



## **Economic evolution, identity dynamics and cultural science**

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### **Abstract**

This paper introduces the concept of *identity dynamics* to evolutionary economic analysis. The extant literature on the economics of identity is reviewed and integrated into the micro- meso-macro model of evolutionary economic analysis. This model of identity dynamics serves to both generalise extant concern with the economics of identity as well as to integrate and develop broader psychological, social science and humanities models of identity in the context of open-system evolution as a contribution to cultural science.

### **Introduction**

Economic evolution is the process by which extant structures of knowledge – including markets, firms, technologies, institutions and industries – endogenously change through the selective process of variation and differential replication as an ongoing, self-organizing process of ‘creative-destruction’ (Schumpeter 1942). Economic evolution is thus defined as a dynamic process at the level of populations of economic ideas or knowledge (Nelson and Winter 1982; Metcalfe 1998; Mokyr 2002). Yet unlike biological evolution, this does not depend upon differential replication of the organism, but rather on differential origination, adoption and retention of the knowledge or ‘generic rules’ that economic agents carry (Dopfer and Potts 2008). In the course of economic evolution, agents thus experience *generic change* in the knowledge they carry, and not just in the information they react to or learn (Brenner 1999; Dosi *et al* 2005). They experience not just informational learning dynamics, but actually *become* different carriers of knowledge, while remaining the same agent. At the macro level of analysis, economic evolution is a growth process that involves structural change. Yet at the micro level of the agent, economic evolution necessarily involves *identity dynamics*.

Economic evolution, by definition, implies that agents become different as they adopt new ideas and knowledge. Yet despite the enormous significance of the concept of identity in the humanities, neuroscience, and cultural and social sciences (Breger 1974, Greenfield 2008), the process of identity dynamics in agents has not been a central analytic concern of evolutionary economists. Instead, it is often presumed that new knowledge is effortlessly ‘updated’ in the internal scheme of each agent and therefore that the co-evolutionary dynamics between socio-cultural domains and the individual agent’s social network position (i.e. status, sense of self, etc) remain in continuous equilibria. Curiously, they often make exactly the opposite assumption with respect to firms, institutions, regions and macroeconomies in respect of structured knowledge dynamics.

This paper argues that the same principles apply at the level of the micro agent in respect of identity dynamics. Economic evolution is argued to be constrained by identity ‘catch-up’ (in the language of macro-growth theory) and also driven by the emergence of new identity differentials in the form of consumer or cultural imagination and entrepreneurship (Witt 2001). Such instances may be usefully thought of as ‘structural change’ at the level of the micro agent in terms of their internal and external connections (Potts 2000). These structural changes – as identity dynamics – are associated with changes in a person’s ‘sense of self’ due to the effects of the adoption of new ideas or shifts in their position in a social network or institutional milieu. This leads to endogenous changes in agent preferences, consumption, risk propensity, expectations, and other factors affecting the relative position and connectivity of the agent in an organizational, economic or socio-cultural system. Identity dynamics are thus a general process that occurs, differentially and irregularly, to all economic agents in an evolving economic order.

Identity dynamics are complex because agents simultaneously seek to maintain internal coherence amidst such change, while ever seeking to maintain differentiation (i.e. individual and economic identity), as well as social connections (i.e. social and cultural identity). The optimization problem of the evolutionary economic agent is thus not over utility, but rather over identity. Put differently, the limits of economic (and socio-cultural) evolution are the limits of identity dynamics: if agents cannot change *generically* – i.e. with respect to the adoption and retention of new ideas, and not just new information – while still maintaining coherence and differentiation, then the economic system cannot evolve.

In turn, it is the capability to undergo such changes that will, in part, determine the rate of evolutionary dynamics. Unlike biological evolution, where the rate of reproduction determines the speed of evolutionary processes, in socio-cultural and economic evolution it is not simply the rate of learning or of the supply of new ideas, but rather the rate at which identity is able to be reconstructed and re-constructed that determines the potential of evolutionary growth.

This paper endeavours to define and unpack the evolutionary economic of identity dynamics by illustrating how the generic *micro meso macro* framework (Dopfer 2004, Dopfer and Potts 2008) can underpin a general evolutionary approach to the study of identity dynamics. This will involve analysis of the dynamics of the knowledge-base of an agent viewed in terms of construction and maintenance of internal and external consistency in an open system. This will require more than simply adding identity as an additional argument to the utility function (Akerlof and Kranton 2000), but systematically reconstructing the microeconomic agent in terms of not just *equilibrium identity statics* but rather *evolutionary identity dynamics*.

The ‘evolutionary investment’ approach to identity offers additional insights to the ‘augmented utility function’ approach of Akerlof and Kranton. By focussing on the generic evolutionary dynamics of identity, rather than equilibrium statics, an analytic space is opened into such phenomena as creativity, learning, social networks, preference endogeneity, etc, as well as providing a basis for integrating identity and creativity analysis in contiguous disciplines (sociology, cultural studies, humanities, etc) that are already based on identity dynamics, yet remain often inadmissible because of their poor fit with equilibrium static arguments.

