



FOUR MODELS OF THE CREATIVE INDUSTRIES

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What is the dynamic value of the creative industries from the economic perspective? This paper seeks to answer this question by proposing four models of the relationship between the creative industries and the whole economy, then examining the evidence for each. We find that growth models fit the data well, but not everywhere. We discuss the methodological and empirical basis for this finding and its implications for economic and cultural policy.

KEYWORDS creative industries, economic evolution, growth models, cultural policy

Introduction

‘Creative industries’ is a new analytic definition of the industrial components of the economy in which creativity is an input and content or intellectual property is the output.³ This definition was introduced in the DCMS 1998 template and has been adopted in raft of mapping documents by other countries also seeking to estimate the size and growth of this sector and to formulate new policy.⁴ The creative industries have thus come to be newly represented as a significant and rapidly growing set of industries,⁵ an important sector, in other words, for policy attention.

The ostensible purpose of these mapping documents has been to estimate the ‘significance’ of the creative industries to the modern economy in order to reorient economic policy support in accordance with that significance.⁶ In doing so, however, these studies highlight an important point: namely that the economic value of the creative industries may extend beyond just the manifest production of cultural goods or the

employment of creative people, but may have a more general role in driving and facilitating the process of change across the entire economy, as evidenced by its dynamic parameters and degree of embedding in the broader economy. Indeed, it may even be the case that the ‘dynamic significance’ of the creative industries is greater than their ‘static significance’.

This paper seeks to address this question by posing it directly: what is the dynamic relation between the creative industries and the rest of the economy?⁷ The four models of this paper are the four possible answers to this question: namely (1) welfare, (2) competition, (3) growth and (4) innovation. Each of these possibilities parlays into a very different policy model: in (1) a welfare subsidy is required; in (2), standard industry policy; in (3), investment and growth policy; and in (4), innovation policy is best. Very different policy frameworks thus follow from each of the four basic dynamic models relating the creative industries to the rest of the economy. This paper will outline these four models and marshal a sample of existing evidence to begin the process of sorting among them.

We begin by outlining the four possible primary relations between the creative industries and the rest of the economy. We explain the relation of each model to different theoretical foundations, what we should expect to observe if each model were true, and the appropriate policy framework in each case. Using various mapping documents, we then undertake an initial consideration of a set of data samples connected to the four models. However, this paper does not attempt a comprehensive analysis. For that, a much more rigorous approach to modeling, data and statistical analysis would be required. What we aim to provide here is only a theory of the classes of models involved and an illustration of how different sorts of data might be applied to them. This seems to us a necessary first step (prior to a more rigorous approach) in developing the economics of the creative industries.

Yet, in doing so, we immediately find at least superficial evidence supporting models (3) and (4). And while clearly signaling the need for further theoretical and empirical work, this also points up the potential value of an innovation-based approach to creative industries and cultural policy. As such, we propose these four models as a

starting point for further discussion of the intersection between economic analysis of the arts and culture on the one hand and modern analysis of economic growth (and growth policy) on the other.

Four models of the creative industries

Let the economic value of the whole economy be defined as Y , and the economic value of the creative industries as CI , affording us the master equation:⁸

$$CI = A.Y$$

In English, this just says that the creative industries comprise some given fraction (A) of all economic activity. In a static model, this estimate is treated as the ‘significance’ of the sector. In Australia, A is estimated at 0.045.⁹ The estimate of A has been a central output of the creative industries mapping documents, beginning with DCMS (1998) and since replicated by Australia, NZ and the EU, among others.¹⁰ These estimates all find that the creative industries are indeed ‘economically significant’ (in the static sense). Furthermore, they are deemed thus comparable to other high profile sectors in their contribution to income, employment and trade – agriculture, for example, typically has an A value of 0.03. By implication, the creative industries are argued to deserve policy attention (and support) in proportion to that significance.

The problem with this line of reasoning, however, is it has no basis in economic theory. It is a matter of *political* expediency to afford an industrial sector policy attention in proportion to the share of income (or jobs, or foreign exchange) it generates, not a matter of economic logic.¹¹ This is always true in any equilibrium-based (static) argument. Indeed, it is only when considering the failure of an industry that political and economic significance align in this static manner (due to the proportionate and ramifying distortions on other industries). But the creative industries interaction with the aggregate economy is presumed to be positive, not negative. Yet, if so, then the basic economic-political significance may no longer hold.

