Ignorance, Discovery and Choice – A Requiem for Economic Rationalism?

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"We are your equals. And together we are bigger than you."
- Medieval Catalan Constitution, addressing the King

The purpose of this paper is to point to a number of normally tacit assumptions that underlie the dominant economic paradigm of recent decades, neoclassical economics, and to submit an alternative view of economics, based on Austrian and institutional economics. This is not intended as an exercise in economic methodology, but rather to offer non-economist thinkers and practitioners of law, politics and business a model in which they and their contribution to the economic game have not been "assumed away for simplicity's sake".

The Blinkered Neoclassical Economics

It seems important to highlight some of the limiting and unrealistic philosophical foundations of the dominant model of economics which has taken a prominent place in public discourse and whose lessons have often been unknowingly absorbed by observers who are not necessarily aware of the underlying assumptions and shortcomings.

A fundamental assumption of neoclassical economics is "perfect knowledge", sometimes not of all the actors, but at least of the academic observer. In particular, it is assumed that actors are sure of their goals and have knowledge of all available resources, technologies and choice alternatives. In each period, they make new unconstrained choices how to derive an identifiable maximum of utility or profit from known resources. Under these circumstances, it makes sense to speak of rational choice, as long as there are clearly defined optima or maxima.

This conception of economic decision-making derives from analysing simple technical and economic problems and a fairly static world, where the actors indeed

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have rather complete knowledge of all relevant facts and circumstances. Thus, a farmer can optimise the use of fertiliser if he knows the prices of inputs and outputs and production technologies remain fairly static. Likewise, a runner can minimise the time to cover a mile because she knows her physical strength and tactical skills.

None of this is relevant to a national economy. Public policies affect millions of people, millions of products and an ever-changing, incompletely known set of conditions. An important aspect of economic choice is variety and variability. We often do not act on the principle that "more is better" but enjoy variability and change (Scitovsky, 1976), and we make subjective choices (von Mises, 1933; Hayek, 1968; Horwitz in Boettke, pp 17-22). A national economy therefore is a complex, evolving system where the ends and the means are not given, but need to be explored, so that the above model of economic rationalism in not applicable.

Complexity and Evolution

At the risk of appearing tedious, I have to explicate some of the terms just used:

(a) We speak of a *system* when various elements interact in a regular, discernible pattern.

(b) We speak of a *simple system* when the various elements interact with regard to one characteristic only. We speak of a *complex system* when the various elements interact with regard to several characteristics (example: social interaction in a community).

(c) We speak of a *closed system* when the elements and their characteristics are fixed in time and space (example: the clockworks of my watch). We speak of an *open, evolving system* when new elements and characteristics appear, mutate or disappear and these elements and characteristics cannot be predicted (examples: and ecological system, the human body, a modern economy). Attempts to model such open systems by assuming they are closed to future mutations have to be criticised with the words of Flaubert who wrote: "Stupidity consists in the desire to conclude."

Evolution is defined here as a process, in which elements and their characteristics are varied, modified and selected or rejected. In natural, Darwinistic evolution, variation is by chance and selection is by competition with the fittest. In a market economy, variations and modifications are offered by chance or by the wilful acts of entrepreneurs who make guesses about opportunities and incur exploration costs to test these opportunities. The variations of products and production processes are motivated mainly by profit expectations (appeals to self-interest). Selection and rejection are the result of choices by the other side of the

market, mainly the decisions of buyers to enter into voluntary contracts with preferred sellers (consumer sovereignty). To this end, buyers have to incur information costs, just as the sellers do when exploring new production opportunities. In a modern, complex and changing economy, the exploration costs and the other costs of coordinating diverse buyers and sellers probably make up as much as half the cost of the national product (Wallis-North, 1986). With the growing division of labour and knowledge, on which our material civilisation depends, the exploration and coordination costs keep rising. The "transaction services sector" in all mature economies keeps expanding, whereas original production activities in agriculture or industry grow slowly, if at all.