The evolutionary economic approach to identity seeks to go beyond models of genetic determinism of identity (as in biology and psychology) and also beyond models of socio-cultural or

environmental determinism of identity (as in cultural studies and sociology). Instead, while allowing that both innate endowments and environmental circumstances powerfully shape identity, identity is also subject to ‘entrepreneurial’ experimentation and investment. Furthermore, agents differ in their capabilities for such due to the effect of cumulative past investments. Thus by treating identity as a kind of ‘investment’ in personal ‘technology’ we bring it within the ambit of economic analysis. And by recognising that this investment has systematic effects on the rate and direction of change in the economic system we bring it within evolutionary economic analysis.

### **Identity in equilibrium and evolution**

Identity has not traditionally been part of the standard arguments of microeconomic agency – whether equilibrium or evolutionary – but instead, along with creativity, is mostly associated with psychology, cultural studies, sociology and the humanities. Nevertheless, the concept of identity has recently entered microeconomic theory via the works of Akerlof and Kranton (2000, 2002, 2005), Davis (1995, 2003, 2006), Kirman and Teschl (2004), Fang and Loury (2004), Livet (2006), and Sen (1999, 2004, 2007). The various arguments broadly converge about the notion of identity as a useful concept in modelling rationality in complex socially-framed or categorized situations, in modelling utility losses due to expectational losses, and in framing preferences and modelling preference endogeneity.

### **The Akerlof and Kranton equilibrium model of identity**

George Akerlof and Rachel Kranton (2000, 2002, 2005) have recently sought to integrate modern psychology and sociology on the behavioural and motivational aspects of identity into neoclassical economics by augmenting the standard utility function with a *loss function* between the outcomes of actual behaviour and self-framed (not socially constructed) identity. They argue this makes for a more realistic and scientifically consistent basis to microeconomic analysis. They have elaborated a raft of practical domains of the economics of identity that range over employment, education, organizations and macroeconomics. Furthermore, they maintain that this is, in effect, a forced scientific move due to the manifest empirical importance of identity considerations in observed human economic behaviour (Akerlof 2007).

The Akerlof and Kranton model argues that identity affects choice and behaviour. It can be accommodated in neoclassical economics by an additional argument to the utility function in terms of a loss function calibrated on the difference between the utility of actual and expected identity. Identity is thus a form of ‘personal capital’ due to the endowment of individual actions and social context. This enables an economic perspective on the concept of identity by viewing it as a prime asset of the individual that is accumulated through ongoing ‘investments in identity’ in order to create an asset that they then capitalize on in routine social contexts. This is then analysed in a game-theoretic formulation, as Akerlof and Kranton suggest, in which identity is defined as a form of human capital with social spill-overs.

Yet the Akerlof and Kranton model is contentious. Within the neoclassical camp, there remains concern that this is an illegitimate extension of the utility function. On the other hand, many behavioural and institutional economists argue that this is what they have been saying all along, although in a different analytic language. In particular, Davis (2005, 2007) has argued that the Akerlof and Kranton model fails to distinguish between *personal identity* and *social identity* along with their respective dynamics. This is argued to be a significant oversight in an evolutionary

context in which agents not just choose but continuously update their identity as a function of their social networks (Kirman 2005). Davis also points to Sen's (2004, 2007) analysis of *multiple identities* in the constituency of each individual agent, a point already recognised by behavioural economists (e.g. Earl 1986, Earl and Potts 2004).

In Akerlof and Kranton's (2000: 718-20) utility maximization model, the concept of identity  $I$  of agent  $j$  is introduced as an argument in the utility function  $U$  that is defined in relation to the actions  $a$  of the agent themselves ( $a_j$ ) as well as the actions of other agents ( $a_{-j}$ ):

$$U_j = U_j(a_j, a_{-j}, I_j).$$

The identity function of agent  $j$  is then defined as:

$$I_j = I_j(a_j, a_{-j}; C_j, e_j, P).$$

Identity depends on  $j$ 's actions and the actions of others, upon  $j$ 's assignable social categories  $C_j$  (with each social category  $C$  having an associated set of social prescriptions  $P$  of behaviour appropriate to that category), and upon the extent to which  $j$ 's own given characteristics  $e_j$  match the social ideals of  $j$ 's categories  $C$  as indicated by  $P$ . Davis (2007) argues that identity or 'self-image' function  $I_j$  is better labeled a 'social image' function, as it is not constructed internally or reflexively, but via the agent's characteristics  $e_j$  in terms of their distance from the set of given social prescriptions  $P$ . The neoclassical model thus views identity in terms of the individual adapting to a given set of socio-behavioural categories and prescriptions, with a general identity equilibrium arriving only when all agent's actual behaviour  $e_j$  maps uniquely to the social ideals of  $j$ 's categories  $C(P)$ , which are presumed given, invariant, and unambiguous.