Instead, economic significance needs to be reconstructed. This is what the four models approach seeks to do by shifting to a dynamic approach to significance. In this approach, the economic analysis of the relation between an industry sector and the rest of the economy is instead constructed in terms of the dynamic inter-relationship, which we may specify by examining the higher order moments of our master equation: specifically, how a change in *CI* activity (ΔCI) affects aggregate economic activity (ΔY).

Our starting axiom is that change in *CI* affects *Y* in some way ($\Delta CI \leftrightarrow \Delta Y$). The four models proposed are the set of possible dynamic interrelations in which a change in *CI* activity has either: a negative (model 1), neutral (model 2) or positive (models 3 and 4) effect on the economy. This is plainly simplistic, yet we suggest it offers a useful starting point to orient both empirical analysis and policy discussion in order to be clear and explicit about this hypothesized relation and its evidential support.

For analytic convenience, we also assume that $dCI/dY = 0$, meaning that economic growth affects the creative industries no differently to other industries, or technically that income elasticity is unitary.¹² We strongly suspect this not to be the case, but rather that growth in income disproportionately effects demand for the output of the creative industries, but we shall set that aside here.¹³ Policy is analyzed in terms of whether change in the creative industries changes aggregate utility welfare (or utility, *U*). Again, we presume dU/dCI can increase, decrease or leave utility unaffected. This is also a highly abstract modeling formulation, yet it enables us to abstractly discriminate between basic differences in theoretical assumptions and policy responses.

Model 1: *The welfare model*

In this model, the creative industries are hypothesized to have a net negative impact on the economy, such that they consume more resources than they produce. A dynamically equivalent statement is that the rate of total factor productivity (TFP_{CI}) growth is less in the creative industries than in other sectors (TFP_Y), as assumed in Baumol and Bowen (1966). In this model, the creative industries are essentially a ‘merit good’ sector that produces cultural commodities that are welfare enhancing ($dU/dCI > 0$),

but that are only economically viable with a transfer of resources from the rest of the economy ($dY/dCI < 0$). Furthermore, positive knowledge spillovers associated with production that would augment TFP_Y are excluded.

Hypothesis 1: $\frac{dY}{dCI} < 0$, $\frac{dU}{dCI} > 0$

In model 1, the creative industries are a net drain on the economy, although a net drain worth having, as the overall effect is welfare positive. This is due to the production of commodities of high cultural value ($dU/dCI > 0$) but low market value ($dY/dCI < 0$), as production is inherently unprofitable because demand curves lies everywhere below cost curves. The economic justification for such restitution must ultimately then rest on a *market failure* argument, with policy appropriately calibrated to estimates of this non-market value. Yet the question of whether market failure is an appropriate justification for intervention need not concern us here, for it is sufficient to recognize that if $dY/dCI < 0$ then policy intervention can be justified only if it is also true that $dU/dCI > 0$. If model 1 is true, then policy prescriptions should centre about income and resource reallocation or price maintenance in order to protect an inherently valuable asset (*i.e.* cultural production) that is naturally and continually under threat in a market economy.¹⁴

It is broadly accepted by scholars of cultural economics (e.g. Throsby and Withers 1979; Throsby 1994, 2001) and supported by numerous non-market valuation studies (see, e.g., Towse 1997, 2003) that dU/dCI is, on the whole, mostly positive. This is an unsurprising and indeed edifying result that accords with intuition. It is, furthermore, not inconsistent with economic conceptions of rational economic man (Frey 2003, Dopfer 2004). So, let us take that positive sign as evidential and focus instead on the sign of dY/dCI and what it means to say that dY/dCI is negative.

Specifically, it means that growth in the creative industries comes at the cost of aggregate economic growth, as their growth is not what ‘the market’ wants, but must be compelled to support it through transfers. Evidence for model 1 may therefore accrue in several ways. These include: high levels and rates of negative profit among creative

industries firms; low total factor productivity ($TFP_{CI} < TFP_Y$); persistently lower income to factors of production in creative industries compared to other industries; and other indications that the economic viability of activities organizations within the creative industries is critically dependent upon resource transfers from the rest of the economy to maintain prices, demand or supply.

If model 1 is true, we would expect to observe not just an economically stagnant or low-growth sector, but also one with lower performance levels (*e.g.* return on investment, incomes, *etc.*). Such decomposition allows multiple opportunities for empirical assessment. This is, we think, an interesting empirical question to re-ask, for the implicit truth of model 1 is almost axiomatic in the field of cultural economics where few dispute the implicit assumption of below-average income or productivity growth.¹⁵ This differs from the implicit assumption of competition in neoclassical microeconomics, which is instead presumed in model 2.