Exploring the great variety of what individuals value highly in the fact of ignorance has become the true growth industry of the modern age. Discovery and testing what different people choose is at the heart of modern economic growth. The mental construct of neoclassical economics, which begins by assuming "perfect knowledge" – hence zero exploration and coordination costs and the possibility of rational choice among known means to attain given ends – is therefore unrealistic. In the face of ignorance and in exploration processes, different concepts of rational behaviour apply.

Once one subscribes to an evolutionary world view, one is likely to accept the notion that the essence of economics is in the discovery of diverse new wants and new resources, as well as testing them through voluntary exchange processes (catallaxy). Dynamics is then not just the transition from one equilibrium to another in an artificially closed-off model (such as that of modern welfare economics and of much of current econometric analysis). Rather it relates to movement along an open-ended path which has no pre-ordained end point. From the standpoint of evolutionary economics, the market is a process and equilibrium is death, at best an irrelevant abstraction. The economic problem is about how to make the most highly valued discoveries (Hayek, 1937, 1945 and 1978; Mises, 1949; Demsetz, 1969; Shackle, 1972; Laehmann, 1986). The only rational criterion for assessing an economic system is its catallactic efficiency: how easily can individuals compete and discover new knowledge that is highly valued by others (Cordato, in Boettke, 1994, pp 378-382)?

Different Kinds of Rationality

It is often not possible to obey the simple concepts of end-means rationality. Where there is no full information about all given resources and known, clearly defined preferences, human behaviour instead follows two other kinds of rationality:

(a) In the face of ignorance and limited knowledge, decision-makers often apply bounded rationality, basing their actions on the knowledge at hand and the knowledge they can obtain at costs that seem reasonable to them judging by their past experience (Simon, 1959, 1976, 1982, 1983). They will typically explore for more useful knowledge and incur knowledge–search costs. When experience or gut reactions indicate that a decision can be risked or has to be made, people will decide. The costs of exploration then become sunk costs. They have no impact on whether to decide in favour or against applying the knowledge that they had previously explored. That decision depends exclusively on the expected costs and benefits. Behaving like this is entirely rational, but vastly different from the way "economic man" or "woman" are expected to behave in neoclassical models.

We have to mention in this context that knowledge-exploration costs have a certain insidious quality: before one has acquired the original knowledge and incurred the costs, one simply cannot judge how much expense it is rational to allot to knowledge-exploration! Different from the choice among *known* production methods or choices how much to buy to meet known preferences, there is no rational rule *ex ante* about how many research costs to allocate to knowledge search and testing (Arrow, 1962; Witt, 1985; Streit-Wegner, 1992; Kerber, 1994). Consequently, one cannot speak of rational resource allocation to knowledge-exploration. The notion of efficiency in exploration is therefore inappropriate. But neither can one attribute successful exploration to luck alone. It is the result of a preparedness to incur exploration costs.

In situations of such bounded rationality – deciding within the limits of the information at hand – people will frequently not operate on the basis of firmly held goals. Rather, they will adapt their aspirations in the light of past experience (Simon, 1982, 1983). If they have consistently underfulfilled their expectations, they are likely to lower their goals. If they have overachieved, they will become more ambitious. This form of adaptive behaviour, which is familiar to sociologists and psychologists, has no place in the neoclassical economic model and the policy designs implicitly based on it.

(b) Another kind of rationality is creative or entrepreneurial rationality (Kasper-Streit, forthcoming). Instead of accepting given physical or institutional constraints, certain actors sometimes risk the implementation of a new idea in the hope of gaining more than this cost. Sometimes, such creative action may tackle total ignorance and produce a genuine discovery

– a piece of knowledge that was hitherto unknown and, with hindsight, appears quite obvious, such as Matthew Flinders' discovery that Tasmania was an island. Such a pursuit of discoveries is not irrational and, if successful, often produces socially highly valued outcomes, reflected in economic growth (Kirzner, 1997).

However, creative rationality reaches out not only for such first-order discoveries, but also induces information search, ie the systematic search for more detailed, second-order knowledge, akin to Flinders' exploration to prepare naval charts of the bays and inlets of the coast whose overall shape was already known. Here, we can possibly make judgements about the efficiency or otherwise of the search process: what procedure is more or less efficient in filling in the gaps in second-order ignorance (Stigler, 1971)?

