

JASON POTTS ; ARC CENTRE OF EXCELLENCE FOR CREATIVE INDUSTRIES AND INNOVATION,
QUEENSLAND UNIVERSITY OF TECHNOLOGY, SCHOOL OF ECONOMICS,
UNIVERSITY OF QUEENSLAND
j.potts@qut.edu.au

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ABSTRACT

This paper explores the economic and cultural contribution of the arts and its effect on economic growth and evolution. The crucial connection is supplied by an innovation systems perspective on the creative industries. In this view, the creative industries contribute not just to value-added and jobs, but more importantly, to the evolutionary process by which economic systems grow. This paper thus offers a new view of the economics of the arts and creative industries re-conceptualised as part of the innovation system of an evolving economic order. Analytic and policy implications are then outlined in terms of an evolutionary approach to the economics of the arts.

INTRODUCTION

This paper argues that the economics of the arts and culture, and more formally the economics of creative industries, should be based on evolutionary economics. The reason is simple. The value of the arts and culture to an economic system is dynamic: it is change value, and naturally experimental and uncertain. New ideas and technologies are the drivers of economic growth, yet only to the extent that they are adopted and retained by people. The creative industries are the entrepreneurs and manufacturers of this socio-technical process. They are, I will explain, part of the innovation system of the economy in terms of what I shall call the 'creative systems' framework.

This suggests a new line of thinking for those engaged in research on the arts, education and cultural development that is based on a rather different conception of the economy than is conventional. The standard view of cultural economics is premised on the concept of market failure. It centres on the question of how much it will cost to maintain the arts and culture, etc. That the arts might contribute to the economy has no place in this thinking. But from the perspective of evolutionary economics (Dopfer, Potts, 2008) economic growth comes from the origination, adoption and retention of novel ideas, and the arts plainly have a role in all three stages of the innovation process of economic evolution.

I shall seek to explain in this paper how arts, education and cultural researchers may benefit by closer engagement with the analysis of economic dynamics (as open system processes of change and re-coordination) than by continuing with increasingly futile attempts to defend (static) cultural value against (equally static) economic value. The value of the arts and culture are dynamic. By connecting with the evolutionary framework of economic dynamics, and specifically the creative systems model, a more coherent, interesting and possibly even more powerful analytic framework for arts and humanities research may result.

CREATIVE INDUSTRIES AND THE ECONOMY

The concept of the 'creative industries' emerged in the late 1990s as a new way of thinking about the value of the cultural industries, and more broadly the content production and copyright industries, to the growth and vitality of regional economies (DCMS, 1998; Howkins, 2001; Florida, 2002; Cunningham, 2006). This concept emerged from a curious nexus of spatial and cultural economists, regional geographers, cultural and media studies academics, along with consultants

and politicians, who all came to realise the same thing more or less at once: namely, that creativity is not just good for the soul or the cultural milieu, but also good for regional economic development and interesting jobs.

What is striking about this development is how it turns on its head the previous 'common wisdom' of cultural economics, which argued that the arts were a perpetual economic basket case of productivity deficits, and market failure that rendered them effectively permanent wards of the public purse (Baumol, Bowen, 1966; Throsby, Withers, 1979; Throsby, 1994, 2001; Hesmondhalgh, 2002). And while this remains true of some components of the arts economy – e.g. museums and galleries, and some aspects of the performing arts – it is also manifestly true that the broader arts economy defined by the creative industries is doing rather well these days and has been for at least the past decade. Indeed, recent findings indicate that the creative industries are growing at about twice the aggregate growth rate of the economy over measures including value added, employment, and enterprise (Potts, Cunningham, 2007). Moreover, this is a global pattern (DCMS, 2007).