Model 2: *The competition model*

Model 2 differs from model 1 in allowing that the creative industries are not economic laggards, nor providers of special goods of higher moral significance, but effectively ‘just another industry’: in effect, the entertainment or leisure industry. In this model, which is the default setting in standard microeconomic analysis, a change in the size or value of the creative industries has proportionate (but structurally neutral) effect on the whole economy. This model also presumes that the growth impact is also neutral, such that the creative industries would in aggregate contribute no more or less to technological change, innovation or productivity growth than the average of other sectors.¹⁶

This model does not argue that the creative industries have no effect on income, productivity or welfare, as that is trivially false, but that their effect is on *par* with all other sectors – such that $TFP_{CI} = TFP_Y$. Indeed, this is what standard economic analysis would predict as based on the competitive substitution of resources in a market-based economy to achieve equivalent returns at the margin. In other words, standard economic theory predicts model 2, in which the creative industries are normally competitive.

If so, this implies that the marginal welfare benefit of policy-based redirection of resources into this sector is zero in aggregate. That is, there are no economic welfare gains to special policy treatment. This implicitly supposes that cultural/creative goods are ‘normal goods’, in the sense that as they vary in relative price, rational consumers would substitute between them and those from other sectors to equalize their marginal utility. In this case, an expansion of the creative industries sector would have no aggregate welfare benefit distinct from expansion of any other sector.

$$\text{Hypothesis 2: } \frac{dY}{dCI} = 0, \frac{dU}{dCI} = 0$$

Model 2 does not exclude the possibility that the economics of the creative industries are ‘special’ in terms of extreme levels of demand uncertainty, power-law revenue models, tendencies toward monopoly, complex labour markets and property rights, endemic hold-up problems, information asymmetries, highly strategic factor markets, and so on (*e.g.* Caves 2000, De Vany 2004). Rather, it emphasizes that these coordination problems are eventually solved under competitive conditions, just as the special circumstances of other industries led them to discover specific institutional arrangements and coordination structures.

Model 2 emphasizes these as problems for management as well as opportunities for entrepreneurs, but ultimately insists that they are no different to the ‘special’ problems of all other industries, such as energy or tourism, which also have ‘interesting’ features associated with scale, coordination, uncertainty, networks, and so forth. The ‘normal model’ thus finds that the creative industries have comparable industry statistics to other sectors.¹⁷ It follows, then, that they should properly require the same policy treatment as other industries. The creative industries, in this view, are just another member of the industrial community, and they should rightfully then demand neither more nor less ‘assistance’ than that due to others. Recognition of normal existence is sufficient and ‘significance’ is immaterial.

If so, the creative industries then require no special policy treatment, just the consistent application of policy mechanisms extended to other industries. This is as if the

WTOs ‘most favoured nation’ principle were applied to ‘most favoured industry’, such that any privileges extended to one industry must automatically extend to all. In this view, the creative industries policy focus should not be about resource re-allocation, but rather with the plea for consistent industrial policy treatment (and especially with respect to international movement of labour and intellectual property).

Evidence of the normal model would come from the equivalence of creative industries economic indicators with those of the whole economy in the form of evidence of normal competition and enterprise. For the more industrially mature parts of the creative industries, such as film, TV and publishing, this is generally true, as the dominant firms in these sectors have experienced relative stability and consolidation over several decades. However, there is a range of new media which do not fit this pattern and this is the basis of the third model in which the creative industries facilitate economic growth.

Model 3: *The growth model*

Model 3 explicitly proposes a positive economic relation between growth in the creative industries and growth in the aggregate economy, such that $dY/dCI > 0$. In this model the creative industries are a growth ‘driver’ in the same way that agriculture was in the early 20th century, elaborately transformed manufacturing was in the 1950s–60s, and ICT was through the 1980s–90s. There are many possible explanations, but all are some variation upon either the notion that the creative industries introduce novel ideas into the economy that then percolate to other sectors (*e.g.* design-led innovation), or that the creative industries facilitate the adoption and retention of new ideas or technologies in other sectors (*e.g.* ICT).