The elements of chance and luck are more important to creative than in adaptive rationality. But discoveries also depend on the preparedness to be alert – to scan the horizon for promising ways to overcome existing constraints (Kirzner, 1985). Kirzner has stressed the quality of alertness as essential to entrepreneurship. But a second essential quality has to be added to when one discusses creative rationality: the preparedness to incur those insidious costs of exploration, in rivalry with others (Kasper-Streit, forthcoming; Kasper, forthcoming).

Effective Institutions

If the evolutionary approach is a more realistic and appropriate reflection of economic life than the neoclassical model, then one has to ask: what essential conditions have to be fulfilled to favour widespread entrepreneurial engagement and the shouldering of exploration costs? This question arises because the knowledge relevant to future growth and job creation cannot be found and utilised by a central agency with limited knowledge and motivation, such as a ministry of industry and trade. In a complex evolving economy, it can best be discovered, tested and adapted by numerous rivalling agents on both sides of the market process.

When trying to determine what conditions favour the exploration of economic opportunities, we have to acknowledge that all individuals who are potential buyers and sellers suffer from cognitive limitations – like all humans. People will incur knowledge-exploration costs only to the extent that they can confidently absorb and integrate new information with their existing knowledge. They easily suffer from information overload, if too many variables have to be explored and digested at the

same time (Boulding, 1956/1977). They will then easily deplore a lack of confidence, or direct their entrepreneurial energies into non-economic pursuits, eg military conquest, political careers, or betting (Baumol, 1990). As a matter of fact, this has been the historic norm. Capitalist rivalry was the exception – first in North West Europe, then further afield, and only in the second half of the twentieth century on a fairly global basis (exempting Africa, till recently the socialist bloc, and vast pockets of "resisters" in all countries).

Enterprising individuals and firms will incur economically-relevant information costs if they can trust that general social conditions are reasonably predictable, so that they can concentrate on testing the technical and commercial feasibility of a specific product or process, in which they are specialised. This trust is safeguarded by appropriate institutions – rules of conduct whose violations carry sanctions. These may be internal rules, such as ethical norms, practices, customs and professional self-regulation, or external rules, such as collectively determined legislation, regulation and administrative practices (Kasper-Streit, forthcoming).[1] Institutions facilitate the emergence of recognisable, predictable patterns of human conduct, which we call "order". This creates confidence and economises on the need for enterprising people to gather and absorb unmanageable amounts of information.

Appropriate institutions – indeed entire, consistent, orderly systems of institutions – also protect as wide a sphere of autonomy (freedom) as is compatible with the autonomy of others (the function of institutions which philosophers have focused on) and mitigate inevitable conflicts, either by preempting them or laying down procedures for the expedient, non-violent resolution of conflicts (the function of institutions that jurists tend to focus on). Appropriate institutions are therefore an essential condition for widespread innovation and economic prosperity, freedom and social peace (conflict avoidance and mitigation).

What are the characteristics of institutions and institutional systems that are appropriate to the attainment of these fundamental values? Four conditions must be met for institutions to be effective.

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1. The useful distinction between internal and external rules was made by Lachmann (1973). It relates to the genesis of the rules and highlights the fact that internal institutions are not of human design (Hayek, 1979, pp 149-150). Institutions are meant here strictly as rules, whereas banks, insane asylums, universities and other set-ups, which are sometimes referred to in everyday English as "institutions", are organisations: more or less permanent, purposive combinations of production factors. Organisations often operate on the basis of certain institutions.

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Firstly, as Bruno Leoni has taught us, effective institutions must be universal, which means that they should be (a) general ("applicable to an unknown and indeterminable number of persons and circumstances": Hayek, 1973, p 50), (b) certain both in the sense of being knowable (transparent) and in the sense of giving clear guidance to human behaviour (normative power), and (c) open, so as to allow individuals to respond annotatively to hitherto unknown circumstances (Leoni, 1961; also see Walker, 1988).