What are we to make of this change? One possibility is that the arts or creative industries are currently experiencing some good times, just as periodically happens to the mining or tourism industries, for example, due to exogenous events. If so, we might then expect that at some point in the future things will turn, and the creative industries will go into recession, as does happen periodically in the mining and tourism industries. Consider how this would work. First, we assume that the arts and creative industries provide luxury goods, such that when people's incomes rise, they spend proportionately more on creative industries outputs. Economic factors that cause aggregate growth of income – such as microeconomic reform, macroeconomic stability, technological change, or increased global trade – should then also cause the arts and creative industries to grow through increased demand for these services. Note this hypothesis requires no additional public funding, because as the economy grows, so too will tax revenues, and so the same proportional disbursement will now be a larger figure.

It is reasonable, then, to suppose that the vast growth in the global economy over the past 15 or so years, driven by technological advance in information and communications technology (ICT), economic reforms and increased global trade in part explains the rise of the creative industries, as well as what Richard Florida (2002) calls the rise of the 'creative class'. But, by the same logic, it also follows that a reversal of these economic forces, as caused by a national or global recession, should then cause the creative industries also to go into recession, and potentially a

bad one, as luxury goods (or merit goods or aspirational goods: they go by many names) are the first to be cut when incomes fall. The goodness of now may be a random fluctuation, not a systematic outcome.

On the supply side, a similar argument can be made in which the rapid growth and adoption of digital ICT has disproportionately affected the creative industries, increasing the space of opportunities for production. Note this argument does not share the same reversal implications, as technology adoption and learning is less reversible. Furthermore, microeconomic reforms that increase business efficiency make it easier to start new businesses and macroeconomic reforms that increase access to global markets make it easier to leverage opportunities, all of which may again disproportionately affect the creative industries, which produce content that often scales globally and is mostly composed of small businesses along with a few enormous aggregators such as media companies. The implication is that the creative industries may have disproportionately benefited from the 'neoliberal' global economic changes that were seeded in the 1980s and effective since the early 1990s. It is possible that these structural and institutional changes may be reversed, but not likely. The creative industries, therefore, may in fact be one of the main beneficiaries of the great liberalization of global markets; from a post-modern perspective, this is ironic reality (Benkler, 2007).

However, I want to propose here a somewhat different hypothesis that is premised on a different connection between the arts economy and creative industries (CI) and the rest of the economy. In the above model, it was implicitly assumed that the CI was effectively just another industry sector (like mining or tourism, say), and that its fates were largely determined exogenously by 'the economy'; if the economy was happy and growing so to were the CIs, and vice versa. This is a standard model regularly used to explain the fates and fortunes of any particular industry, although with amplification due to the particular sensitivity of demand for CI goods and services to changes in income. Yet as fitting as this seems, it might still be the wrong model for thinking about the creative industries. Instead, the current relative growth of the CIs may not just be a consequence of these exogenous micro and macroeconomic considerations, but also due to their role as part of the *innovation system* of the modern post-industrial (post-modern?) economic order.

It is conventional to represent the arts and CIs broadly as suppliers of cultural goods and services. Yet this may be systematically underestimating their contribution to 'the economy'. Why? – Because the CIs also produce another class of outputs, namely innovation. For example,

when seeking to evaluate the economic contribution of education, science or technology, we have the same problem. Measured by number of students graduated, scientific papers written, patents patented, or the labour and capital cost of delivering these services, such estimates will systematically underestimate the value of these services to economic growth and development because they fail to account for the new knowledge and opportunities created. Art & culture have the same problem.

But this is not a market failure problem, or at least not in an essential way. Rather, it is engaged in the messy economics of economic evolution through a growth of knowledge process. This results in process of creative destruction as new organisation, markets and jobs are re-coordinated. The result of all this is productivity growth and a new economic order. It is not market failure here that is interesting, but rather the emergence of new markets associated with new human activities.

Economists modeling the causes of economic growth and development therefore tend to treat the services of art, education, research and science as if they were, in effect, a higher-order component of the economy: Knowledge is the new capital and these sectors produce the goods that produce the goods. In neoclassical economics, this is called the 'endogenous growth model' (Romer, 1990; Aghion, Howitt, 1992). In evolutionary economics, these are called 'innovation systems' and often specifically 'national innovation systems'. They compose the set of activities associated with science, R&D, technology, higher-education and so forth. In theory, economic systems with larger or more effective innovation systems experience higher rates of economic growth than economies with smaller or less effective innovation systems (Lundvall, 1992; Nelson, 1993; Freeman, 1995). This theoretical conjecture has widespread empirical support (Freeman, Louçã, 2001). My proposal, then, is that we might usefully consider the arts sector in general and the creative industries in particular, as part of the same 'creative system'.

