Social Dimensions

Chapter 8

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In the workshop from which this volume grows, views continued to divide into what seemed two poles. The microcosm of the workshop, it appeared, brought to some focus a normally less-choate tension in the debate on communications and information. Economics has enjoyed some success, and even a dominant place, in both the intellectual and the policy dialog. But when views from an array of other disciplines (and other policy persuasions) enter the discussion, the tension begins to take form.

The subject at the crux between these two sets of views appears to be universal service, at least that is the subject to which attention repeatedly and finally turns as the two sides discuss. A supporting leitmotif is intellectual property.

Universal service as the dividing, and uniting, subject points, I believe, to the fundamental which separates the two sets of views. Though economics is most of all a study of aggregates, it is founded on an atomistic construction of those aggregates. The individual, and individual choice – even if choice by an individual family or firm – are the stuff from which economics thinking is built.[1] Views from "the other side" will, on occasion and for a large variety of reasons, be concerned with some social group as a starting point for analysis. Whether that is a nation in political science, a social group per se in sociology, an ethnic minority in anthropology, a work team in management science, a community in philosophy, or in geography, or an era in history, the unit is a social aggregate.[2]

Much mischief may devolve when two (colliding) frames of thought differ by this fundamental. Universal service draws the contrast sharply into focus. The market in economics is ordinarily considered in terms of penetration *up to* some level. From the other approach, concern for the welfare of a group may ask whether all members are accounted – the starting point is the group as a whole, and counts *down from* there. Universal service for a communications network precisely marks the point of divide between the two styles of thinking.

(Of course there are not just two poles of thought – thought in economics is comprised of many competing voices and there are very many other voices on "the other side." It is only when two larger frames of thought begin to bump up against each other that contrasting poles appear to take shape.)

Intellectual property marks, I am tempted to think, another difference, one which enlivens the basic contrast. Property, and intellectual property, are concerned with controlling, or exercising power over, assets. The exercise of power is important in economics, but it enters only as a[n undesirable] sub-text. The ideal in the ethic of the discipline operates without the undue influence of any actor over another. Power, and it use, are deemed a spoiler, which enters with concerns about access, scale and dominance. By comparison, power is the direct stuff of concern among a wide set of the other disciplines – political science is the obvious case, with power as its subject and one of its centerpieces. In analyses which rest on social aggregates, power and its exercise are frequently instrumental for outcomes.

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[1]Macro views of economics, by their second-generation status in the discipline, illustrate how the individual sits at the original cornerstone of economics thinking.

[2]This, despite repeated turns, for other purposes, to the individual as the unit.

This chapter tries to tease out key points of contrast between the two seeming poles, or sets, of views. As the title "Social dimensions" suggests, the social aggregate (and its correlate, power) are the points of departure, as anchoring contrasts. Why focus just on points of contrast? These can be useful, it seems clear, only if they eventually suggest new agendas for research, or if they point to better policy. But the first step is understanding where frames of thought depart from each other. Only with a view of the other side is there a basis to begin to think about some approach in common, whether that is for research or eventually for policy. This chapter will try to look at each of the two sides from the perspective of the other.

Am I, as author of this piece, somehow free of the usual strictures on thought which a paradigm will impose on those who know it? Can I break away somehow from the usual human limitations and bring the "one, true objective word," so the reader now sees the light about *both* seeming poles – are some authors superhuman? Of course not. Inevitably, I will find myself blindsided by some preconception or another. But one can aim for an atmosphere which encourages open inspection of different approaches to similar or to the same phenomena, then one can look for new common ground while trying to preserve the advantages which the inevitable differences also bring. If this chapter takes a small step toward the first part – open inspection of different approaches – it will have met this author's aim.

The discussion below is organized around four topics in communications and information. Stimulated by the preceding sessions in the workshop, these four seem to bring out the contrasts between the two apparent poles of thought.

- INNOVATION. In economics, innovation is often thought the source for a better life. The other approaches sometimes share this view.
- PRODUCTIVITY. Productivity raises the prior question, what *is* the good life.
- GOVERNANCE. Governance, as an issue, seems unavoidable in asking how to get there.
- UNIVERSAL SERVICE and INTELLECTUAL PROPERTY. Finally, we can conclude with the two leadoff issues.

Where possible, the contrasts will be illustrated with examples from a National Information Infrastructure/NII, originally a US notion, and from the Global Information Infrastructure/GII, now a more widely shared idea. Unavoidably, a fair amount of discussion will refer to general precepts of economics and other disciplines, since it is tools of a discipline that are applied to the subject, communications and information.