The key difference from models 1&2 is that model 3 actively involves the creative industries in the growth of the economy. This can occur in two principle ways: supply-side and demand-side. The supply-side interpretation of this model emphasizes the export of new ideas from CI to Y. The demand side interpretation emphasizes how growth in Y causes a proportionate increase in demand for CI services. In practice, it is extremely difficult to separate these two forces without recourse to advanced micro-econometric

techniques, which are not attempted here due to data limitations. Model 3 may therefore be true, but with different policy implications depending upon whether causality runs predominantly from *CI* to *Y* – the supply-side growth driver model – or from *Y* to *CI* – the demand side induction model.

$$\text{Hypothesis 3: } \frac{dY}{dCI} > 0, \frac{dU}{dCI} \geq 0$$

Yet in both cases, policy should properly treat the creative industries as a ‘special sector’. This is not because it is economically significant in itself, but because it powers the growth of other sectors. This may plausibly lead to intervention, but unlike model 1, the ostensible purpose of this is to *invest* in economic growth, or to invest in the development of capacity to meet growth in demand. If model 3 is true, then there is a clear economic case for redirecting resources, not just for the benefit of the creative industries *per se*, but for the benefit of all. The creative industries, in this view, are clear winners to be backed.

Evidence for this model would come from association of the creative industries with growth. This would accrue not just in jobs and commodities (as in model 2), but in *new* types of jobs and *new* sorts of commodities and services. Model 3 proposes the creative industries as growth drivers not because of operational expenditure multipliers, but due to their role in the adoption, retention and absorption of new ideas and technologies.

The creative industries would be thus assumed to create new industries and market niches and to stabilize and develop extant industries. And specifically, without such continued investment, aggregate economic growth would suffer. This is the opposite of model 1, in which economic growth suffers when there is such continued investment. Model 3 thus argues that the creative industries are good for the economy because they introduce and process the new ideas that drive economic growth. And that, correspondingly is their policy significance, namely as an investment industry, just as coal and steel was in the late 1900s and ICT was in the late 20th century. The creative industries are a driver of growth, and the more the better.

Model 4: *The innovation model*

These three models might seem exhaustive of analytic possibilities: yet a fourth model is also possible. Rather than thinking of the creative industries as an economic subset ‘driving’ growth in the whole economy, as in model 3, the creative industries may not be well characterized as an industry *per se*, but rather as an element of the *innovation system* of the whole economy.¹⁸

Model 4 hypothesizes the relationship between the creative industries and the rest of the economy in a different way. Instead it is based on the contemporary innovation literature sourced in the Schumpeterian tradition and applied mostly in the business and strategy literature (Metcalfe 1998). This model effectively rejects the initial statics-to-dynamics master equation $CI = A.Y$ and $\Delta Y_t / \Delta CI_t$. Instead, it re-conceptualizes the creative industries as a higher-order system that operates *on* the economic system. Model 4 is similar to model 1, in that it ventures an element of special pleading. Specifically, this is the same model as proposed for the effect of science, education and technology in the *national systems of innovation* approach.¹⁹ The creative industries, in this view, originate and coordinate change in the knowledge base of the economy. In consequence they have crucial, not marginal, policy significance.

In model 4, the significance of the creative industries is not in terms of their relative contribution to economic value (models 1–3), but due to their contribution to the coordination of new ideas or technologies, and thus to the process of change. In this view, the creative industries are mis-specified as an industry *per se*, and better modeled as a complex evolving system that derives its economic value from the facilitation of economic evolution and the process of innovation. The creative industries might in this sense be better understood as a kind of industrial entrepreneurship operating on the consumer side of the economy (Potts *et al* 2007). In this case, we are dealing with an evolutionary model of the creative industries.

Change in the creative industries therefore produces structural and not just operational change in the economy. For example, some of the most dramatic changes in contemporary business models have been provoked by new uses of the internet in recent

years (Anderson 2006). The ‘culturization’ of the economy (Lash and Urry 1994) is now clear and is in evidence in design-led innovation, the manifold industrial applications of games technologies and the impact of vernacular creativity and user-led innovations in mobile media use (Cunningham 2006). New opportunities and possibilities will thus emerge of which the welfare effect cannot be known in advance. This is the typical situation of economic evolution as the origination, adoption and retention of generic novelty (Dopfer and Potts 2008). According to model 4, the creative industries do not drive economic growth directly, as might a boom in the primary resource sector or the housing market for example, but rather facilitate the conditions of change in the economic order. If model 4 is true, then, the creative industries are part of the *innovation system* driving and coordinating the growth of knowledge process that underpins economic evolution.²⁰