The neoclassical model of identity is thus analysis of *equilibrium identity*. It is therefore inappropriate for analysis of contexts in which the categories  $C$  and proscribed behaviours  $P$  are themselves shifting due to the actions of a subset of agents (i.e. the socio-cultural analogs of entrepreneurs) whose socially observable characteristics  $e_j^*$  shift the definitions of  $C$  and  $P$ . At first sight, this may seem an abstract and exotic possibility, but such an evolutionary model of self-organizing identity offers a more scientifically viable model of identity that connects economics and socio-cultural science by linking them dynamically rather than statically. Identity equilibria, in other words, are not like price equilibria because they do, logically, have significant, indeed definitional, autocorrelation. Yet, at the same time, identity is also by definition a *dynamic disequilibrium* in which identity is developed and maintained in an entropic open-system context.

### **The evolutionary critique**

The evolutionary critique of the economic identity of the socially construed individual focuses on how economic change affects the identity of the agent. As above, in an evolving economic order, individual positions and thus identities change. Economic growth and evolution is a consequence of change in individual actions and behaviours, which implies a change in identity. This can occur in many ways, as when once entrepreneurs become large business holders, or when once general employees become highly-paid specialists. Or it may occur over generations, as when a working-class father provides resources to train a professional-class daughter. Most commonly it occurs as people change jobs or careers, or experience changed income, or learn new skills or knowledge that

lead to different lifestyles and opportunities. Indeed, this process plays out both individually and demographically as agents move through the various stations of life. These are normal events in an evolving economy. Yet they are also an evolutionary generic process at the level of the individual agent that remains to be integrated into the micro-model of evolutionary economic dynamics.

From the economic perspective, identity is individually constructed through the sequence of choices made about the adoption of ideas. These choices happen in an open evolutionary space. They are affected by social structures, but also by individual behaviours. A general theory of identity should thus seek to account for both aspects of individuation and socialization, not just in terms of how identity arrives at equilibrium, but also the mechanisms and consequences of change in identity.

The evolutionary critique of the neoclassical model of agent identity is analytically equivalent to the critique of the neoclassical model of technological change, namely that it renders the prime variable, namely the dynamics of identity (*cf.* technology), effectively exogenous to the model. An evolutionary model of identity thus dispenses altogether with the augmented utility function ( $U_j$ ) and comparative static identity function ( $I_j$ ) approach – a point also argued by Sen (2005) and Kirman and Teschl (2004) – and instead proceeds in terms of a behavioural-evolutionary model based on agents and their origination, adoption and retention of *generic rules*. An evolutionary model of identity thus integrates the micro concept of identity with respect to the analytic framework of generic rule evolution.

The concept of identity can thus be integrated into evolutionary economics differently to how it is integrated into neoclassical economics (i.e. an augmented utility function) by effectively collapsing the entire generic (i.e. growth of knowledge) logic of economic evolution with respect to the macro or *economic order* onto the level of the individual agent as a kind of ‘personal order’. Where-as the Akerlof and Kranton model only sought to explain how psychological and socio-cultural identity considerations *also* have economic effect, the evolutionary generic approach to identity offers a model of how such psychological and socio-cultural processes can actually *drive* economic evolution. Identity dynamics are not therefore just a consequence of economic evolution, but also its cause.

### **The generic evolutionary model of identity**

The generic model of economic evolution is based on the distinction between *generic* and *operational* analysis (Dopfer and Potts 2008). Generic analysis is analysis of the economic order as composed of rules, as elements of knowledge. An economic system is thus ‘made of’ generic rules carried by agents, thus forming the populations of knowledge that compose an economic order. These rules are the basis of *operations* such as production and consumption that occur with respect to resources and other environmental circumstances. It is change in ‘generic’ knowledge not change in operations or resources that constitutes economic evolution.

The same point applies to agent identity. An agent is composed of generic knowledge as well as operational actions and resource endowments. Yet the concept of identity does not relate to the agent’s operational actions and endowments, but rather to their underlying knowledge-base and generic connections. Change in identity (*cf.* evolution) occurs when the generic rules that an agent carries change. Changes in operational actions or endowments thus do not constitute identity dynamics. Identity, in turn, is the summation of the generic rules that are carried as a coherent and

functional system that is both internally coherent – such that the internal rules carried by the agent form an ‘identity’ – and also externally coherent, such that the operations and actions of the agents with respect to other agents is consistent and representative of knowledge carried. Identity, from the perspective of evolutionary economics, is thus generically defined.