Universality is more easily safeguarded by proscriptive rules (such as "thou shalt not steal", the Hippocratic oath). Yet, prescriptive rules are unavoidable to a certain extent. They demand much more knowledge on the part of the rule-maker than prohibitions, and tend to inflict higher information and compliance costs on the ruled, as well as creating higher monitoring costs. Therefore, it is necessary to limit the number of prescriptive institutions in society if the rule system is to remain effective. The results of legislative and judiciary activism easily overtax human cognitive capacities and, when this occurs, prejudice the normative effect of institutions.[2] Modern institutional systems become easily dysfunctional, as Peter Schuck (1992) showed: they become excessively dense (regulating details beyond comprehensibility), technical (incomprehensible except to professional experts, such as solicitors or tax agents), differentiated (discriminatory and contradictory), and conditional (so that legal outcomes of certain actions are hard to predict). Effective rules must therefore be simple. Only with simple rules can limited humans tackle an increasingly complex world, making creative entrepreneurial decisions as to what to do with the assets they control (Epstein, 1995; Kasper-Streit, forthcoming).

A second important characteristic of institutions that are effective in terms of fundamental human value attainment is the consistency of the rule system. In other words, the rules themselves must be ordered (order of rules, Hayek, 1973). This can be achieved in the process of spontaneous evolution of the rule system, or by planned ordering (such as a hierarchy of formal rules, ranging from constitutional law to statute law to administration regulation, which is implemented according to known procedural *meta* rules).

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2. A recent study by a German jurist came to the conclusion that "government is, at any moment in time, only able to enforce a maximum of 3 to 5 per cent of the legal norms it has set by its coercive powers": O Kimminich, "Institutionen in der Rechtsordnung" in E Pankoke (ed) *Institutionen und Technische Zivilisation: Symposion Zum 65 Geburtstag von Johannes C Papalekas* (Berlin, Duncker & Humblot, 1990) p 100.

A third characteristic of an effective institutional system derives from the fact that the order of rules will be safeguarded only if it is underpinned by a set of shared fundamental values which inform the numerous actions and rules in a society, as DNA information informs the biological traits (Arthur, 1995). No society can function effectively if its members do not share a minimum of fundamental values (Radnitzky, 1995a, 1995b). Procedural *meta* rules, such as mere tolerance, are not sufficient to attain an effective order of rules. What is needed is a commitment to positive though abstract values, such as freedom, security, peace and prosperity.

A fourth and last characteristic of effective institutions is that the rules cannot remain rigid over time in the face of inevitably changing circumstances. The rule system needs an adaptive capacity. This requirement creates a complication in the "old rules are good rules", because they are known and people have adjusted to them. But this conservative maxim has to be weighed against the evolutionary maxim that the rules must be kept compatible with changing circumstances. The recognition that rules need adjusting is the fork in the road at which conservatives and genuine liberals part company (Hayek, 1960/1992).

Institutions that Favour Catallactic Efficiency

Human energies are steered in the direction of creative rationality by rules that permit people to keep the rewards for having uncovered and exploited valued knowledge and to bear the losses. These are the rules that safeguard exclusive private property rights and individual autonomy to use one's property through voluntary, bilateral contacts – in short the essential elements of the "constitution of capitalism". Its importance cannot be understood if one confines economic rationalism to end-means rationality, does not focus on the discovery of a rich variety of knowledge, and confines oneself to analysing anaemic abstracts, such as the "average consumer" or the "representative firm".

The effectiveness of the property rights system in terms of discovery and evolutionary capability (its catallactic efficiency) depends crucially on the exclusion of others from the possession, use and benefits of assets, which also comprise people's labour and ideas. In addition, the property rights system is enhanced by the tradability and the divisibility of property rights. In other words, inalienability reduces the usefulness of property rights, as Australian Aborigines are discovering. And the division of various aspects of property ownership (eg the right to possess, the rights to use on loan, or to use for specific purposes, such as for transit or hunting) enhances the value of private property. Scarce assets will be combined with the most creative ideas only when property rights can be traded and divided.