Points of Contrast

INNOVATION

- Social innovation

Technical innovation has come to be appreciated as perhaps the prime source for productivity gains – the means by which living standards can be raised. Economics has devoted itself, inter alia, to incorporating technical change into our economic understanding. Technical change implicitly focuses on physical (and sometimes not-so-physical) delivery, and so implicitly focuses on the supply side. In other disciplines, in other approaches the *social* innovations on the demand side, which necessarily run in parallel with supply-side technical evolution,[3] take at least

[3]See Bruce Mazlish, The Fourth Discontinuity: The Co-Evolution of Humans and Machines, Yale, 1993, for the definitive discussion.

an equal part of intellectual attention.[4] The pathways of social innovation are, if anything, likely more complex than the technology from the world of man's tools, if only because so many individuals interact together, each of whom is individually enormously complex.

A small example comes from the virtual communities now taking form, in part along the Internet. It is said that there are cases which create an intimate group, but with as many as 900 members.[5] If this is true, a new human form has devolved in response to the technology. Along the way, there were probably intriguing modifications in personal and group modes, social innovations which may presage more far-reaching effects.

The contrast between a focus on social innovation or a focus on technical innovation is subtle, yet deep. Diffusion of innovation, as a field of study, occupies a position that is midway between economics and several other social disciplines; and it often has tried to maintain both foci together. Diffusion studies may, besides following the technology, also look at the process of adjustment whereby new technology is taken up by a group.

- Technical innovation

For technical innovation per se, a contrast is emerging, one which also reveals a worthy intellectual challenge. The contrast is perhaps best characterized by reference to "architectural innovation." This notion (at least in one form) suggests that a standard agreed for one area of technical activity enables innovation within the area. The standard is the framework for innovation at some subsidiary level – there is a sort of modularization of the change process.[6] An example in the US would be the Grand Alliance standard around HDTV, which acknowledged the importance of variety in implementations, to serve subsets of demand. In contrast, policy prescriptions for competition in an NII typically see standards as bringing homogeneity and so enabling competition. During a period of technical change different innovations are non-homogenous and so, strictly speaking, not competing; standardization, in this view, brings homogeneity and allows competition.

The contrast in views is stark. One view sees further variety after standardization, the other sees the reverse, namely homogeneity. The intellectual challenge begins from the foundations of economics, where competition among homogenous commodities is a primary building block. Economics has itself tried to incorporate variety into its models with Chamberlin's monopolistic competition and from Hotelling, for instance. The view that standard frames enable on-going variety, if it becomes salient, raises an intellectual challenge: how to conceptualize, with some analytic power, a world with sameness and difference in parallel. We will look closer at this theme, and challenge, when we turn to further aspects of social innovation, under "Governance" below. A workable notion of "openness" is at stake, among others.

- Dynamics

To portray the process of change has itself led to what is now a well-established contrast. Economics works from comparative statics, with a world view where stable equilibria are the

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[4]PLEASE NOTE, re this draft which is circulating for commentary: For a piece with this disciplinary scope, the references which one author can provide will be spotty at best I think. (Not as spotty as *this* ! – I am assembling the basics.) The breadth of turf calls for a variety of outlooks. THIS IS MY REQUEST for your further suggestions, in economics and especially in the other disciplines. Together I suspect you can identify references seminal for the several disciplines. The aim, of course, is those pieces which best represent the points of contrast discussed here, on both, or the several, sides (not an exhaustive compendium, which as far as I can see would go too far, given the number of disciplines).

[5]Lee Sproull, Connections: New Ways of Working in the Network Organization, MIT.

[6]Where workshop participants were instrumental in bringing a point to the attention of the meeting, they will be duly noted. In this case, Peter Hagström discussed architectural innovations. My own previous work (without referring to "architectural innovations") has sought the policy implications. See for instance Allen, 1991.

successive anchors for any intervening change. An evolutionary economics has arisen, as a rump discipline, with a set of explorations intent on placing change itself at the center of the conceptual stage. Co-evolution of the technical and social sides – the intertwined causality between them, rather than cross-impacts on price alone – becomes a focus. An ecological analysis, where co-evolution is the essential mechanism, has now taken some root in management strategy theory.[7] There the economic setting, and the system of operation posited to characterize that milieu, step from the background of the analysis into a prominent place.

Though evolutionary economics gets an increasing airing in the US, it is Europe, particularly from the Netherlands, Italy and Germany, where there are the most concentrated efforts. Beyond the confines of both sorts of economics, other disciplines and approaches may typically portray change as a feature central in their analysis. A co-evolutionary approach then helps to articulate an underlying concern, which also introduces the use of power. That question asks how a group – the users – may shape, and so may control, the technology which will in turn influence the underpinnings of the group.[8] Debates about the impact of violence when portrayed in mass media do go beyond the technology per se, but are a case in point nonetheless.

