

# *Chapter 3*

## The Information Society: Knowledge in the Economy

In the previous chapter I outlined the increasing attention culture, ideology, and information (what Marx called the superstructure) has received within social theory. This has led some theorists to posit an emerging *information society* to account for the marked differences in contemporary capitalist life compared to a previous “industrial society.” In this chapter I will consider evidence this literature provides for information’s role in economic life and the implications this might have for class-based economic relationships.

There are two broad questions to consider in the relationship between information and the economy with respect to socio-economic change. The first is about the role of economic capital in providing access to information: do differing economic positions provide differential access to information and information processing resources? The second question is about information’s role in generating economic outcomes: do people with higher levels of access to information and resources to process it gain an advantage in the market? If the answer to both of these questions is yes, then we can suggest that there is a distinct role for information in socio-economic reproduction that needs to be clarified. If it can be shown that this distinct role is increasing in significance, then claims to an information society may be justified.

I’ll begin with a discussion of literature on the “information society” to identify the broad dynamics that have given rise to this emphasis on “information.”

### **Data, information, knowledge**

In referring to informational environments distinctions are usually drawn between three forms: data, information, and knowledge.

Beer (1985) provides a useful overview from systems theory, suggesting that:

- *Data* are symbols that have not yet been subject to interpretation, they are “statements of fact”.
- *Information* refers to data that has been assigned a meaning. Beer (1985 p.283) describes information as “that which changes us” – data becomes information when it can be acted upon. Insofar as information can be considered in the abstract, it is always linked to a specific situation and has only limited validity (van der Spek & Spijkervet, 1997).
- *Knowledge* is what enables people to assign meaning to data and thereby generate information. It includes insights, experiences and procedures and guide people's thoughts, behaviour and communication. Knowledge is

usually applicable in a range of situations and is durable over a period of time (van der Spek & Spijkervet, 1997).

Saskia Sassen claims that consensus is emerging around distinguishing two types of information critical to a global economy:

One is the datum, which may be complex yet is standard knowledge: the level at which a stock market closes, a privatisation of a public utility, the bankruptcy of a bank. But there is a far more difficult type of “information”, akin to an interpretation/evaluation/judgment [what Beer calls “knowledge” – DB]... Access to the first kind of information is now global and immediate from just about any place in the highly developed world ... But the second type of information requires a mixture of elements, which we could think of as the social infrastructure for global connectivity....It is possible, in principle, to reproduce the technical infrastructure anywhere, but the same cannot be asserted for specialised kinds of social connectivity (Sassen, 2002 p.22).

For Sassen, it is access to this second kind of information that gives cities and urban environments a competitive advantage in the market. The city provides a high concentration of information workers supported by a feminised and low-paid informational labour force. This division of labour forms part of the “necessary social infrastructure” for firms which undertake internationally dispersed, information-intensive production under capitalism, which emphasises control and profit / capital appropriation. According to Sassen, the distinctive way information facilitates dispersal of routine information activities and centralisation of control activities explains the increasing dominance of cities in global economic activity (Sassen, 1991).

Of course, distinctions between data, information, and knowledge are not straightforward: how can data exist in an “unorganised” format? Paul Willis questions the possibility of “raw” data (Willis, 1980), and historians of science such as Latour have routinely uncovered the cognitive frames and preconceptions underlying “data collection”. These questions around terminology are not simply methodological, but are also political. Richard Hull (2000, p.328) notes that the discussions around the information and knowledge terminology are the collective outcomes of debates between computer scientists and social scientists in the 1940s and 50s that were couched in positivist terminology. That is, the discussions took their context for a given and were conducted on the basis of *problems in science* rather than *benefits for science*. In this context, we need to operationalise our terminology in ways that embed ethics into the definitional debates rather than “seeing ethics as an epilogue”. While a full treatment of the political implication of these definitions is outside the scope of this thesis – and I will use the terms “information” and “knowledge” in different ways as they are used by

the diverse theorists under discussion – it should be remembered that these terms carry with them extensive histories and resonances that are often elided in contemporary discussions.

### **The information society**

There are three main intellectual traditions that have identified a growing role for information (as distinguished from physical, material goods) in contemporary capitalist economies.

### **The “technological revolution”**

The first tradition emerges not so much from academia, but from popular Western social theory in the 1970s that sought to explain the rapid changes that appeared to be taking place in globalising Western societies in the wake of the social upheavals of the 1960s, and the economic downturn in these economies in the 1970s. In this tradition the work of Daniel Bell (1973) and Alvin Toffler (1970) responds to a general feeling of unease that circulated through U.S. society during that period. Both Bell and Toffler were convinced that the rise of technology created a “radical break” with previous forms of social organisation, and that a new, technocratic elite was in ascendancy. Andrew Ross (1989 p.228) notes that these “science fictions” have been highly influential: while both Bell and Toffler remained outside the mainstream academic tradition, their books received wide distribution to a general audience (with their themes echoing post-structuralist theory mentioned in the last chapter). A millenarian tone characterises these works, emphasising discontinuity and apocalyptic outcomes. In particular, they lay a foundation for an “objective” antagonism of interests between a technical-professional-intellectual “class” and the ordinary humans. This antagonism is implicit in both utopian and dystopian scenarios predicted by these works: on the one hand, “smart machines” are rational and efficient, leading to increased productivity and leisure; on the other artificial intelligence and its “inhumanity” always threatens to escape human control.