Consequences for Public Policy

The private property rights system works only when all the costs and benefits of expected property uses can be (fairly) completely sheeted home to the owner and decision-maker (internalisation). This is sometimes not possible. Users may not need to rival by paying a price and thus creating a benefit to providers because supplies are bountiful. Where there is no rivalry among intending users, we speak of "free goods" which are provided by nature. And where free-riders cannot be excluded, we speak of "pure public goods" which need to be provided by collective action (eg street lighting, defence, external back-up of law and order by the judiciary). The consequences of property uses may also be hard or impossible to measure (externalities). In addition, there are numerous "made public goods", where production is by publicly-owned enterprises, often public monopolies, and access is at least partly provided by public funds (public schools, public hospitals, public transport, etc). In the case of public goods, there is no need for public production, let alone monopoly production. Competing private suppliers are normally likely to engage in more product and process innovation and to produce a greater variety of goods and services (offering catallactic gains, Demsetz, 1970). There is only a role for the collective ownership of the means of production (a) when direct financial controls assist in the non-violent control of legitimate violence professionals, and (b) when standards of goods and services are to be controlled in order to save private citizens high information costs.

The state thus has functions of protection and production. They are the core of the task of collective action. They need be funded by compulsory tax levies and to be allocated by collective decisions (Buchanan, 1975). Modern governments have, however, far exceeded this core of functions, displacing many autonomous private uses of private property by public choices. They have done so to increase their revenue base, to gain influence and to redistribute incomes and wealth. By getting heavily involved in redistribution, agents of government can reap re-election gains. But in the process they erode the protective function, fuzzy up the simple institutions of capitalism and make the market economy dysfunctional. To the extent that private property is confiscated and reallocated by collective decisions, the protection of private property rights and the effectiveness of the entire institutional system to enhance prosperity, freedom and peace suffer (Ratnapala, 1990; Streit, 1993). Those who resent the progressive loss of simple, certain rules in a jurisdiction may either raise their voice and agitate, or they exit. The exit option is becoming easier with globalisation. Where neither is feasible, interventionist collective action leads to a loss of loyalty, as Albert Hirschman predicted in a famous book (Hirschman, 1980).

The question arises in all collective action as to how to contain the political opportunism of the agents of government, when they act against the interests of the citizen-principals. Many such devices have been tried and discussed throughout history (Kasper-Streit, forthcoming; Kasper, forthcoming), but two seem particularly important:

(a) Since the opportunism of manager-agents in share companies and elsewhere in business is effectively controlled by surrounding competitive markets which provide information about principal-agent problems (share market, markets for corporate control, manager job markets, product markets), economists tend to favour the control of the agents of government by inter-jurisdictional competition. This is becoming easier as technical and organisational innovation has promoted the open economy. However, openness constitutes an "affront" to political power (globalisation). It forces the agents of government to self-constrain their power by implementing attractive institutions. This was an important source of the rule of law in early modern Europe and is now the main motive force for more rule-bound behaviour in the open economies of East Asia (Kasper, 1994). An important variant of the same theme is the devolution of central powers within nations, which is sometimes described as "competitive federalism" (Kasper and Tullock, in Radnitzky, 1996, pp 477-506).

(b) A second control is constitutionalism, the design of rules that constrain opportunism in high office. This must be embedded in the community's formal and informal institutions and fundamental values. To this end, one has to acknowledge that rules matter, that rules can be adapted to suit changing circumstances, and that certain designs can enhance the rule system. This is the basis of the new "constitutional economics", a line of inquiry that investigates the consequences of alternative rule systems which is now rapidly gaining momentum overseas (McKenzie, 1984; Brennan-Buchanan, 1985; Gwartney-Wagner, 1988; Scully, 1992; Porter-Scully, 1995; Voigt, 1997).

In reality, these two approaches are mutually supportive. As communities with poor internal and external institutions lose mobile resources, they will feel strong incentives to imitate the institutions of those communities where mobile property relocates. Throughout history, exit has often been much more effective than voice in propelling institutional change in the direction of arrangements that favour discovery procedures and catallactic efficiency. Openness to other communities therefore enhances the openness to the future, which is central to the spontaneous

evolutionary capacity of the capitalist civilisation. This is a variable few policy-makers ever take into account.

Conclusion: Is Economic Rationalism Dead?