INNOVATION SYSTEMS

An innovation system is a system of institutions that produces innovation. The concept of an 'innovation system' has a long history in economic theory. It begins with List (1841) who set out to criticise the Classical economists for neglecting science, technology and skills in the theory of the wealth of nations. List (1841: 113) said this:

The present state of the nations' 'is the result of the accumulation of all discoveries, improvements, perfections and exertions of all generations which have lived before us: they form the intellectual capital of the present human race, and every separate nation is productive only in the proportion in which it has known how to appropriate those attainments of former generations and to increase them by its own acquirements.

The concept of an innovation system thus seeks to further unpack the mechanisms that underpin the causes of technological change that endogenous growth theory emphasises as the cause of the economic development. Note that this compares with 'old growth theory' that emphasised capital accumulation. New growth theory emphasises the growth of knowledge and evolutionary economics then develops this into a general social science that is centred about the structures and processes by which knowledge grows. At the core of this, naturally, is an innovation system.

The first modern concept of innovation systems was developed through the joint work of economic historians and growth theorists (such as Chris Freeman and Richard Nelson) combined with technology scholars and policy makers (such as Vanavar Bush). This consisted of the mapping of a proper sequence of knowledge investment that went: first basic science, then engineering, then markets. Later models of innovation systems emphasised the systems component in the form of necessary levels of investment in each part and the policy coordination of the parts into a system. A recent model by Dodgson et al (2005) and seeks to incorporate a much greater emphasis on the significance of open evolving systems to the nature of the innovation system. (Metcalf, 1995; Nelson, Sampat, 2002; Murmann, 2005).

Yet what I wish to argue is that the modern concept of an innovation system (and specifically a national innovation system) as the über-system for generating new knowledge to drive economic growth and development, still falls short of a comprehensive theory. What is missing, I venture, is recognition of the contribution of the arts, broadly considered, as the creative industries. They are not just about unproductive leisure, but also more importantly about experiments in growth – dynamic economic value, in other words, not static.

The modern concept of a 'national system of innovation' develops this insight by seeking to identify the set of institutions whose interaction as a system determines the innovative performance of the national economy in terms of the development of new technology and its rate of adoption (Lundvall, 1992; Nelson, 1993; Freeman, 1995, 2002; Edquist, 1997; Freeman,

Soete, 1997; Eliasson, 2000). The concept of an innovation system has two implicit premises. First, that the growth and development of economic systems is caused by the growth of knowledge, a view also held by new growth theory. Second, and in contrast to new growth theory which views the production of knowledge as a function of investment in knowledge capital, the innovation system approach maintains that the growth of knowledge is a consequence of specific institutions and their systemic interaction. It is of course still sensible to speak of appropriate levels of investment in these components, but equally important are the interactions between these components and their coordination.

The innovation system approach emphasises that the nature and causes of the growth of knowledge powering the wealth of nations is not simply an aggregate of distributed 'investment' in growing knowledge but has important system-wide aspects that link trade policy and technology imports, law and intellectual property, education systems, urban infrastructure and culture, among other institutions into complex emergent structure. In this view, economic growth is due to an economy wide system of institutions and capabilities that generate and experiment with new ideas to grow knowledge. These systems are threaded through the economy, through both organisations and markets. They are partially private and partially public and partially complex networks of both. They are as much artificial as naturally or spontaneously occurring; indeed, they often require high level coordination and monitoring, and thereby the use of significant public resources or the sharing of private resources. And thus considered, properly include many of the education and cultural institutions that normally fall well outside the Treasury framework as to what counts as contribution to economic growth. A more comprehensive definition of the drivers of economic growth should therefore be of significant interest to researchers in the arts, culture and humanities.