### **2) The economic value of knowledge**

A second, highly “applied” tradition begins with a range of economic surveys in the United States that quantified the size of industry sectors which primarily produced “information”, including education, media, law, and other information services. Beginning with Fritz Machlup’s (1962) *The Production and Distribution of Knowledge in the United States*, followed by Marc Porat’s (1977) report for the U.S. Government *The Information Economy*, works in this tradition have aggregated national economic data to show that “knowledge sectors” are expanding in size and contribution to the

U.S. national economy. Most economic commentators reference these works when noting the rise of the “knowledge economy.”

However, the existence of “larger knowledge sectors” is not as straightforward as the numbers suggest. Numerous methodological critiques of this work highlight the difficulty of separating “information sectors” from non-information sectors, and highlighting the value judgements associated with inclusion and exclusion of various sectors in the “knowledge economy” (May, 2002; Webster, 2002). For example, Machlup includes in his “knowledge industries” the construction of “information buildings” (Machlup in Webster, 2002). However, buildings may change purpose – for example a building designed for media production may be refurbished as warehouse apartments, while other information services may take place in infrastructure preciously built for “non-informational purposes.” Porat’s work has exemplifies the opposite effect, where fields like manufacturing are excluded from “informational sectors” even though parts of this sector are highly knowledge-intensive.

This tradition has gained significant traction in policy environments and its influence can be seen in the many state or NGO-sponsored studies of the “information economy”, “knowledge economy”, or “creative industries” operating today (see e.g. Great Britain Department for Culture Media and Sport et. al., 1998; National Office for the Information Economy, 2003; New Zealand Institute of Economic Research, 2002; Organisation for Economic Co-operation and Development, 1986). While researchers differ on methodological approaches, there is widespread acceptance of the need to revise standard statistics-gathering methods to account for information activities. May (2002 p.58) notes that studies based on Machlup’s methodology have shown that “some middle-income states in Latin America and elsewhere had in the 1980s a similar level of information workers as the United States at the time of Machlup’s study, but would hardly be regarded as approaching the widespread informationalization of 1960s America.”

In reviewing this literature, economist Don Lamberton notes the limitations in current taxonomical practices when accounting for information:

An economic statistic that is crucial for economic modelling and storytelling, investment, excludes the very things that are thought to be of increasing importance in the information economy [e.g. training, cultural development – DB]. The old questions such as ‘What is investment?’, ‘What is capital?’ have come to the surface again. Should expenditure on information be treated as investment? Is information capital? (Lamberton, 2002 p.336)

## The role of information in the market

In response to the basic questions Lamberton identified above, numerous economic historians and certain fields of information economics have interrogated the erroneous assumptions about information implicit in neo-classical economic theory (see Lamberton, 2002; Lamberton, 1996 for an overview of this literature). For example, economists work from the assumption that some knowledge transcends specific social contexts, but this has not been proven and much of the empirical evidence suggests that firms are not given units of coordinating ability, but are instead limited in their decisions by their capabilities, knowledge, and learning (Mokyr, 2002). At a nation-state level, trade economists have demonstrated that countries' exports differ in the degrees of product variety and quality depending on their social organisational features (Guillen, 2000) – whereas economic theory suggests the only real distinguishing variable should be the difference in market-friendly policies. The findings have been significant enough that Nobel Prize-winning economist Joseph Stiglitz claimed that “standard economic theory has little to say about the efficiency of the knowledge-based economy.” (Lamberton, 2002).

A related strand of thought has sprung from economic sociology, and its analyses of the distribution of the “evaluative” forms of knowledge discussed by Sassen earlier, knowledge that forms the basis of the new economy. This tradition traces at least back to the economist Karl Polanyi (1977), who in 1944 differentiated between the *formal* and *substantive* interpretations of “the economy” – that is, the difference between how economists and economic actors viewed “the economy.” The gaps between theoretical predictions and the observed effects of the economy at a social level have highlighted some serious shortcomings in neo-classical economic analysis, which have been explored at length by economic sociologists. Carruthers notes that most sociologists reject the twin assumptions of methodological individualism and rational decision-making that underpin economic theory:

For most sociologists, the ambiguity of preferences, the limited cognitive abilities of human beings, the preponderance of unintended over intended consequences, the manifest inefficiency of many social institutions, and the importance of collective identities and social networks all demonstrate the unrealistic quality of economics (Carruthers, 1997 p.1).