Dynamics imply the existence of a history. Though an historical approach to economics is now recognized, even with a Nobel, the paradigm has at its core an ahistorical bent. The notion of reversibility in demand perhaps best illustrates how the arrow of time points, if not both ways, then lightly at most in this framework. In a contrast which would counter that ahistoricity, path dependency has grown up as a line of argument – put strongly, this says "history matters." Unlike the evolutionary work, this line comes most from the US.[9] Other disciplines, beginning with history itself, would typically accord the past a privileged place in an inquiry.

With innovation a central feature of communication and information phenomena, certainly at the present, these several contrasts are one starting point for a dialog between those on separate sides of the seeming divide in views.

- Method

Not just with regard to innovation but generally, economics has evolved a methodology which is admired and emulated by a growing number of other disciplines. The emphasis on mathematical representation may divert attention from insights about the phenomena in question. More constricting, it may also close off use of key constructs which are not so susceptible to mathematizing. But the common mathematical language has supported very wide sharing of the economics world view. Even when mathematics is not used, one legacy is a relative rigor for analysis. Though rigor can threaten to be hidebound, by diverting or closing off attention, as said, it is also robust and gives strength to the understanding. We will return to this epistemological balance below, under "Governance."

PRODUCTIVITY

Concern for productivity, and particularly productivity increases, may center on the individual, firm, industry or a whole society. At the broadest level, the question arises, to produce what – what is good, what is valued?

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[7]See for instance James F. Moore, "Predators and Prey: A New Ecology of Competition," Harvard Business Review, June 1993, pp. 75-86 (a book is forthcoming).
[8]Deanna Campbell Robinson noted the question of users trying to shape their technology.
[9]Most identified with Paul David and a set of following authors; see for instance Paul David, "Path-dependence and Predictability in Dynamic Systems with Local Network Externalities: A Paradigm for Historic Economics"…

- Value or price

Adam Smith's original "paradox of value" brings forth a hoary contrast, one often papered over but still at the root of seminal, continuing differences. This paradox asked why some most valuable items, such as the air we breathe, had negligible or no price. Economics eventually resolved the quandary by reference to the inexhaustible supply of air[10] in a balance with demand. In contrasting approaches, however, money prices may be shown not to match the valuation found. Prices may not fit well with an analysis of valuation from marketing or psychology, for instance. Communications and information are particularly sensitive to the problem. Examples are flat-rate pricing for telephone, and the notorious question of valuation for information. In response, economics has tried to find hedonic prices.[11]

At a deeper level, the contrast centers on the process whereby value emerges and changes. Though the balance between supply and demand in economics is in some sense social, price is the primary point of contact among individuals. A sociologist or an ethicist in philosophy, by contrast, is likely to be concerned with broader and richer dimensions of social interaction. Value will there be seen as created, and evolving, through social mechanisms.

- Development

As a pivotal product growing from five centuries of the Western Enlightenment, economics embodies a key thrust of the era, perhaps subliminally but nonetheless. Put simply, developing societies may, through a variety of passages, achieve the economic status of, and be admitted to, the industrialized [productive] brotherhood. Pareto's optimum, where advance for one is not to disadvantage another, is one distillation of an ethic for improvement.

The question, and contrasts, broached just above, "what is the good?" sit palpable here. Beyond that, the contrast between an individual-based versus a social approach to analysis begins to take on detail. A central facet of development is learning. Though this is learning between societies and so is at a macro level, learning may be taken as an essentially interdependent activity and thus as emphasizing the social interaction.

The typical agreement to build-operate-transfer a modern communications infrastructure in a developing country (perhaps for GII) aims to inculcate the technical capabilities locally. When brought down from a lofty macro level, to microeconomic events, the learning that is required can appear as a fairly complex social event. That emphasizes the interdependence.

To reach everyday microeconomics is a small step. If we are all developing, all the time, learning is endemic. Economics recognized learning-by-doing, with roots in self-learning. Alternative approaches, by contrast, see the interdependence. The analysis starts as multi-party and social; to account for the interdependence, the story about learning also needs be dynamic. Questions about "system productivity" may apply in this style of dynamic analysis. Competence could be characterized as the stock which results from the learning flow.[12] Education as a discipline is the first source for many alternative ideas about learning.

The final contrast here engages the larger question directly, what is the "good?" Built into the notion of diffusion is a directionality to the flow of ideas. "Better" technology has been validated someplace else, and now it can be taken up by others. Those who are beyond a diffusion approach, including a strict interpretation of individual preferences inside economics itself, may broach an alternative. Though put in many different ways, the position is essentially social. It envisions what amounts to a negotiation among camps, an exchange in which values from both sides are offered for consideration. From a "traditional" society the offer might be

[10]Then air pollution came back to the question.
[11]Hajime Oniki and Cristiano Antonelli both discussed aspects of these questions.
[12]Gunnar Eliasson reminded us about the role of competence.