A national innovation system, therefore, is not what economists sometimes call a 'production function' for knowledge, in which every increment to inputs produces an increment to outputs. The production of knowledge is far more complex and non-linear and experimental. It is fundamentally an open-system evolutionary process. Furthermore, an innovation system either works or it doesn't, such that it either has the necessary elements and they are sufficiently coordinated, or it may be missing crucial elements, or the elements may not be appropriately coordinated into a system. An innovation system can therefore suffer 'coordination failure'. This would then require a policy response aimed at diagnosing and correcting that failure by supplying the missing elements or facilitating appropriate interactions.

While evolutionary economists have only in the past few decades begun to make significant progress in analysing innovation systems, their role in the growth and development of economies such as England, Germany, Japan, Taiwan and the US has been well documented by historians of technological change. The key factors are this: protection of intellectual property; imports of technology; advanced technical education to enable imported technology to be used effectively; high levels of expenditure on R&D directed toward consumer needs; and the close integration of R&D with learning in firms. Surprisingly, perhaps, the arts fit well into this framework.

The modern view of innovation systems concentrates strongly on the importance of engineering and 'physical technology' (Mowery, Rosenberg, 1998; Freeman, Louca, 2001). This is understandable, as the growth performance of the nations it focuses on was largely the product of the exploitation of physical science and engineering to transform primary resources into more valuable forms (Mokyr, 2002). This knowledge, however, was concentrated about mastery of 'closed systems'. But mastery of the physical transformation of resources as closed systems was how the wealthy economies of today did grow in the past through scale and scope; yet it is not necessarily how they will continue to grow in the future. An innovation system, therefore, that is geared toward optimising the conditions of the past may not be an optimal innovation system for the conditions of the future. This, then, is the opportunity space for creative industries research to enter with more sophisticated understandings of the social process of innovation.

A broader limitation to the concept of an innovation system, however, is its heavy focus on innovation as a technical search and discovery process by firms. This largely ignores the more complex interactions between producers and consumers, as well as subsequent phases beyond technology innovation, such as adoption and adaptation of a novel product or service to human lifestyles, along with its retention and normalisation by a population of carriers. Furthermore, it ignores completely the adoption process that occurs in social markets (Schelling, 1973; Potts, Cunningham, Hartley, Ormerod, 2007). Broadly considered, the standard innovation systems approach focuses only on physical technologies and engineering-type considerations of what technologies are. This is a very limited conception of human knowledge. Notably, it excludes the sorts of knowledge studied by the arts and humanities along with the set of industries gathered under the rubric of creative industries.

Yet given that the CIs are deeply engaged in the business of representation, experimentation and the search for interesting novelty, it is surprising, then, they have not been previously recognised as integral components of modern innovation systems. The arts, in this view, are not just for

entertainment and distraction, but are a crucial part of the modern economy in providing mechanisms for the development of new ideas in the social context. This perspective is plainly not accepted in the conventional sense of goods & services – jobs & exports, etc, but only with respect to the knowledge mechanisms that drive and power the process of economic growth. The creative industries are best thought of as part of the innovation system, and with primarily dynamic not static value. That's why conventional economic assessments make them seem smaller and less significant than they really are.

CREATIVE INDUSTRIES & ECONOMIC EVOLUTION

The concept of creative industries is a new grouping of economic activity focused about the union of the cultural and copyright industries that, in the standard definition, have creativity as an input and intellectual property as an output (DCMS, 1998). In this view, creativity is a prime resource, not just for culture, but for the economy as a whole. The CIs do produce cultural goods. But that may not be their most significant export. With all respect to the US President FDR, the only thing we may have to change is change itself.

Evolutionary and Schumpeterian economists have long argued such a line, but specifically in terms of the entrepreneur, not the artist. Yet are they not the same in fundamental ways? Creativity is perhaps the generic name for the set of forces that supply new ideas as new solutions to problems to connect new technologies with new human lifestyles. The creative industries do not just facilitate the origination of novelty, but also work to facilitate the adoption and adaptation of new technologies – through design and advertising, for example – along with the embedding of new technologies and their ongoing maintenance. The CIs are involved in all stages of the innovation process. They are, I suggest, properly considered as an integral part of the innovation system.