The classic study in this tradition is from Mark Granovetter (1985), who demonstrated that:

- a) all economic transactions are “embedded” in a complex web of social relationships;

- b) economic action is undertaken for both economic and non-economic reasons;  
and
- c) institutions constraining economic interaction are socially constructed.

It becomes difficult to find a situation that approximates the “perfect market” that underpins economic theory. These findings now form the basis of a growing body of work in the economic sociology field that emphasises the importance of social and cultural factors in determining market outcomes.

A particularly rigorous application of these findings can be seen in Brian Uzzi’s studies of organisational networks in the fashion industry. Uzzi (1996) demonstrates that the logic of exchange in organisational networks differs from the theoretical logic of open markets. A social structure in these firms limits and enables the flow of information and thus the actions available to particular firms. Uzzi found that the impact of social embeddedness on the economic performance of firms was considerable, and that organisations tended to maintain a number of intensely “embedded” relationships supplemented by “arms length” relationships. While the arms-length relationships better reflected behaviour predicted by neo-classical economic theory, it was the business relationships that were socially embedded which were the best predictors of economic performance.

### **New accounts of global social systems**

Synthesising elements of these traditions are researchers producing what we might term “postmodern global systems theory”. These are conceptions of global economic and social systems that take into account the post-structural critiques of universalist social theory, to produce a kind of meta-theory of society. Into this category we can place Manuel Castells’ trilogy *The Information Age* (Manuel Castells, 1996, 1997, 1998); Saskia Sassen’s studies of “global cities” (Sassen, 1991, 2002) discussed earlier; Scott Lash and John Urry’s analysis of “disorganised capitalism” (Lash & Urry, 1987); and Ulrich Beck’s accounts of “reflexive modernisation” (Beck, 1997). These analysts draw upon diverse traditions of work in sociology, institutional economics, and attempt to bring these traditions together to construct to new global narratives of communications that hold information as a central structuring force, and illustrate them with case studies and often-detailed empirical work.

The German sociologist Ulrich Beck (1997) has claimed that in the transition to a post-industrial society, capitalism has entered a phase of “reflexive modernization.” Elliot (2002 p.298) succinctly summarises a key element in Beck’s argument: “it is modernity's blindness to the risks and dangers produced by modernization – all of

which happens automatically and unreflectingly, according to Beck – which leads to societal self-confrontation” or reflexivity. Questions emerge around where the decision-making centres in society lie, or even the ability of society to make decisions in its own interest. For Beck, this loss of faith in the traditional institutions of society (individualisation) flows from the extreme risks associated with our previously unknown ability to destroy the entire planet through our actions (whether war or unintended environmental catastrophes).

Scott Lash and John Urry have drawn upon Beck’s reflexive modernisation theory to posit “the end of organised capitalism.” Under their analysis, some fundamental relationships such as subject-object, time-space, are transformed through the global flow of information. Under this regime, non-material agents like signs play important roles in mediating and determining patterns of production and consumption. Again, as for Beck, modernisation is ‘reflexive’, responding to information about its own very existence. Such a modernisation is not “mass” in its effect but local, creating individuation and niche forms (Lash & Urry, 1994 p.323), and our relationship with commodities has transformed from functionalism (quality-of-life) to symbolic content (Lash & Urry, 1994 p.221).

Their ‘disorganized capitalism’ is a result of a developed world-economy associated with an international division of labour (Lash & Urry, 1987 p.16). The decentred transformations of contemporary culture result in capitalist activity that is no longer “in control”, it is *disorganized*. This does not mean that capital no longer collaborates – in reality, it does so more than ever. But these collaborations are strategic, contingent, and fragmented rather than “under control.” The codes which facilitate networked coordination of capital are difficult to elaborate, and “melt into air” as soon as they are identified.

Castells’ trilogy responds in part to these phenomena and their role in the radical expansion of the “new class” or the “professional-managerial class” throughout Western economies. This perhaps provides the basis for a shift noted by Smart (2000, p.52), where Castells moves from an indisputably Marxist perspective in his earlier work to a more hybrid formulation. Castells notes that he does not share “a traditional view of society as made up of superimposed levels, with technology and economy in the basement, power on the mezzanine, and culture in the penthouse” (Castells, 1996 p.27). Castells’ view is that there is a new mode of development, *informationalism* that is driven by changes in the mode of capitalist production. According to Castells, this trend is linked to the rise of the service industry and the informational economy, where the workplace is focused on the generation, manipulation, and interpretation of text,

images, and other symbolic information.

A key feature he notes is the emergence of *networks* – rather than subjects or organisations – as the new ‘basic unit of economic activity’ in the emerging economy (Castells, 1996 p.198). Nodes (subjects or organisations) in networks provide sites of support or resistance to network activities. The world is made up of a “network of networks” and the emergence of information and communication technologies supports the transmission of symbols and finance capital around global networks. But this is not a homogeneous space, for Castells notes that these networks contain “many cultures, many values, [and] many projects, that cross through the minds and inform the strategies of the various participants in the networks”(Castells, 1996 p.199). The networks merely share a more or less common code at interconnection points, allowing transmission between the various networks.