Identity is thus generically constituted by the rules an agent carries and the sense and extent to which they work as a coherent system. Of course, such a ‘system’ will rarely be in equilibrium, and agents may often be internally inconsistent and externally unrepresentative. The utility maximization model of identity presumes the continual operation of psychodynamic or homoeostatic mechanisms (e.g. ‘anxiety’) to maintain personally constructed identities in the vicinity of social templates. However, the evolutionary model of self-organizing trajectories is of rule populations and of agents ‘investing’ in different rules. Identities thus form (i.e. is not pre-formed) as the ongoing construction of agent niches in economic and socio-cultural space. This conception is somewhat different to the standard psychological and sociological conceptions of identity, which are based on a ‘sense of self’ or a self-image that is connected to social categories. As Akerlof and Kranton (2000: 720) explain: ‘Identity is bound to social categories; and individuals identify with people in the same categories and differentiate themselves from those in others’. However, rather than *social categories*, the evolutionary identity model is constructed in terms of *generic rules* that agents identify with when they are effectively internalised.

In this model, agents then ‘identify’ with other agents who have also internalised and externally signalled similar rules. Some generic rules are institutionalised as social categories, but others are only weakly defined. Identity defined with respect to generic rules rather than social categories still carries the implication of identifying with other such carriers and differentiation from non-carriers, but has the advantage of much greater generality and analytic flexibility. This is of particular relevance when addressing issues of novelty that have not had sufficient time for social categories and other such socio-cultural institutions to form and stabilize. Instead, the emergence of such social categories can be explained as a process of an ‘*identity trajectory*’ with respect to a generic rule.

Identity dynamics are to the individual agent what technology dynamics are to a macroeconomy, namely a change in underlying generic structure through a micro process of ‘creative destruction’. It follows that the model of evolutionary growth through technological (or meso) trajectories of new ideas in a macroeconomy can similarly be applied to the process of identity dynamics in an individual agent: just as a new technology enters into a macroeconomy as a *meso trajectory* (Dopfer and Potts 2008), a new idea may enter into an individual agent as a *micro trajectory* that changes the agent’s identity.

### **Micro trajectory of identity**

A micro trajectory is the process by which an agent originates, adopts and retains a novel generic idea. It is also an identity dynamic as an agent goes from one generic state to another, becoming generically different. This concept should be immediately distinguished from learning dynamics in relation to new information, which are operational dynamics. Generic dynamics instead relate to the affect of a micro trajectory that changes the knowledge base, and thus the identity, of the agent. New information changes what the agent *knows*; but new knowledge adopted and retained changes what the agent *is*.

A micro trajectory has three phases: *origination*, in which the new idea is created or accessed; *adoption*, in which the novel idea is integrated into the system of ideas that composes the extant agent's identity; and *retention* and normalization of the new idea, such that it becomes embedded into the ongoing and normal operations of the agent. It is only at this point that we may speak of identity dynamics, in the sense of a changed agent with respect to internal and external identity.

Modelling identity dynamics in terms of micro-trajectories has several implications. First, it provides a way of conceptualizing the *multiple-selves* problem that is foundational in cognitive and behavioural research on identity, but which is absent from the utility function approach. This disjunction has been recently highlighted in the work of Sen (2005), who argues that economic agents have multiple roles they occupy in society (e.g. father, employer, Hindu, cricket-fan, etc) and thus are constituted by multiple identities that need not be continuous or even commensurable. The concept of multiple selves is easily accommodated in a rule-based framework, as each 'self' corresponds to a subset of rules (i.e. rules about fatherhood, rules about appropriate employer behaviour, rules about appropriate Hindu behaviour, etc) that have been adopted along a micro trajectory. Further, there will be then meta-rules specifying which rule set is applicable in any given context. Indeed, multiple identities are precisely what a generic micro trajectory model would predict.

Second, the rule-based multiple-selves model enables a consistent treatment of *preference endogeneity* in which agent's preferences are regarded as variable through time rather than given and fixed (Bowles 1998). Earl and Potts (2004) modelled this in terms of a 'market for preferences' in which boundedly rational agents adopt the decision rules of other more experienced agents when making choices over novel or complex goods that are infrequently purchased. Identity dynamics can thus be represented as a form of 'market-like' behaviour of observation and adoption of the knowledge base of the choices made by other agents on a *social network* (Potts *et al* 2008). As such, the generic identity model replaces social categories with *salient social references* and, furthermore, allows that the provision of such social references is a potentially important source of added value in an evolving economy. That is, identity references need not be assumed socio-culturally or politically given or imposed, but may be a further market dimension, or even industry.