Let us call such the creative industries part of the mechanism a 'creative system'. The 'creative systems' perspective then differs from the 'innovation systems' perspective in three fundamental respects.

- It is not just focused on the invention and innovation of physical technology (e.g. Ziman 2000), but more broadly on the origination of *all* novel ideas that encompass new ways of thinking and behaving, new forms of social organization, and new physical technologies. The

creative systems perspective is thus broadly focused, in other words, on social as well as physical technologies.

- It focuses on all three phases of an innovation trajectory – (1) origination, (2) adoption, and (3) retention – rather than just origination and initial adoption, which is the *modus operandi* of the innovation systems approach. This wider temporal perspective proceeds from recognising that economic evolution is not completely described with the innovation of a new technology, but also requires that the novel rule be adopted by other agents, that re-coordination of the economic and social order then occur, and that the novel rule is then appropriately embedded in the new social and economic order. The creative systems approach seeks to understand the institutions of economic and cultural evolution over the entire process of the growth of knowledge, not just the physical engineering component. This is a point that almost all modern scholars of technological change agree on: namely, that more attention needs to be given to social aspects.

- The ‘creative system’ occupies all of the three phases of innovation – (1) origination, (2) adoption and (3) retention – giving rise to the notion of three different sorts of creativity essential to economic evolution.
 - 1 Generative creativity
 - 2 Adoptive creativity
 - 3 Retentive creativity

Phase one is the origination of a new idea. Phase two is the adoption of that idea into a population of agents. Phase three is the ongoing retention and normalization of that idea. All sustainable economic growth is the consequence of this process. But beyond the obvious need for the new idea and its adoption and retention, there is also the need for the services to facilitate this process. This is the role of an innovation system and the obvious sense in which the creative industries form part of that system. But as such, they are not just mechanisms of growth, but mechanisms of mechanisms of growth. This is the evolutionary value of creativity in three parts: generative, adoptive and retentive. Evolutionary economists and arts and culture scholars might usefully profit from closer collaboration at these three components.

Generative creativity is the 'original' form of creativity associated with the development of a novel idea. Most conceptions of R&D fit here, as do most notions of the value of creativity to the economy with new models, designs, services, etc. The central problem of generative creativity is with the mechanisms that generate new ideas. Generative creativity is perhaps the greatest mystery of all, at least to an economist. Yet economists can potentially help with a general theory of generative creativity because this process is, inescapably, a form of choice.

Adoptive creativity is the creative discovery of new ways of adopting novel ideas and the development of new processes to facilitate that process. This is also adaptive creativity, as it implies the adoption of a generic rule into a particular agent's mind and environment, thus requiring adaptation. The domains of marketing and design fit here, as does anything that further develops the capability to learn and adopt novel ideas. The central problem of adoptive and adaptive creativity, then, is in solving the problem of getting attention and of the capabilities to re-coordinate structures and behaviours to fit the new idea. Fortunately, the creative industries excel at this sort of creativity. That is why they are so prominent in rapidly evolving economies.

Retentive creativity, in turn, is creativity with respect to the embedding of novel ideas into consumer lifestyles and into the routine operations of firms. This is creativity associated with the normalisation or institutionalisation of a rule (Potts, 2007). Parts of the education system would fit here, also cultural normalisation of economic advances, whether new social or physical technologies, along with innovations in embedding technology. My suspicion is that much of the evolutionary value of the 'creative industries' lies in the facilitation of the retention phase of an innovation trajectory, and that this is often mislabeled as entertainment or leisure activity, or culture and recreation, or absorbed by and attributed to the broader services component of the economy. The innovation systems perspective tends to systematically overlook this phase of economic evolution. Yet it might turn out to be the most important of all.