The result for Castells is a space of “new social inequalities.” Privileged nodes engage in “reflexive life-planning” using the new informational tools and opportunities at their disposal, while large numbers of people remain “irrelevant from the perspective of dominant interests”, and outside “the networks of power and wealth” (Castells, 1998 p.1).

Despite the system theorists’ different methodological and disciplinary orientations, not to mention their public disagreements, significant areas of agreement can be discerned between these thinkers, which I would summarise as follows:

- 1) there is an emergent logic in the organisation of production and consumption which is not accounted for by previous theoretical perspectives (e.g. Marxism, neo-classical economics);
- 2) this logic is global in scope (subject to regional variations);
- 3) the logic is driven by capital flows which are increasingly independent of activities of nation-states;
- 4) information and communication technologies (ICTs) have a central role in promoting and coordinating these activities.

An interesting feature of these meta-narratives is their survey of multiple factors creating these “new times”, none of which are given analytic primacy (perhaps apart from Sassen’s focus on transactions). The interdisciplinarity and ambitiousness of this work is highlighted by a passage from Castells who notes that the new world originates in:

the historical coincidence, around the late 1960s and mid-1970s, of three independent processes: the information technology revolution; the economic crisis of both capitalism

and statism, and their subsequent restructuring; and the blooming of cultural social movements... The interaction between these processes and the reactions they triggered brought into being a new dominant social structure, the network society; a new economy, the informational/global economy; and a new culture, the culture of real virtuality (Manuel Castells, 1998 p.336).

## Critiques of the information society

As with any *zeitgeist* there is a backlash, and a number of theorists have questioned the extent to which our current society is a radical break with the past, arguing that it is a continuation of previous tendencies within capitalism (which is not disputed by most network society theorists), and that the continuities are more important than the disjunctions (which would be disputed). Two of the most notable critiques have been Frank Webster's survey of theories of the Information Society (Webster, 2002), which is a theorist-by-theorist knockdown; and in particular Christopher May's (2002) "sceptical view" of the information society, which makes a sustained argument against a technologically determinist approach to social change.

May (2002 p.13-17) outlines three important arguments made by information society skeptics, noting that:

- i) Claims that our time is revolutionary are a perennial feature of social theory and need to be treated with caution (this echoes similar advice from Foucault's genealogies of knowledge). In particular, suggestions that technologies create a radical break in social structure tend to ignore the long gestation periods of new technology, and the ways technologies develop to serve social ends.
- ii) The new division of labour holds considerable continuities with previous work practices, with ICTs facilitating surveillance and control as much as 'reflexive and decentralised work planning'. Even employment statistics fail to provide evidence for a radically revised employment structure.
- iii) The declining importance of the state is far from given, especially given the role of law in securing intellectual property rights which underpin the 'new economy'. Indeed, the state's role may be stronger than ever.

May does not claim that ICTs are not making significant changes to the contemporary economy and its social structure, but suggests that previous tools of social theory have far from exhausted their usefulness, and notes that much Information Society rhetoric advocates abandoning historical analysis with little justification.

## **What does this attention to information mean for inequality?**

It is possible for attention to be given to important role of information in the contemporary economy without resorting to totalising language of “ages”, or claiming its transformation of “whole societies”, or subscribing to various other binary distinctions that characterise both utopian and dystopian visions in this field. We can incorporate May’s critiques made of the claims for a “wholly new society” while still acknowledging an increasing attention to information, and investigating novel phenomena or producing new analytical tools for dealing with information.

One economic statistic that is commonly agreed upon is that there is a marked tendency in most contemporary economies to see an increase in very wealthy and very poor individuals, companies, and regions. As Bartos (1996 p.307) describes it, economies are becoming bi-modal. Studies undertaken by Portes (1987) and others point to rising economic inequality in situations where there is an increased emphasis on information, indicating a possibility for a correlation to be established between information and economic inequality. For example, the Economist noted that while the richest fifth of workers in Silicon Valley saw their real average wages rise by 19 per cent, that of the poorest fifth fell by 8 percent between 1991 and 1997 (the Economist cited in May, 2002). Similarly, Gosling et. al. (2000) have noted a consistent rise in wage inequality in the United Kingdom.

While there are a range of ongoing debates about the substance and impact of these phenomena, one thing is certain: any contemporary theories proposing that the diffusion of information technology and related skills will reduce inequality are battling a weight of empirical evidence that suggests otherwise.

The question that class analysis might be able to illuminate is: how does this increasing inequality happen? There are six important and novel processes that are agreed upon by much of the Information Society literature, which form a “baseline of phenomena” for which a contemporary theory of class will have to account:

- 1) Global networks of finance capital are rapidly expanding;
- 2) There is the recognised emergence of significant “informal” economies;
- 3) Information itself is increasingly commodified;
- 4) Lifestyle and consumption choices increasingly define social structure;
- 5) Services are becoming an increasingly important economic category;
- 6) There is a “skill bias” in changing employment opportunities under information-intensive economies.