Third, and continuing with this observation, the micro trajectories model provides a way of representing the environmental structure of identity in terms of emergent *social networks*. In the neoclassical approach, the environment is given and fixed in the set of identity categories  $C$  and their corresponding socially prescribed behaviours  $P$ . This is a viable abstraction in equilibrium, but it is inappropriate in a changing socio-cultural or economic order where both categories and appropriate behaviours may be ambiguous, locally contextual or themselves shifting. Indeed, 'identity entrepreneurs' may seek to extract value from novel identity constructions that may be adopted by other agents in the same way that economic entrepreneurs introduce new social or physical technologies (Beinhocker 2006). In this evolutionary generic approach to identity, the social milieu is not given, but continuously emerges from the interactions of agents, each configuring and projecting identity constructs based on a set of connections and refractions from other agents. This social environment is the emergent product of individual identity, as micro 3, in which rules are differentially originated, adopted and retained over social networks (Potts 2000, Davis 2005, Kirman 2005, Potts *et al* 2008).

Fourth, as identity evolves over a three-phase micro trajectory through origination and adoption (micro 1 and 2), and which is then retained as new identity in micro 3, the *strength of identity* can be defined in terms of: (1) the degree of embedding or internalization; and (2) by parameters relating to the population of other such agents who have adopted the same or similar rules. This second population dimension is entirely missing from the utility maximization homeostatic model because it is defined only on the existence of a *social category*, not on its *population*. However, the evolutionary model naturally represents the adoption of a rule as a contribution to the agent, but also to the size of the rule population. We might then reasonably expect positive feedback between the individual adoption and an evolving population, leading to something approaching the concept of identity emergence or lock-in beyond a critical threshold of adoption. The Arthur (1989) model of technological dynamics may thus also apply to identity dynamics along with its complex dynamic implications. Indeed, such a model of identity as emergent social technology driven by competing adoption under increasing returns actually fits rather well with extant sociological and cultural models. By introducing population dynamics and increasing returns to adoption, this approach to identity may provide an evolutionary economic logic to a general theory of identity structure and dynamics.

Evolutionary economics is therefore rightly concerned with identity in terms of the role it plays in the process of economic evolution. Like price and quantity changes, identity dynamics in microeconomic agents are a mechanism of economic evolution. Yet although identity dynamics happen on a different time and operational scale than price and quantity effects, they are no less significant in the explanation of ongoing coordination dynamics. An evolutionary dynamic interpretation of identity does not just reinterpret the standard economic analysis of identity, as argued by Davis (1995, 2005), Sen (1999) and Kirman and Teschl (2004), but can further open a new line to economic analysis of socio-cultural dynamics by unpacking the various generic dimensions involved. Consider the consequent implications for evolutionary meso-economics and macro-economics.

### **Analytic dimensions of identity dynamics**

#### **Meso identity**

Economic evolution is the process of a meso trajectory, and a meso trajectory unfolds as agents adopt and adapt a rule in a growing population. A meso trajectory is stabilised when a population of agents adopt and retain a rule, such that it becomes an element in the knowledge-base of the economic system in the form of an institution. Yet the micro-structure of an institution is that of identity conformity across a significant sub-population. The question, then, is how does this occur, and what role do identity dynamics play in this process?

A particular application of evolutionary *micro-meso identity* occurs in *social network markets* (Potts *et al* 2008), which are situations in which an agent's choice is guided not only by preferences, relative prices and budget constraints, but also by the observed choices of other agents. This situation commonly arises in choice situations over novel goods or goods in which the agent lacks information or experience, and thus takes the choices of other agents as a signal of the quality or expected utility to be derived. Examples include choice over restaurants (Kirman 1993) and movies (De Vany 2004). Social network markets are thus an important institutional form in an evolving

economy. Yet social network markets require an additional mechanism not requisite in a standard individual choice, namely: *identity matching*, which occurs when an agent maps the observed characteristics of the agents who have already made a choice onto their own identity. Generally, it is only when observed choices are from a matching ‘identity’ that the observed choices are positively weighted. This process of identity matching, and particularly so with respect to aspirational peer references, is of course foundational to all advertising and marketing techniques and fashion dynamics (Chai *et al* 2006).

The creative industries thus ‘produce’ social network markets (Potts *et al* 2008). They are thus centrally involved in the production of the identity categories *C* and in the representation of the sorts of proscribed behaviours *P* appropriate to those categories. This is the evolutionary mechanism by which creative industries contribute to the operations of a market economy. In a static economy with no new markets, products, technologies or business models, the definition and common knowledge of *C* and *P* may not actually be part of the economy but instead acquired through religion, family or public education. This would occur if *C* and *P* were highly stable and changed only slowly. However, in an evolving economic order continually buffeted by new technologies, commodities and work and lifestyle opportunities, identities may be far more fluid and ambiguous. In this case, there will be substantial scope for the continuous construction and reconstruction of identities that individuals may then recalibrate to. In this sense, while the static economic function of the ‘creative industries’ is the production and delivery of entertainment and culture, the evolutionary function turns on the ongoing reconstruction of identity and its spillover into identity matching, refinement of new lifestyle specializations and niches, and in the origination, adoption and retention of novelty.