The creative systems framework thus provides a way of analysing the contribution of creativity to the economy not as a commodity, for example in the form of cultural production. Rather, it contributes to the growth and evolution of the economy in the form of an innovation system in three distinct ways: as (1) originaive creativity; (2) adoption creativity; and (3) retentive creativity. The three-phase evolutionary economic model avoids the materialist bias in attributing economic growth and evolution as essentially driven by technological change in the transformation of physical resources, but instead focuses on the connection between technology and human lifestyles, which is a major and often leading export of many economies (US, France, Italy, etc).

This model also avoids the tendency to focus only on the 'pointy end' of evolutionary growth in the invention and innovation of a new technology – a bias started by Joseph Schumpeter, the seminal evolutionary economist – without equivalent emphasis on the adoption, diffusion and retention process that must logically follow.

Consider two benefits of this conception. First, it makes sense of the well-known empirical finding of the extensive embedding of the 'creative industries' in other industries (Florida, 2002; CIRAC, 2005). The creative system is not an industry, but rather a component of all industries. Second, it makes sense of the dominance of the creative industries by economic activities devoted to adoption and retention processes. Creativity is not just something that happens at the beginning of a technology trajectory, when a new idea is hatched or discovered, but continues throughout the trajectory until the novel idea is completely embedded in the economic and social order and becomes a normalised part of the knowledge base. The creative industries, in this view, are an essential service in the process of economic growth, development and evolution. They deserve, then, corresponding analytic and policy attention.

These three modes of creativity – origination, adoption and retention – underpin the structure of any innovation system. The creative industries contribute to each of them. They are, therefore, an appropriate subject for inclusion into the theory of economic growth and development. So while the arts might be of only marginal importance to the economic system from the treasury perspective, they are of critical significance to economic growth and evolution. That is an important distinction. It is one that evolutionary economists are alive to. And we think that creative industries researchers (most of whom are not economists) should also pay attention to this shift, for it affects them. The newly developed evolutionary dynamic understanding of economic systems is of significance for research in arts & culture.

SOME POLICY IMPLICATIONS

This is perhaps a surprising outcome. For it leverages something seemingly the opposite of serious economic subject matter, namely the 'play' industries, not just into economic significance as a set of industries, but more deeply into the main driver of the market-economy engine. Marxists and liberal-democrats may both experience vertigo at this point, or at least motion sickness. For while the arts are undoubtedly of sublime and transcendental value, as all educated people agree, that they are good for the economy, and perhaps even primarily so, strikes perhaps many as somehow sacrilegious: the sort of thing an economist would say. Yet I did, because this

is important. Creativity cannot be studied independently of the economy and vice versa. The primary value of the creative industries lies in its economic dynamics, not its statics. The arts et al should seek to interact with economics in terms of such a dynamic model.

This new framework has empirical and policy implications. Nations, regions, sectors or individual firms could then be conceived as differing in their 'creative systems'/'innovation systems' by the resources devoted to each source of creativity and the competences developed. Nations or firms may then be conceived of as specialising in one or more of these three phases of rules, and therefore in a type of creativity. This conception would, among other things, have radical implications for the education system. It would further imply the value of the construction of synthetic measures to classify activities according to this taxonomy, perhaps with resources devoted to each serving as an index of 'evolutionary investment'.

Policy implications then follow from the development of incentives to promote such development. A new arts and culture policy may then be proposed that hews much closer to economic value and justification than has previously been entertained. Again, this is not a philistine act, but one intended to recognise that the arts do best when left as much to themselves to find their own truths. A market economy is a great place for such exploration, and a global economy/society is even better. For a spirited defense of this position, see Cowan (1998).

This notion of the arts as part of the powers and mechanisms to change the economic system from within (evolution, not revolution), offers an exciting way forward for researchers concerned with the future development of the arts and culture from the open system perspective. The market economy is indeed a powerful force to maintain an open society and the benefits that that brings. But the arts are part of that mechanism, not merely a welfare beneficiary. A re-conception of the economic value of the arts to focus on their dynamic contribution might be welcomed by readers of this journal as a way to connect with economists talking about the same dynamic processes.