I will consider each of these and their implications for an informational class framework in turn:

### **Globalising capital networks**

There is a widespread trend toward capital mobility – capital is increasingly finance capital (Castells, 1996), moving electronically around global markets. This process is linked to the emergence of “global cities”, increasingly more connected to each other than to their immediate regional environment (Sassen, 1991). As noted earlier, there is a logic of centralisation that accompanies the processes of dispersal in transnational information production.

Lamberton identifies one important strand of this process, noting that information creates economies of scale in a way that allows the rich to get richer. “How-to information about production is independent from the scale of production. Therefore, it pays businesses planning large-scale operations to buy better information than smaller firms” (Lamberton, 2002 p.337). This is a departure from what neo-classical economics predicts of competitive economies. A question emerges about whether ICTs are required to maintain such global networks, and whether ICTs constrain or facilitate access to these networks in a way that differs from other parts of the economy.

Appadurai (1990) notes that these globalising networks create spatially dispersed states of subjective production and consumption. This changes the nature of class-consciousness, as identities are no longer drawn as heavily from the immediate environment (family and workplace), but instead from a ‘mediascape’ that is characterised by global flows and radical disjunctures:

Primordia, (whether of language or skin color or neighborhood or of kinship [or location in productive relations – DB]) have become globalized. That is, sentiments whose greatest force is their ability to ignite intimacy into a political sentiment and turn locality into a staging ground for identity, have become spread over vast and irregular spaces, as groups move, yet stay linked to one another through sophisticated media capabilities (Appadurai, 1990 p.20).

While the network is theoretically global in scope, uneven development remains visible through many analytical lenses. An important issue in global capital flows relates to the differing legal capabilities of multinational corporations and individuals or small enterprises to exploit global networks. In the employment relationship, May suggests “there is an important distinction between property-owning classes and those who work for them... with considerable barriers to individuals profiting from the ideas and knowledge they generate” (May, 2002 p.73). Tactics include the capture of

subcontractor's creative ideas and labour, and defensive use of the copyright and patent system to ensure commercialisation costs remain high (or legal risks prohibitive). There is increasing legal activity centred on limiting the mobility of technical personnel to competitive firms (which remain defined very broadly to the benefit of employers over workers). Moreover, since the adoption of the Trade Related Intellectual Property Rights (TRIPS) agreement by the World Trade Organisation (WTO), the legal regimen governing the protection of intellectual property has radically expanded. Once property rights in knowledge are globalised, in a similar way to material property rights, the possibilities for expanding the division of labour geographically have become considerable, and this is particularly significant for information economies. Much "knowledge economy" rhetoric often presents the threat of the manufacturing sector's task migration to third world economies of cheaper labour power. But May (2000) found that informational marketplaces are highly competitive and *more* subject to occupational task migration than non-informational work. In other words, lower-paid jobs in the informational market are much more likely to be relocated to different physical locations when this can reduce costs or improve products.

At the level of production and consumption, differentials between the nation-specific legal rights of large producers and individual consumers are also evident. Content (films, audio, texts) are increasingly no longer bought as "products" which can be put to use by consumers, but are "licensed" with serious restrictions on international circulation, resale, hire, or even what devices can be used to access that content (e.g. the increasing use of copy protection on audio CDs which makes it difficult for personal computers to play them). These have the effect of preventing consumers from making use of innovations in international networks and user-communities. Finally, with the increased role for legal protections in informational industries, large companies remain much better placed to influence the laws which govern information distribution than consumers, who are often unaware of the legal issues that surround their use of intellectual property.

### **The "informal economy"**

Portes and Castells have traced the emerging recognition of an *informal* economy (including criminal, underground, cash economy and barter activities), growing coextensively with a regulated economy (Portes, Castells, & Benton, 1989). The authors in their influential volume *The Informal Economy* all note that much economic activity slips underneath official radars and markets, and that the share of the informal economy is growing. They argue the main outcome of the global economic downturn was "not the mere expulsion of part of the proletariat into the ranks of the unemployed,

but the *reorganization* of economic activities into decentralized arrangements that have acquired their own momentum” (Portes et al., 1989 p.309).

Following Granovetter’s findings, informal economic relationships are even more embedded in specific cultures and social situations, and sit outside state interventions that address market failure. Capecchi, for example, notes the emergence of a two-tier system of accumulation and subsistence in his Italian case study. Unsurprisingly, “the better off families are (in terms of economic, social and cultural capital), the greater their possibilities of access to the informal economy; while among the poorer families, access is limited to mostly subsistence activities” (Capecchi, 1989 p.212). Fernandez-Kelly and Garcia (1989, p.247) also differentiate between two main classes of informal workers: “(1) informal workers who operate without contractual arrangements or legal protection and (2) informal entrepreneurs and middlemen who organize this labor and establish its links with the formal sector.” They also cite Portes and Sassen-Koob, who found that while the earnings of informal workers are significantly lower on average than those of their formal sector counterparts, the earnings of informal entrepreneurs, while erratic, can be much higher (Portes & Sassen-Koob, 1987).