Hypothesis 4: $\frac{dY}{dCI}$ *undefined* , $\frac{dU}{dCI}$ *open*

Culture is indeed a public good, but for dynamic not static reasons. Unlike the value of museums or classical arts, which seek cultural value through the maintenance of past knowledge, creative industries value lies in the development and adoption of new knowledge. Evidence for model 4 therefore accrues from ongoing regeneration of existing industries and the emergence of new industries in consequence of creative industries activity. Furthermore, this must be a systemic facilitator of ongoing structural change and adaptation across the whole economy. Model 4 thus requires observation of ongoing structural change and re-consolidation across the entire economy, and with catalytic attribution of this to creative industries operations. This is plainly difficult to test, yet this dynamic distinction between growth processes (model 3) and evolutionary processes (model 4) is important, for it carries the most radical policy implication: namely the possibility of a shift of policy from an economic engagement with respect to welfare as opposed to an economic engagement with respect to innovation.

In sum, these four models represent four possible modes of dynamic interaction between the creative industries and the economy ($CI = A.Y$).

- In model 1, Y drives CI through transfers of resources.
- In model 2, the creative industries are just another industry.
- In model 3, CI drives Y through high rates of growth.
- In model 4, the creative industries evolve Y through transfers of knowledge.

Evidence

The substantial variation in performance measures within the creative industries cautions us that what is statistically true of the aggregate is not necessarily true of sub-sectors. There is substantial sub-sectorial variety in the creative industries both over time and in terms of their business models.²¹ Clearly, the models discussed here accurately describe creative industries activity across the spectrum so that different models are more appropriate at different times and places. We therefore emphasize that this is a first pass with a new methodology, not a final conclusion.

The data necessary to discriminate between these models is at this stage very uneven. Our preliminary sample of available data on differential growth in creative industries value added predominately favours the *prima facie* conclusion that models 3 and 4 fit better than models 1 or 2. The current evidence mostly points toward the creative industries growth model.

Comparative growth evidence

There is a raft of recent aggregate data on the economic impact of the creative industries from which we may infer relative growth rates. Recently, the data of creative industries has gotten a lot better. The survey to follow may seem sketchy, but it is now orders of magnitude better than a decade ago, and now regularly updated. A current survey of data is by definition out of date by the time published, and especially in this industry.

The basic finding for Australia, US, Britain, and the EU for 1999–2006 is that the creative industries, under various definitions, are growing at a faster rate than the aggregate economy. This is primary evidence of structural transformation as driven by the

creative industries, thus supporting model 3. Between 2000–5 the Australian creative industries grew at twice the rate of the aggregate economy.²² The European Commission found that the growth of the cultural and creative sector proceeded in Europe at 8%.²³ In New Zealand, it was found that creative industries value added has been recently growing at 8% per year.²⁴ In the UK, where the most comprehensive data exists, the creative industries have been recorded as growing at 5% as compared to real aggregate GDP growth of 3%. CI growth ratios are everywhere greater than 1.0.

Country	CI value added (% GDP)	CI value added growth	GDP growth	CI growth ratio	CI employment growth	National employment growth	CI employment growth ratio
Australia 2000–2005	6.0	10.4	4.0	2.6	3.8 1996–2001	1.9 1996–2001	2.0 1996–2001
New Zealand 1996–2001	3.1	8	3.7	2.2	5	3	1.6
Europe 1999–2003	2.6	5.4	2.9	1.9	na	na	-
UK 1997–2005	7.3	5.0	3.0	1.7	2.0	1.0	2

The World Intellectual Property Organization (WIPO) estimates for the *copyright based* (CB) industries show both value added and employment growth also at significantly higher rates than aggregate GDP.²⁵

country	CB value added (% of GDP)	Average CB value added growth	Average GDP growth	CB growth ratio	CB employment growth	National average employment growth	CB employment growth ratio
Canada 1997–2002	5.4	6.5	3.3	1.9	5.3	1.4	3.8
USA 1999–2002	11.9	2.4	1.0	2.4	2.0	1.4	1.4
Singapore 1995–2000	5.7	8.9	7.6	1.2	5.2	3.5	1.5

And although there are few comprehensive statistics dating back more than a decade, Singapore data using the DCMS classification for compounded annual growth rate of creative industries also indicates that this effect may not be a recent fluctuation, but part of a sustained trend in post-industrial economies.²⁶

Country	1986–90	1990–95	1995–00	CI/GDP ratio
Singapore CI	4.6	3.4	2.6	1.6
Singapore GDP	2.8	2.4	1.5	

We may infer from this sample that the creative industries are now, and have been for the past decade, growing at about twice the rate of the aggregate economy.²⁷ In the absence of evidence of increasing proportions of transfer payments to the creative industries, this seems to reject models 1 and 2, and favour model 3.