Policy implications naturally follow from analysis of the systemic aspects of the 'creative system' in relation to its components and their coordination. The possibility of coordination failure (not market failure) of rules suggests an important role for governance and policy to facilitate the development of a national creative system, whether by seeking to supply missing parts or to provide a coordination service (Pelikan, Wegner, 2003). Creative industries policy should be properly understood as wider than innovation policy and competition policy, but ultimately centred

about an evolutionary growth model that seeks to integrate the mechanisms necessary for the process of economic, social and cultural evolution (Jones 2006).

A further implication is to recast the difference between the experimental fine arts and the commercial creative industries in terms of, as we sometime now say, economic impact. The connection is simple, namely that of experimental research to practical application, which is at best indirect and only statistically viable. Yet this should be the proper basis of the arts – economic theory and policy nexus with respect to the nature and causes of economic growth.

Plainly, this is a very different vision of the policy landscape than we now have, which has specific industries in one box, competition and market policy in another, and cultural and education policy far removed. Yet the view of ‘creative systems’ as a more general, and analytically more robust, alternative to ‘innovation systems’ as a basis for policy makes for a research program that is, I think, well worth pursuing.

CONCLUSION

What should we think about this? In my view, optimism is warranted. The model of the arts economy in which the arts economy is basically the effect of a pendulum swung by the aggregate economy is a false conception. Furthermore, the work of the past five or so decades to establish and entrench bulk Keynesian-style public funding of the arts as a bailiwick against instability is, I think, a misguided project. Aside from the dynamic neglect, this is also a project that ultimately promotes conservatism, which is the very opposite of its proper mandate. The value of the arts is its novelty, and that is also the basis of its economic value.

Better then to acknowledge the arts for what they are: namely forces for change. Economic systems need this too, of course, and they pay for it fairly. The bottom line is that the intrusion of evolutionary growth economists into this intellectual territory should not cause the arts community the same fear that the intrusion of neo-liberal economists caused (e.g. economists who simply ignore the arts, or seek to explain everything as a species of failure). This extends to the intrusion of well-meaning but ultimately dyke-building Keynesian-welfare economists (e.g. Will Baumol or David Throsby *et al*). Innovation theory is not unrelated, after all, to arts theory. They are both analysis of how novelty matters. They are both, ultimately, endeavours to analyse how new ideas create value. From the evolutionary economic perspective of the arts in general and the creative

industries in particular, the value of the arts is central to the growth of knowledge in terms of creative systems of innovation. It seems then that the bottleneck in analytic progress now arrives at a better economic understanding of what the arts contribute to economic understanding, and also what economic analysis can contribute to scholars of the arts.

These are two cultures, but now along an interesting new line: namely, open system humanities and economics. Complexity and evolutionary analysis thus predominates. And on this too I am optimistic, for we have new journals and new media such as this journal. Connections are being made. A deeper recognition of the connection between the arts, economics and innovation cannot surely then be too far away. If so, this will connect analysis of the nature of new ideas both economically and culturally. Twenty-first century social science will surely be about little else.

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REFERENCES

- Aghion P, Howitt P (1992) 'A model of growth through creative destruction' *Econometrica*, 60: 323–51.
- Beinhocker E (2006) *The origin of wealth*. Harvard Business School: Cambridge, MA.
- Benkler Y (2007) *The Wealth of Networks*. Princeton: Princeton University Press.
- Caves R (2000) *Creative Industries: Contracts between art and commerce*. Harvard University Press: Harvard.
- CIRAC (2005) 'Mapping Queensland's creative industries: Economic fundamentals' QUT
- Cowan T (2002) *Creative destruction*. Princeton University Press: Princeton.
- Cunningham S (2006) *What price the creative economy?* Currency House: Sydney.
- DCMS (Department of Culture, Media and Sport) (1998) Creative industries mapping document. DCMS: London.
- DCMS (Department of Culture, Media and Sport) (2007) *Staying Ahead: The economic performance of the UK's creative industries*. Report prepared by The Work Foundation for DCMS: London.
- Dodgson M, Gann D, Salter A (2005) *Think, play do: technology, innovation and organization*. Oxford University Press: Oxford.
- Dopfer K, Foster J, Potts J (2004) 'Micro meso macro' *Journal of Evolutionary Economics*, 14: 263–279.
- Dopfer K, Potts J (2008) *The general theory of economic evolution*. Routledge: London.
- Edquist C (1997). *Systems of innovation: Technologies, institutions and organizations*. Washington: Pinter.
- Eliasson G (2000) 'Industrial policy, competence blocs and the role of science in economic development' *Journal of Evolutionary Economics*, 10: 217–41.