These studies suggest that social and cultural capital is of increased importance in informal economic situations, which have all kinds of “non-economic” forces that enable or prevent access to markets.

### **Information as Commodity**

Information has also emerged as a commodity form. It can be bought and sold, but has distinctive characteristics which make its economic behaviour quite different than other goods. The significant issues outlined by Lamberton (2002) and Orwat (2000) include:

- 1) Information enhances economies of scale. The costs of information production are relatively high, particularly compared to the low marginal cost of using that information. In other words, the same piece of information can be used repeatedly with little effect on its value as a production input (Arrow, 1996). This discourages diversity in production of informational economic inputs, making that information is less costly to source from a large supplier. Natural monopolies occur which reduce the economic control of information goods compared to other goods among smaller organisations and individuals. The obstructions to information flows and resulting informational inequality and is evident. Markets do not fulfil their function of supporting the flow of goods under this scenario.

- 2) Information resources are needed to use information effectively, including both a sufficient amount of knowledge of the information's context (Orwat, 2000), as well as information skills to process, understand, and evaluate that information. Information is a much more useful commodity to people with information resources. For people with few information resources the real value of even expensive information might be zero. Contrast this with a different production input such as a tractor, or money, which provides a more even set of value outcomes across a wider range of users. So if there is an increased emphasis on information products in the economy, we see increased differences in the ability to use commodities in a productive way.
- 3) Many types of information have a non-rival character (Lamberton, 1996), meaning that using information does not diminish its usefulness for other individuals. However, there are an increasing number of situations where a competitive advantage can be gained from excluding access of others to information. These situations generally exist in relation to complex intellectual property laws which large organisations are much better placed to respond to. Increasingly, as noted previously, these laws foster defensive rent-seeking behaviours more than the innovation they are designed to spur. The result is that small enterprises and individual consumers are subject to such rent seeking with limited opportunities to undertake it themselves.

So even within the field of economic theory, there are many factors suggesting novel and significant economic barriers to individuals compared to larger companies, and those with low existing information resources compared to those with high information resources. Combine this with economic sociology's findings about the flows of knowledge transfer being constrained by all kinds of social factors under-theorised in neo-classical economics, and we can see that there are much larger barriers than money to successful participation in information-intensive markets.

### **Lifestyle, Consumption, and the Services economy.**

Consumption has an increasing significance in the determination of lifestyle and consciousness, shifting the role of value setting from the state and/or civil society to the market (Lash & Urry, 1994). Put simply, in Western market economies the primary means of constructing a social identity today is through shopping. Cultural and aesthetic products – including, for example, cable television content and video games – form an increasing segment of the economy and users' leisure time (Great Britain Department for Culture Media and Sport et al., 1998). Further, as Lash and Urry

(1994) note, even everyday, “practical” products from toilet paper to kitchen utensils feature stronger design and cultural inputs that respond to users’ aesthetic preferences and lifestyles.

Marx described the logic of ‘commodity fetishism’ to account for the way humans imbue commodity objects with aesthetic/social qualities in this manner, with the capitalist system paradoxically masking the human labour which went into making them. It is a “reification” which Lukács defined as “a relation between people [that] takes on the character of a thing and thus acquires a ‘phantom objectivity,’ an autonomy that seems so strictly rational and all-embracing as to conceal every trace of its fundamental nature: the relation between people” (Lukács 1971 p.83). It is significant that the commodification of social relations is rapidly expanding to cover all aspects of social life. A combination of the media imaginary (see for example Celia Lury’s (1998) analysis of United Colours of Benetton’s advertising campaigns) and information technologies such as DNA manipulation are making even racial identity a fashion accessory (Haraway, 1997 p.261).

Firms have responded to and accentuated this process by adopting “flexible specialisation” and short-run production processes, spurring increased diversity in products and a general aestheticisation of consumption (Lash & Urry, 1994). It is the immaterial input (such as design) as much as the material product that is being consumed. In this way, products increasingly take on the characteristics of services.

### **The Importance of Services**

While Lamberton has covered the lack of attention given to information in economics, services have been similarly undervalued for similar reasons, although they too form an increasingly significant part of contemporary economies, and are often seen to be driving significant changes in economic structure. According to Andersen and Corley (2002) services account for roughly 75% of highly industrialised economies and have grown their economic share markedly over the last few decades. Yet services are also often accounted for as a cost rather than investment, despite knowledge-intensive business services such as consulting and financial services having a major impact on growth and productivity in firms. Both Karl Marx and Adam Smith considered services to be not directly productive, and this has constrained the way economists perceive the role of services in contemporary economies. For example, services are usually defined negatively: in macroeconomic discourse services are often still considered to be that which isn’t agriculture and manufacturing. Yet services are major enablers for other productive sectors as well as a discrete market sector in itself. International trade is

made feasible only through the services sector – for example, according to Adam Smith (1986 [1776]) it was growth in insurance services that allowed growth in international shipping to occur. Much value in the contemporary economy can be traced to services.