Firms

At the micro level, we may compare data on the growth in creative industries firms with aggregate growth in all firms. Also, we may compare the profitability of creative industries firms and aggregate profitability. According to economic theory, these statistics should be related, as higher than average profitability would encourage a shift of resources into creative industries, increasing the number of firms. In Australia, the creative industries proportion of all Australian firms grew from 5.9% to 6.6% between 2000–5. The total number of creative industries firms grew at cumulative annualized growth rate (CAGR) of 11.3% between 2000–5. For all Australian industries, growth rate over the same period was 8.3%.²⁸ The sector has a higher rate of enterprise creation than the economy as a whole, consistent with the observed growth rate of value added in the creative industries sector.

Profit data is not widely reported by creative industries. Furthermore, it can be ambiguous, appearing low in both a declining industry due to low margins, as well as in a growing industry due to reinvestment. European estimates of average profitability (return on capital investment) of the cultural and creative industries for 1999–2003 was 9%, which is similar to Australian estimates. This is good for the service sector, which in Europe ranges between 5–10%.²⁹ This is an unsurprising result, signaling the creative industries as comparably competitive, as model 2 hypothesizes. Similar profitability supports model 2, and enterprise growth supports models 3 and 4. Yet acknowledging the

considerable variation within the creative industries, firm data only consistently rejects model 1.

Income

Income in the creative industries provides a good opportunity to discriminate between the negative, neutral and positive models of creative industries. Recent Australian census data indicates average of income by six sectors for 2001.³⁰ The all-industries mean was \$36,276 and \$47,658 for creative industries, which is 31% higher, although with significant variation within this.³¹

Australian mean income by sector 2001	
software development and interactive content	\$64,288
film, TV, radio	\$48,808
advertising and marketing	\$48,278
writing, publishing and print media	\$38,392
architecture, design and visual arts	\$37,658
<i>economy-wide average</i>	<i>\$36,276</i>
music and performing arts	\$32,553

There are several explanations for the higher creative industries income. One, the creative industries have higher human capital than the aggregate economy.³² Second, it may be that mean and median statistics do not accurately reflect the distribution of income, which is instead heavily skewed to a winner-take-all situation. Indeed, there is substantial evidence for a *power law* rather than Gaussian income distribution, in which the creative industries are disproportionately represented among the super-rich (De Vany 2004, Potts 2006).³³ A third possibility is that incomes are higher in the creative industries due to transfer payments from other sectors.³⁴ This is dominated by heritage funding and public broadcasting, yet is broadly comparable with the EU and the US. Yet, to the extent these constitute investment in social technologies the *net* transfer may even be from the creative industries to the rest of the economy, which would be evidence against model 1 and for model 4.

Implications

Considered together, this initial marshalling of evidence with which to test the four models does not offer definitive conclusions, but does broadly tend to support models 3 and 4. There are surely many further ways we could seek to develop and analyze data that might test our four models of creative industries. However, there are good reasons we should expect this manner of growth in the creative industries:

- (1) rising affluence, which shifts aggregate expenditure toward the creative industries, as their income elasticity is greater than unity
- (2) the related rise in human capital, which permits greater specialization
- (3) the growth in ICT, which is the technology base of the creative industries
- (4) globalization, as access to global markets both in demand and factor mobility.

The relative growth of the creative industries is not an anomaly, but what open-system economic theory predicts as based on the effects of technological change (*i.e.* endogenous growth) and a changed consumption set consistent with increased income.³⁵ The evidence we have surveyed broadly supports the model that creative industries growth is driving economic evolution.

What does this imply for public policy? One perspective is to view the creative industries in the as the 21st century analogue of the creative destruction ‘wrecking ball’ that was 19th century engineering.³⁶ The 19th and 20th century transformations that wrought epoch making changes in the economy and culture occurred through physical, chemical, civil and electrical engineering, along with economic engineering. The same argument now applies to creative industries ‘engineering’ of open systems, rather than closed systems. If this metaphorical translation holds, policy implications follow directly from model 4 and with substantial and significant role for public support based on innovation policy. However, an equally consistent perspective may be read from model 3, in which creative industries are growth mechanisms for the ‘generic’ adjustment and adaptation of the knowledge-base of the economy. In this case, policy has a distinctly less substantive role: to minimize distortionary interference.