- Eucken W (1952) *Grundsätze der Wirtschaftspolitik*. Mohr Siebeck: Tübingen.
- Florida R (2002) *The rise of the creative class*. Basic Books NY.
- Foster J (2006) 'From simplistic to complex systems in economics' *Cambridge Journal of Economics*: 29: 873–92.
- Freeman C (1995) 'The national system of innovation in historical perspective', *Cambridge Journal of Economics*, 19: 5–24.
- Freeman C (2002) 'Continental, national and sub-national systems of innovation' *Research Policy* 31: 191–211.
- Freeman C, Louçã F (2001) *As time goes by: From the industrial revolutions to the information revolution*. Oxford University Press: Oxford.
- Freeman C, Soete L (1997) *The economics of industrial innovation* (3rd edn). Pinter: London.
- Hartley J (ed) (2005) *Creative industries*. Blackwell: Carlton.
- Hesmondhalgh D (2002) *The cultural industries*. Sage: London.
- Howkins J (2001) *The creative economy*. Penguin: London.
- Jones E (2006) *Cultures merging: A historical and economic critique of culture*. Princeton University Press: Princeton.
- Leadbeater C (2000) *Living on Thin Air: The New Economy*, Penguin: London.
- List F (1841) *National system of political economy*.
- Lundvall, BÅ (1992). *National systems of innovation: Towards a theory of innovation and interactive learning*. New York: Pinter Publishers.
- Metcalfe JS (1995) 'Technology systems and technology policy in an evolutionary framework' *Cambridge Journal of Economics*, 19: 25–47.
- Metcalfe JS (2003) 'Equilibrium and evolutionary foundations of competition and technology policy: new perspectives on the division of labour and the innovation process' In Pelikan P, Wegner G (2003) pp. 162–190.
- Mokyr J (2002) *The gifts of Athena: Historical origins of the knowledge economy*. Princeton University Press: Princeton, NJ.
- Mowery D, Rosenberg N (1998) *Paths of innovation: Technical change in 20th century America*. Cambridge University Press: Cambridge.
- Murmann JP (2004) *Knowledge and competitive advantage: The coevolution of firms, technology and national systems*. Cambridge University Press: Cambridge.

- Nelson R (1993) *National innovation systems: A comparative analysis*. Oxford University Press: NY.
- Nelson R (2002) 'Technology, institutions and innovation systems' *Research Policy*, 31: 265–72
- Nelson R, Sampat B (2001) 'Making sense of institutions as a factor shaping economic performance' *Journal of Economic Behaviour & Organization*, 44: 31–54
- Pelikan P, Wegner G (eds) (2003) *The evolutionary analysis of economic policy*. Edward Elgar: Cheltenham.
- Potts J (2006a) 'An evolutionary theory of income' ARC Center of Excellence in Creative Industries and Innovation working paper #1, QUT.
- Potts J (2006b) 'Four models of the creative industries' ARC Center of Excellence in Creative Industries and Innovation working paper #2, QUT.
- Potts J (2007) 'Evolutionary institutional economics' *Journal of Economic Issues*, 41(2): 341–50.
- Romer P (1990) 'Endogenous technological change' *Journal of Political Economy*, 98: S71–S102.
- Scott A (2006) 'Entrepreneurship, innovation and industrial development: geography and the creative field revisited' *Small Business Economics*, 26: 1–24.
- Ziman J (ed.) (2000) *Technological innovation as an evolutionary process*. Cambridge University Press: Cambridge.