Despite the growing importance and complexity of services, their definition has remained the same in mainstream economics since the one proposed by Fisher and Clark back in the 1930s. A distinction is drawn between services that are “intangible, invisible and perishable” simultaneously produced and consumed, while goods are thought of as tangible and storable. However, the effects of services can be long lasting, as in education or medical services, while goods are increasingly disposable in use (Economic Commission for Latin America and the Caribbean, 1998).

Metcalf and Miles (2000) define services as activities directed at creating changes or transformation in some entities. The transformation can be of, for example, people or objects; and through time, space, or nature. This definition allows services some tangibility, and also clarifies the significant distinction between the production of services and their consumption. For example, the value of goods is much more stable than services, where the producer and consumer (or consumers themselves) may have vastly different ideas about the benefits of a particular service.

These factors make it difficult to find appropriate methodologies to measure the quality, efficiency, and productivity of services. For example, how productive is a bank, and what does it actually produce? Is it more productive if it produces more loans? Or is a bank’s productivity better measured by the productivity of its customers?

Services are important for the economic consideration of information as they are characterised by a collective learning model where innovation is not ‘produced’ by a single firm, but it is spread across the network of client and purchaser. In other words, innovation assumes a *cultural network model*. In information-intensive and design-intensive products, small improvements and user preferences are quickly introduced into production, and so an ongoing producer-user ‘conversation’ takes the place of a long and costly design activity prior to the introduction of a new product (Ragazzi & Rolfo, 2002). Interestingly, these conversations also link consumers in the producer-user chains, and disrupt some of the tendencies to reification noted by Lukács above.

This level of reflexive consumption, facilitated by the rise of services, vastly increases the importance of money in lifestyle choice. To be without money and financial capital is to be excluded from the primary circuits of identity construction, with no chance of participating in what Castells calls the “reflexive life-planning” and service consumption that characterises today’s professional classes. But we can also ask if there is a converse

effect, that is, do cultural “ways of life” (and their associated informational and cultural resources) structure financial accumulation? The work of Castells, Portes and Sassen on informal economies, and the rise of the services economy suggests that increasingly it does: placing the questions of relative economic advancement squarely in the realm of knowledge, culture, and social networks.

### **Skill-bias in employment restructuring**

The role of information in the labour market is leading to a significant restructuring of employment across regional, national and global economies. While many jobs have been lost, many new ones have been created. However, aggregate economic statistics such as job growth, usually used as evidence to support IT-supported economic gains, shed little light on the kinds of jobs that are created and lost in this transformation. Economists have put forward the notion of “skill-biased technological change” to explain the growing overrepresentation of the least skilled workers in unemployment figures in many countries over the last two decades. (Greenan, L'Horty, & Mairesse, 2002 p.10) notes that this change “induces an upward drift in the relative efficiency of skilled workers and a downward drift in the cost share of unskilled workers”, leading to increased wage inequality without affecting aggregate wage and employment statistics. This is important because such aggregate statistics are usually used as evidence for IT-induced economic gains, but may in fact be coextensive with decreased economic well-being for a majority of people.

In *The Global City*, Sassen (1991) found evidence of such qualitative shifts in employment practices in London, New York, and Tokyo, and these appear to be repeated in other centres. For example, in their study of the growth of Foreign Direct Investment in Buenos Aires, Ciccolella and Mignaqui found:

“(1) Growth of high-wage and low-wage jobs, along with the destruction of a much larger number of middle-range skilled jobs held by workers in production and commerce; (2) a growing incidence of precariousness in sectors of new employment compared to older employment patterns and (3) a fall in real earnings for the large majority of workers.”(Ciccolella & Mignaqui, 2002 p.321)

Chennells and van Reenen (2002 p.199) observe that while there is considerable agreement for the notion of skill-biased change there is very little research which analyses the mechanisms by which technological change translates into higher demand for skills. Their work points to organisational changes made possible through ICT, such as “delaying, decentralization, and giving greater autonomy to workers” as the link between technological change and labor demand.

In the same volume Kathryn Shaw finds evidence to support this assertion in her study of employment change in the U.S. steel industry. While computer interfaces have not changed the domain-specific knowledge steelworkers require, they do provide far more second-by-second information about the production process that needs to be interpreted (Shaw, 2002 p.232). Consequently, firms have incentives to change their organisation to provide more highly skilled job designs that reflect this need for interpretation. Shaw calls this investing in knowledge capital:

Increasingly firms are thinking about knowledge capital as the set of fixed labor resources that offers the firm a strategic advantage, and for some firms, talented production workers offer that advantage. When innovative HRM [Human Resource Management] practices are combined with IT to give production workers the knowledge and incentive to acquire knowledge and use it on the production line, the firm is developing new knowledge capital. Thus the means by which IT and HRM change the demand for workers is that *they introduce production-worker knowledge capital into the production function* and thus require somewhat more skilled labor. The effects on employment and wages follow this change (Shaw, 2002 p.255) [emphasis in original].