Models 3 and 4 thus harbour a substantially differential commitment to public intervention (model 4) or investment (model 3), which is why further work in empirically distinguishing these models, or in exploring whether they might be different aspects of a unified model, is worth pursuing. We find, for example, that growth is the primary way that success is spent in the creative industries (as opposed to higher rents or profits, which would be expected in a static situation). Indeed, as DEMOS (2007) find, the creative industries ‘grow by staying small’, such that growth occurs as spin-off entrepreneurial growth.³⁷

As we noted in introducing the available evidence for the models, the creative industries evidence substantial sub-sectorial diversity in business models and rates of growth in their temporal and spatial dimensions. We should not therefore countenance any attempt to impose a singular model on such diversity. However, it has been the purpose of this article to indicate that new policy positions are required to address emergent realities around the explosion of new mobile and internet media, design and user led innovation. These trends clearly pose major challenges for the more established policy models. Having said that, however, it is undeniable that in any given, real world, policy development process these models may differentially apply.

This outline of policy implications suggests the need for new theory. Models 2 & 3 properly invite consistent treatment of the creative industries, but models 1 & 4 invite substantial public intervention, although in different ways. Yet although our sample data favours models 3 & 4 over models 1 & 2, it does not clearly distinguish between models 3 & 4. The creative industries are therefore plausible drivers of economic growth.³⁸

The creative industries, in this view, have dynamic and not just static economic value – they contribute to the process of economic growth and development over and above their contribution to culture and society. This distinction is important, as cultural policy, which is traditionally based on model 1, may require some critical retooling to adapt to what appears to be a model 4 world.

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endnotes

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³ DCMS (1998), Cunningham (2001), Hesmondhalgh and Pratt (2005), Galloway and Dunlop (2007).

⁴ For further discussions, see DCMS (2001), Howkins (2001), Florida (2002), Garnham (2005), Hartley (2005), Cunningham (2006).

⁵ Creative industries is a wider definition than cultural industries that extends to include the ostensibly commercial fields of architecture, advertising, video games, software, and R&D. Florida's (2002) occupation rather than industry-based classification goes further still to include all problem-solving work, thus further including broadly the white-collar as well as the no-collar workforce. See for example DCMS (1998, 2001), Higgs *et al* (2007b).

⁶ See Howkins (2001), Garnham (2005), Cunningham (2006), Hesmondhalgh and Pratt (2006).

⁷ Strictly speaking, we are concerned not with absolute growth, but with distance-from-mean dynamics (see Metcalfe 1998).

⁸ Any consistent operational measure will suffice, whether as an *output* such as gross domestic or sectoral product (*i.e.* value-added), income or exports, or by measures of *inputs* such as employment, capital (including human capital) and firm creation (entrepreneurship).

⁹ Which we may reasonably treat as parametric for a given endowment of resources, technologies, preferences and relative prices. Obviously, similar equations could be written for all other sectors, subject to a unitary summation of scalars.

¹⁰ See Higgs and Cunningham (2007), Higgs *et al* (2007a), NZIER (2002) and European Commission (2006).

¹¹ The notion that economic significance *ipso facto* implies proportional policy significance is a widely held fallacy that has been reproduced through generations of so-called 'economic impact assessments'. Economists have long cautioned against this interpretation (e.g. Seaman 1987, 2003).

¹² Perhaps surprisingly, there are no empirical estimates for the income elasticity of the whole of the cultural or creative industries, although based on estimates for elements of the creative industries (e.g. demand for opera and theatre) they are broadly assumed to be greater than unitary, and have been estimated to be so for public expenditure on culture (see Heilbrun and Gray 2000: 104–6).

¹³ Note also that this would seem to suggest what economists call a 'production function' of the form $Y_t = f(CI_t)^\alpha$, with the models distinguished by whether α is less than, equal to, or greater than 1. However, we do not seek to estimate a production function (and hence α) because of both insufficient consistent time series data for the CI and the difficulties of interpreting a cross-country regression. Production functions for the cultural industries have been developed and estimated, e.g. Gapinski (1980, 1984), Throsby (2006), but what we refer to here is the notion of an entire industry as an input into a growth equation, which is less conventional.

¹⁴ See Galloway and Dunlop (2007).

¹⁵ See Higgs *et al* (2007a) on incomes in the creative (not cultural) industries. See Cowan (1996) for discussion of why productivity measures are misleading in the cultural/creative industries.

¹⁶ In which technological change is broadly defined to include not just origination of new ideas but also their adoption and retention. See also Chai, Earl and Potts (2007).

¹⁷ See Scott (2002, 2006).