As economies grow in wealth, they are characterized not just by higher levels of production and consumption, but also by a greater variety of goods and services (Beinhocker 2006). However, a widely overlooked hypothesis is that this greater variety may also extend to identities. Economic evolution involves the multiplication of identities in the same sense that it involves the multiplication of specializations and knowledge. Furthermore, if the social network markets model of identity matching is correct, we would also then expect that a greater variety of identities would then feed back to drive a greater variety of goods and services as niche identities and niche markets are stabilized and institutionalized. At the meso level, economic evolution thus drives identity evolution, which in turn drives market evolution.

Akerlof and Kranton (2005) argued that identity considerations are important explanations of the efficiency of organizations with respect to the motivations of workers and institutional solutions to the principal-agent problem. They argued that agents identify with a job, and that their motivations to work and effort are dominated by considerations of identity, not remuneration. However, a different approach to identity in organizations and consumers can be constructed by considering the relation between identity and creativity among both firms and consumers. A variation of their model is that both creative work and creative consumption constitutes an important identity that may be distinguished from non-creative work or consumption identities (Quiggin and Potts 2008). This is a theme developed by Florida (2002), who argues that creative workers are different from other sorts of workers in that they are motivated to live in certain places if those places provide the sorts of environmental conditions and amenities consistent with their creative-class identities (Currid 2007). Organizations, regions and places themselves have an ‘identity’ that is perceptible to

individuals who, in turn, may adopt this as part of their own. Firms, organizations, cities, regions and nations spend considerable resources in creating and managing such identities to make themselves attractive to peripatetic individuals who seek to connect their personal identities with such meta-identities.

Agents often value a creative identity. In aggregate, this is observable in income elasticities of demand. As income increases, individuals spend an increasing proportion of that income on creative goods and services. Identity dynamics can help explain this consumer behaviour in terms of not just increased utility accruing from consumption of previously income unavailable goods, but also by the identity signalling effect such (public) consumption accrues. This is, in effect, the social network market working from the inside, as displays of creative consumption function as signalling mechanisms to socially networked or otherwise connected agents, not just of the particular value of the particular good or services in question (the restaurant, car, clothes, or furnishings, etc), but also of the identity of the agent who leads such endeavours (Earl and Potts 2004).

In evolutionary economics a meso trajectory is a population dynamic of 'creative destruction' as the new idea replicates and displaces extant ideas and structures. However, this process also involves micro-level identity dynamics associated with the changes induced in individual agents. What we may add is that the facilitation and coordination of such identity dynamics is both part of the meso process and one that gives rise to distinct and specialised organizations and industries to provide this service. This evolutionary 'meso' function both explains the significance of the 'creative industries' in an evolving economy, the nature of these industries in terms of social network markets, and the construction of aggregate identities associated with regions, industries or even nations (Potts, forthcoming).

### **Macro identity**

The macroeconomics of identity dynamics does not concern the identity profile of a macroeconomy, but the role of identity dynamics in the context of macro growth and development. In relation to the macroeconomics of identity, Akerlof (2006) argues that identity considerations explain why Keynesian macroeconomic analysis may be more relevant in explaining the effects of changes in policy variables than New Classical macroeconomics in which strong rationality assumptions imply that policy changes should have no effect. They argue that these neutrality results ignore the role of identity in determining how people feel they should respond, which, they argue, returns the standard Keynesian conclusions of the role of government in stabilizing macroeconomic fluctuations and expectations. Yet a different approach to macroeconomics and identity may follow when viewing the macroeconomy not as the sum of individual transactions or expenditures (as in the Keynesian and New Classical approach), but instead as the emergent product of individual actions subject to ongoing change in the content of that activity due to entrepreneurship and innovation.

A Schumpeterian approach to identity and macroeconomics thus seeks to emphasise the role of agents investing in the construction of new identities derived from new technologies, businesses or lifestyle opportunities. Indeed, rather than the Akerlof and Kranton model of policy, in which government seeks to manipulate identity to stabilize the economy, *entrepreneurial identity dynamics* may be more effective in driving the growth process of creative destruction. An

evolutionary identity perspective on macroeconomics, in the Schumpeterian context, thus suggests an explicit preference for Hayekian, not Keynesian, macro policy principles.

The process of creative destruction that underpins Schumpeterian economic evolution and growth by definition involves identity dynamics in at least two ways. First, as entrepreneurship and innovation leads to the destruction of some markets and therefore jobs, some identities will need to be shed and replaced with new ones. For example, identities associated with horse buggy manufacture, or working with horses generally, were decimated by the arrival of the auto industry. A failure to change a once-proud identity in many cases doomed agents (and families) to a slow but inevitable economic decline.