So the need to invest in knowledge capital itself leads to increased wage inequalities. When combined with the processes of task migration for informational work noted by May above, the processes by which low-skilled workers become excluded from economic production would appear to be extremely difficult to reverse when knowledge-capital development (through e.g. education) is an expensive and unpredictable process.

### **Knowledge production and the services economy: the role of ICTs**

It is notable that the highest level of service activity and ICT use takes place in urban centres where Sassen's "knowledge infrastructure" is in place. Services are knowledge intensive, usually based on a range of "immaterial inputs" including cultural and aesthetic knowledge, know-how, social and organisational knowledge, information-based knowledge, and science and technology knowledge. However, services require more knowledge resources than just those of the producer. Generally, there is no service without the knowledge of the customer. This can be illustrated by the example of educational services: a teacher can be in a classroom teaching one student, which is an educational service. If that student leaves, no service is being provided, as the teaching experience cannot be stockpiled as inventory. The rise of services displaying this logic has contributed to the process by which economies are said to be "consumption-led". In advanced industrialised nations these processes are so pronounced that some commentators have suggested that there is no longer a shortage of goods, but shortage

of goods with right service inputs (marketing, design, strategic management) (Hauknes, 1996). The West has perhaps entered a kind of post-scarcity economy.

Primarily tacit or uncodified knowledge (such as preferences) in markets and 'quasi-generic' knowledge in firms combine and are made appropriable in new services. ICT-enabled services are expensive to maintain and support, yet they are central to development of the new services economy. ICT innovations facilitate tangibility of specific problem-solving methodologies, through dissemination and the provision of standard interfaces to knowledge. In this way, ICTs enable inter-locality exchange of information and thus trade in services, which were previously thought of as immobile (Andersen & Corley, 2002), and it is here that we see the strong link between finance capital and information capital.

However, challenges emerge because services tend to be heterogeneous and customised. Scale does not equate with value as strongly as in e.g. manufacturing – the size of financial investment in knowledge-intensive services may be a poor predictor of likely profitability (Caves, 2000). This is why early Internet theorists suggested there could be a major rise in cottage industries due to information technologies. But as it turns out, where economies of scale are possible is in distribution, which Multi National Enterprises dominate by organising individual units into chains and managing them through centralised or decentralised (or both) networks (Clairmonte & Cavanagh, 1984). This poses serious challenges for countries without large MNEs when attempting to gain a foothold in the emergent transnational markets for services, and highlights yet again the tendency of information-intensivity to produce a few large, dominant organisations in markets.

### **Processes of inclusion and exclusion in informational relations**

Taken collectively, the above processes indicate that variables such as information, knowledge, and culture have an important role in socio-economic reproduction that isn't reducible to access to money in the 'last instance'. Our conception of economic inequality issues must address the complex processes at work in the struggle for access to productive information resources. However, our understanding of these processes is far from adequate. Survey literature in economics (Lamberton, 2002), sociology (Nash, 2001), (Alexander & Smith, 2001) and, more recently, cultural studies (McLennan, 2002) has routinely called for more interdisciplinary and collaborative work aimed at clarifying the emerging relationships between informational and economic relationships.

It may be noted that we already have a range of terminology for addressing these issues – e.g. “the information rich/poor”, “cultural capital”, “social capital”, or even the “digital divide”. However, as Alejandro Portes has pointed out in his review of the emergence of “social capital”, this terminology is often a) not clearly defined and b) operationalised in research in terms of a linear scale of high-to-low position which does not reflect the *interrelation* of informational/cultural/social standing in specific situations. For example, one doesn’t have a particular amount of social capital but uses different stores of social capital differently in various situations or “fields” (e.g. shaped by occupational, social, ethnic or gender makeup) which are not always predictable. He concludes:

At the individual level, the processes alluded to by the concept [of social capital] cut both ways. Social ties can bring about greater control over wayward behaviour and provide privileged access to resources; they can also restrict individual freedoms and bar outsiders from gaining access to the same resources through particularistic preferences. For this reason, it seems preferable to approach these manifold processes as social facts to be studied in all their complexity, rather than as examples of a value [as is more common in the social capital literature – DB] (Portes, 1998 p.20).

For this reason, my investigations into more specific terminologies are not intended to provide mechanisms for accounting for information resources, but instead are centred on developing tools for analysing the relationships in particular situations. As I discussed in the last chapter, the key question in transformative approach to class analysis is not “do informational classes exist”, but “how do shared positions in informational relationships form and how can we change that?” I argue that the above processes suggest that the information-intensive processes of contemporary subject formation are producing important new relationships, and I detail these processes of class formation in the next chapter.