¹⁸ A further variation on this theme of abandoning the concept of industry is to define the creative industries as the space of economic activity in which markets and organizations are predominantly shaped by social networks (see Potts *et al* 2007).

¹⁹ For example, Lundvall (1992), Nelson (1993, 2002), Freeman (1995), Edquist (1997).

²⁰ See Loasby (1999) and Freeman (2002).

²¹ NESTA (2006) has recently identified four sub-sectors of the creative industries with different business models: services (architecture, design, web-development); experiences (museums, galleries, heritage, live music and performing arts); originals (visual art, crafts, antiques); content (publishing, broadcasting games, film, recorded music).

²² There were 437,000 people employed in the Creative Industries segments in 2001 representing 5.4% of the Australian workforce. Almost \$21 billion was generated during 2001 from the salaries and wages of people employed in the creative segments representing 7% of the total generated from all Australian employment (CIRAC 2006). Between 1996–2001 the number of people in the core Australian CI workforce has grown from approximately 150,000 to 180,000 a CAGR of 3.8% (Higgs *et al* 2007a).

²³ From *The economy of culture in Europe* (2006). The 5.4% average growth rate is for the EU 25. It was 8.1% for the total 30 European countries.

²⁴ Prepared for *Industry New Zealand*. Estimates of the value added share of the copyright industries for 1981 and 1986 were both at 3.0%, indicating that through the 1980s the copyright industries were not growing faster than the economic aggregate average, but at the same rate. This is preliminary evidence that the creative industries in effect 'took-off' during the 1990s. Over this same period, employment in the CI grew by 5% per year. This resulted in the CI share of GDP growing from 2.6%

in 1996 to 3.2% in 2001 and employment from 3% to 3.6%.

²⁵ Further supporting evidence of the relative growth in US employment in the creative industries can be found in Florida (2002, 2005) and Levy and Murnane (2004). Note also that copyright based industries are not identical to creative industries in that they also include distribution.

²⁶ 'Economic contribution of Singapore's creative industries' Ministry of Trade and Industry, Government of Singapore from the report *Economic survey of Singapore first quarter 2003*.

²⁷ The creative industries are estimated to be proportionally smaller as a fraction of economic value added in developing nations such as China, India, Russia and Brazil, yet their service sector growth rates provide suggestive evidence that the relative growth ratios of the creative industries may be similar to post-industrial societies. Much work remains to be done here.

²⁸ wiki.cci.edu.au/display/NMP/Businesses+in+the+Creative+Industries

²⁹ The profit margin across all Australian CI firms was recently estimated at 10.1%. There was considerable variation between industries, from 4.8% in the performing arts to 24% in TV broadcasting. ABS data, reported in table 3.2 in CIRAC (2003). Yet the Australian creative industries average falls about mid-way in the range of all Australian industries.

³⁰ Conducted by CIRAC using Australian Tax Office data. This is a mean trident figure including specialist creative, support staff and embedded creative.

³¹ Australian 2001 census data yields a similar conclusion, with the median weekly income in the creative industries reported at \$765, which is 15% higher than the all industries median of \$663. Brisbane Creative Industries Report (2003).

³² European data reports that the cultural sector has higher human capital (46% with university degrees) than in the aggregate economy (25% for all Europe). Similar results are reported for UK and Australian creative industries. Sectoral aggregate qualifications and incomes exhibit positive correlation (e.g. software development reports higher human capital measured by formal qualification than musicians).

³³ For example, although composing about 6% of the Australian economy, creative industries comprise 11% of Australia's top 500 fortunes and 38% of those aged 40 and under. This pattern repeats in the UK, USA and NZ.

³⁴ Public funding of 'culture' averages 0.5–1.0% of GDP for the EU, although with much variation, as for example France and Austria spend close to 4%. US public funding is very low (less than 0.1%), but as Cowan (2006) explains, the figure for the total transfer is comparable to Europe once trusts, not-for-profit organizations and corporate transfers are accounted for. In Australia, government funding of cultural industries was \$4 billion in 2001, which is about ½ of one percent of GDP. Table 3.4 in BCI (2003) report.

³⁵ See Potts and Mandeville (2007); Cowan (1998, 2002); Florida (2002, 2005); Howkins (2001).

³⁶ John Hartley, *pers. com.* (2006).

³⁷ 85% of CI firms employ less than five people, a percentage that has grown as the industry has grown, implying entrepreneurship rather than scale as the dominant method of growth.

³⁸ Nelson and Sampat (2001), Caves (2000), Dopfer and Potts (2008).