In Australia, we have observed the batting collapse of a popular brand of economic rationalism which held sway in the 1980s. Most of its policy protagonists – in business, in Treasury and in the Industry Commission amongst others – seemed to base their advice on neoclassical precepts. They simply focused on the profit motive with little awareness of evolution and ignorance. Much of this brand of economic rationalism showed little understanding of ignorance, evolution and information costs and allowed no real scope for entrepreneurs, intermediaries in markets and the cultivators of institutions, such as lawyers. It will go unmourned.

However, a more realistic understanding of economic behaviour and a wider conception of rationality is now gaining ground worldwide in disparate fields of inquiry, from the new economic history, the new organisation science, public choice economics, Austrian economics, the analysis of systems transformation in eastern Europe and Asia, jurisprudence, and the analysis of complex systems (eg Anderson, Arrow, Pines, 1988; Parker-Stacy, 1995; Arthur, 1995). In Australia, there is a cultural lag. When we currently observe a certain reactionary move in public politics back towards prescriptive interventionism and away from ordering principles, this move is unlikely to endure. The challenge of dual openness to the world (globalisation) and to the future (evolution) will not go away. The current relapse will soon lead to failures of such specific outcome engineering (industry policy), and its costs in terms of factor outflows and losses in confidence and loyalty will become increasingly evident.

When this is the case, the thinkers of this country will have to stand prepared to explicate the cheerful science of discovery and choice. Then, they will have to tackle head-on the dismal neoclassical science of rationing scarcity. Herein lies a worthwhile research programme.

REFERENCES

P W Anderson, K J Arrow, D Pines (1988), *The Economy as an Evolving, Complex System* (Redwood, CA: Addison-Wesley).

K J Arrow (1962), "Economic Welfare and the Allocation of Resources for Invention", in D M Lamberton (ed), *Economics of Information and Knowledge* (Harmondsworth: Penguin), pp 141-160.

W B Arthur (1995), "Complexity in Economic and Financial Markets" 1:1 *Complexity* 20-25.

W J Baumol (1990), "Entrepreneurship: Productive, Unproductive and Destructive" 98 *Journal of Political Economy* 893-921.

P Boettke (ed) (1994), *Elgar Companion to Austrian Economics* (Aldershot: Edgar).

K E Boulding (1956/1989), *The Image – Knowledge in Life and Society*, 11th ed (Ann Arbor: University of Michigan Press).

G Brennan – J M Buchanan (1985), *The Reason of Rules: Constitutional Political Economy* (New York: Cambridge University Press).

J M Buchanan (1975), *The Limits of Liberty – Between Anarchy and Leviathan* (Chicago: University of Chicago Press).

H Demsetz (1969), "Information and Efficiency, Another Viewpoint" 13 *Journal of Law and Economics* 1-22.

H Demsetz (1970), "The Private Production of Public Goods" 13 *Journal of Law and Economics* 1-22.

R Epstein (1995), *Simple Rules for a Complex World* (Cambridge, Mass: Harvard University Press).

J Gwartney *et al* (1988), *Public Choice and Constitutional Economics* (Greenwich, Conn: JAI Press).

F A Hayek (1937), "Economics and Knowledge" 4 *Economica* 33-54.

F A Hayek (1945), "The Use of Knowledge in Society" 35 *American Economic Review* 529-530.

F A Hayek (1948), *Individualism and Economic Order* (Chicago: Chicago University Press).

F A Hayek (1973), *Rules and Order*, vol 1 *Law, Legislation and Liberty* (Chicago-London: University of Chicago Press).

F A Hayek (1978), "Competition as a Discovery Procedure", in *New Studies in Philosophy, Politics, Economics and the History of Ideas* (London: Routledge Kegan Paul), pp 179-190.

F A Hayek (1979),*The Political Order of a Free People*, vol 3 *Law, Legislation and Liberty* (Chicago-London: University of Chicago Press).

F A Hayek (1992/1960), *Why I am Not a Conservative* (Sydney: Centre for Independent Studies).

A O Hirchman (1980), *Exit, Voice and Loyalty* (Cambridge, Mass: Harvard University Press).

W Kasper (1994), "The East Asian Challenge: What Can Australians Offer Their East Asian Neighbours?", in H Hughes, W Kasper, J McLeod, *Australia's Asian Challenge* (Sydney: Centre for Independent Studies), pp 19-34.