Identity dynamics may thus be an important explanation for relative growth rates, but in terms of resistance to change and in the acceleration of the effect of new technologies and knowledge on economic growth. For rather than government being involved in stabilization of economic activity, as in the Keynesian model, or of expectations, as in the New Classical model, it may be more efficacious from a growth perspective for government to be involved in the management of identity dynamics toward facilitating shifts in identity away from declining sectors, technologies and business models, and toward emerging sectors, technologies and business models. The limits of individual adaptation to change are the limits to macro change: the growth of knowledge is ultimately a statement about the limits of micro identity possibilities. Economic evolution is limited by identity dynamics. Yet identity dynamics in turn carve the possibility space of economic evolution.

## **Conclusion**

The concept of identity refers to an individual's sense of self and is a major focus of inquiry over many analytic domains that include philosophy, neuroscience, cognitive, behavioural and social psychology, anthropology, sociology, political and cultural studies, and history. However until very recently identity has not been a concern of economics. Akerlof and Kranton (2000) sought to fold identity considerations into neoclassical economic analysis by integrating the concept of identity into the utility function as a way of explaining systematic biases in the framing of choice. Identity thus matters in economics because of its effect in biasing and framing choice.

Following Kirman and Teschl (2004) and Herrmann-Pillath (2008), this paper has sought instead to develop an evolutionary economic interpretation of identity that is not based on choice biases, but rather in terms of *adaptive dynamics*. Rather than conceptualising identity in terms of departures from rationality, identity instead enters economic analysis in terms of the drive to continually recreate and re-invest in individual coherence in consequence of both changes in station, as the agent acquires new skills, experiences and so forth, and also in consequence of the effects of changes in the economic and socio-cultural systems. The evolutionary economics of identity are thus focused on *identity dynamics* and the problem of maintaining and developing identity in an open and changing economic order. This is viewed as an analogous problem to that of a firm seeking to maintain competitive advantage in a world of changing technologies, preferences and markets. Identity dynamics are thus viewed as a special case of evolutionary adaptation.

This approach makes identity endogenous to economic analysis (*cf.* the exogenous identity concept of Akerlof and Kranton *et al*). The identity of an agent – as an adopted and retained structure of

rules – and identity dynamics – as the process of change in these rules – are therefore to the micro agent what Schumpeterian dynamics are to a macroeconomy. This enables the framework and tools of evolutionary economic analysis to be applied at the micro level of identity construction and change. This is in contrast to the neoclassical model, which only seeks to analyse the economic *effects* of a given identity distribution. The evolutionary economics of identity may thus offer a model that integrates agent choice, adaptive rationality and environmental circumstance into a coherent framework to be usefully applied and developed in contiguous domains such as psychology, sociology and cultural science.

I have argued that a focus on identity dynamics exposes a significant lacuna in the theory of economic evolution in respect of the conditions for economic evolution to occur. If micro agents can not or do not change in the generic knowledge they carry, then economic evolution cannot occur. Economic evolution is thus conditional upon micro identity dynamics. It is often presumed that such dynamics ‘just happen’. Yet there are many instances in which they don’t, or in which identity dynamics are arrested or deviated such that the adoption and retention of new ideas is frustrated in individual agents. These may be cultural, socio-political or experiential. They may be due to social network effects, or lack of material or cognitive resources. But whatever the case, it remains the case that economic evolution requires agents to *become different*, and the limits to economic evolution are therefore also the limits of the possibilities of agents becoming different: these are the limits of identity dynamics. This is the relevance of the concept of identity, and of identity dynamics, to the study of economic evolution. Framing identity in this way thus serves to open an analytic dialogue with other analytic domains also concerned with the adaptability and *plasticity* of human being from which evolutionary economics can learn and, in turn, contribute.

## REFERENCES

- Akerlof, G. (2007) ‘Economics and identity’ Stamp Lecture, April 25, London School of Economics.
- Akerlof, G., Kranton, R. (2000) ‘Economics and Identity,’ *Quarterly Journal of Economics* 105(3): 715-53.
- Akerlof, G., Kranton, R. (2002) ‘Identity and schooling: some lessons for the economics of education’ *Journal of Economic Literature*, 40(4): 1167–201
- Akerlof, G., Kranton, R. (2005) ‘Identity and the economics of organizations’ *Journal of Economic Perspectives*, 19(1): 9-32.
- Akerlof, G. (2006) ‘The missing motivation in macroeconomics’ Presidential Address to the American Economic Association, Chicago (Jan. 2007).
- Arthur, W.B. (1989) ‘Competing technologies, increasing returns, and lock-in by historical events’ *Economic Journal*, 99: 116-31.
- Beinhocker, E. (2006) *The Origin of Wealth: Evolution, Complexity and the Radical Remaking of Economics*. Harvard Business School Press: Boston.
- Bowles, S. (1998) ‘Endogenous Preferences: The Cultural Consequences of Markets and other Economic Institutions’ *Journal of Economic Literature*, 36, 75-111
- Breger, L. (1974) *From Instinct to Identity: The Development of Personality*. Englewood Cliffs, NJ: Prentice-Hall.
- Brenner, T. (1999) *Modeling learning in economics*. Edward Elgar: Cheltenham.

