity of those who wore a “red hat disguise,” it is likely that further decentralisation of the decision-making process could increase the adaptive capacity of the Chinese economy as it is a mechanism through which society can overcome the cognitive limits of the human mind (C. Smith, 2006 p. 158).

## 7 | CONCLUDING REMARKS

The purpose of this paper was to introduce a new analytical perspective that applies the concept of adaptive efficiency to the three market functions. The separation of the market into its three functions provides a more complete understanding of human choice in the context of uncertainty, scarcity, and incomplete knowledge; the capacity of the institutional environment to influence and guide the behaviour of entrepreneurs; and also, the influence of individual behaviour on institutional change. Furthermore, by redefining the concept of adaptive efficiency to incorporate the three market functions, the proposed approach demonstrated that an appropriate measure to determine the efficacy of adaptive efficiency is the economisation of transaction costs. This is because technological advancement and the efficient allocation of resources over time are driven by the entrepreneurial choice processes of the creative function that shape the innumerable potential future states of the world in an unending sequence of innovation and the continual refinement and adaptation of those future realities through the exploitation of localised knowledge (the discovery function).

In developing this new analytical perspective, the paper drew upon theoretical and empirical insights taken from literatures on both past and present institutional economics and related fields such as classical political economy and moral theory and demonstrated additional value in terms of providing new insights on existing theories and new interpretations on some established facts. These new insights and interpretations enrich the understanding of how a market system works in relation to the state as part of a broader process of social and institutional change and progress and has implications for institutional and policy analysis. The paper also shows how the new perspective is applicable to the cases for economic development and economic transition.

Future work will aim to extend this new perspective to the comparative and historical institutional analysis framework introduced by Avner Greif (2006) which emphasises the effects of institutional elements, such as morality, on the choices of individuals in novel situations, and the capacity for continuous endogenous institutional change driven by marginal changes in quasi-parameter values. The purpose of this paper was to introduce a new analytical perspective, the next essential avenue of research is to formalise this perspective by completing empirical work using transaction costs as a measure of the adaptive efficiency of market functions in developing and transition economies.

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