- Chai A, Earl P, Potts J (2007) 'Fashion, Welfare and Growth: An evolutionary approach' *Review of Austrian Economics*, 10: 187–207.
- Currid, E. (2007) *The Warhol Economy*. Princeton University Press: Princeton.
- Davis, J. (1995) 'Personal identity and standard economic theory' *Journal of Economic Methodology* 2(1): 35–52.
- Davis, J. (2003) *The Theory of the Individual in Economics: Identity and Values*, London: Routledge.
- Davis, J. (2004) 'Akerlof and Kranton on identity in economics,' Research Memoranda in the History and Methodology of Economics, University of Amsterdam.
- Davis, J. (2005) 'Complexity theory's network conception of the individual,' Marquette University research paper.
- Davis, J. (2007) 'Akerlof and Kranton on identity in economics: inverting the analysis' *Cambridge Journal of Economics*, 31(3): 349–62
- De Vany, A. (2004) *Hollywood Economics*. Routledge: London.
- Dopfer, K. (2004) 'The economic agent as rule maker and rule user: Homo Sapiens Oeconomicus.' *Journal of Evolutionary Economics*, 14(2): 177–95.
- Dopfer, K., Potts, J. (2008) *The general theory of economic evolution*. Routledge: London.
- Dosi G, Marengo L, Fagiolo G (2005) 'Learning in evolutionary environments' in Dopfer K (ed) (2005) *Evolutionary Foundations of Economics*. Cambridge University Press: Cambridge. pp 255-338.
- Earl P, Potts J (2004) 'The market for preferences' *Cambridge Journal of Economics*, 28: 619–33.
- Earl, P. (1986) *Lifestyle Economics: Consumer Behaviour in a Turbulent World*. Brighton: Wheatsheaf.
- Fang, H., Loury, G. (2004) 'An economic theory of collective identity' mimeo, Yale
- Florida, R. (2002) *The rise of the creative class*. Basic Books: New York.
- Greenfield, S. (2008) *i.d.: The quest for identity in the 21<sup>st</sup> century*. Sceptre: London.
- Herrmann-Pillath, C. (2008) 'Identity Economics and the Creative Economy, Old and New' *Cultural Science* 1(1).
- Horst, U., Kirman, A., Teschl, M. (2005) 'Searching for Identity,' Paper presented at the ASSA, Philadelphia, January 2005.
- Kirman, A. (1993) 'Ants, rationality and recruitment', *Quarterly Journal of Economics*, 108: 137–56.
- Kirman, A. (2005) 'Demand Theory and General Equilibrium. From observation to introspection: A journey down the wrong road' Paper presented for the HOPE conference, Duke University, April 2005.
- Kirman, A., Teschl, M. (2004) 'On the Emergence of Economic Identity' *Revue de Philosophie économique*, 9(1): 59-86.
- Livet, P. (2006) 'Identities, capabilities and revisions' *Journal of Economic Methodology* 13(3): 327–48.
- Metcalf, J.S. (1998) *Evolutionary economics and creative destruction*. Routledge: London.
- Mokyr, J. (2002) *The gifts of Athena: Historical origins of the knowledge economy*. Princeton University Press: Princeton.
- Nelson R, Winter S (1982) *An evolutionary theory of economic change*. Harvard University Press: Cambridge, MA.
- Potts, J. (2000) *The New Evolutionary Microeconomics: Complexity, Competence and Adaptive behaviour*. Cheltenham: Edward Elgar.

- Potts J (forthcoming) 'Why the creative industries matter to economic evolution' *Economics of Innovation and New Technology*
- Potts J, Cunningham S, Hartley J, Ormerod P (2008) 'Social network markets: A new definition of creative industries' *Journal of Cultural Economics*, 32: 167-85.
- Quiggin, J., Potts J. (2008) 'Economics of non-market innovation & digital literacy' *Media International Australia*. 128: 144-50.
- Schumpeter J (1942) *Capitalism, socialism and democracy*. George Allen & Unwin: London.
- Sen, A. (1977) 'Rational fools: a critique of the behavioural foundations of economic theory', *Philosophy and Public Affairs* 6(4): 317-44.
- Sen, A. (1985) 'Goals, commitment and identity', *Journal of Law, Economics, & Organization* 1(2): 341-55.
- Sen, A. (1999) *Reason before Identity*, Oxford: Oxford University Press.
- Sen, A. (2004) 'Social Identity' *Revue de Philosophie économique*, 9 (1): 7-27.
- Witt, U. (2001) 'Learning to consume: A theory of wants and the growth of demand' *Journal of Evolutionary Economics*, 11: 23-36