"our style of family values." ["Can your new technology network take full advantage of them?"] is the implied question.

The contrast here is between a uni-directional and a bi-directional exchange, about values. The potential adopter may note that communications technologies can be used to hinder as well as to help[13] (in one scenario, over-reliance on telephone communications diminishes the quality of personal relations that would otherwise make better organizations). Of course there may be no exchange at all, except by force: a "holy war" intends to preserve or spread a set of values. But in the full two-way exchange, values from traditional societies may also influence outcomes in the more industrialized. Then we are all developing, all the time.

GOVERNANCE

We look first at the structure, or organization, to be governed.

- Structure/organization

Though the question of structure is an on-going topic in economics (as are the rest), the divide between markets and hierarchies has suggested a bright line clearly distinguishing these two. In this world externalities are a main concern.

From other points of view, notably evolutionary economists, sociologists and management scientists, intermediate forms are prevalent. These scholars see some porosity and permeability in organizational boundaries. When looked at across time, dynamically, the elements may both endogenize and exogenize, with some alternation. At some times the elements join more together, at others they are more separate. The result is a more nearly organic entity, where social linkages play a main role and where structural/organizational form alternates, depending on relative strengths between independence and interdependence.

How to characterize the elements, one relative to the other? When they are together, they are in some way apparently the same; but when separate, supposedly different. This is a more interesting formulation of the intellectual question encountered above, around standards and variety: how to encompass sameness and difference, *in the same set*.

The issue is especially salient for communications, where networks from separate carriers must interconnect, to reach a wider group. While the individual carriers remain distinct, essential similarities of some sort must make interconnection possible, and greater interoperability drives greater similarity. Thus merge the standards and the organizational forms of the intellectual question.

If taken from the point of view of users, in interconnected groups, this becomes the issue of the public as against the private. In a dynamic world, an individual user may move mentally among affiliation in a larger, a medium or a smaller group. A subject that is considered appropriate for airing in the medium group may be too private for the larger group, but perhaps taken to be public knowledge by the smaller group. An approach that deals with structure in this dynamic way puts the analysis of the public and of privacy in a new light. The question of privacy, and also the question of what is public, are another area which is particularly salient in communications and information.

The contrast between a bright organizational line and a dynamic approach with (in shorthand) "social porosity" has special relevance for the study of communications and information. The matter will be revisited yet again under the subsection below on power itself.

Before we leave this section, we notice that the obverse of the last paragraph is also so. Communications and information play a special part in either of the conceptualizations of

[13]Don Lamberton reminded us of Veblen's point.

economic (and other) behavior. In economics, that point has been the thrust overall of information economics. In the alternative dynamic approach, communications may be the linchpin. In one formulation of the alternative, knowledge is a shared construction. Communications links make possible a more complete, more robust shared picture. The dynamics across time involve shifts in frame of reference, from one accepted view to a next.[14]

That is, of course, the over-arching topic of this chapter on "Social Dimensions": the competing frames of reference for communications and information.[15] Discussion in the hallways, during the workshop, brought out a basic contrast between the systems of thought being considered. One might be construed as "tightly" structured and axiom based; the other, "looser" and more open. From the dynamic approach just above, one description of shifts in frames of reference alternates between a tight, agreed frame and a looser frame, which allows the experimentation necessary to establish the next tight frame. This is a dynamic formulation of the epistemological balance discussed earlier, regarding methodology in economics.

- Power

We turn to contrasts at the heart of governance, around the use of power, itself.

Perhaps it is an irony that economics, the discipline for which power is a spoiler, has built in constructs where power is implicitly recognized (or maybe that is a natural response, to incorporate the phenomena). Hierarchy, as against market, and principal/agent – hierarchy writ small in other words, hierarchy on a modular basis as it were – describe power relations, but implicitly.

In contrast, the alternative formulations may feature the use of power. Social approaches have, above, filled out with interdependence for learning, portrayed dynamically; with power included, they take on full flower. This exercise of power takes the more complex form which accommodates porous organization boundaries and alternations in structure. That is the power of hierarchy when elements are together, but it also encompasses the elements separated, elements which may yet rejoin again. Along with the power of individual actors, there is an equal role for the power of shared agreements about social organization – the values, or culture, that might be the subject for a study of community, in philosophy, anthropology or sociology.

These contrasting approaches set different terms for access. In the alternative approach, access occurs along the time stream, as a function of periods when organizational elements are more together, more hierarchically layered and more coordinated. Openness, for a technical architecture, would depend on this dynamic formulation.

At some fundamental level, the contrast between the two poles centers on the primitive response to power and its exercise. For economics, and here for a range of other disciplines, the response is either to break the grip of power, or to corral and control it – anti-trust or regulation. For the contrasting view, perhaps the tension is with Western Enlightenment styles of thinking. Hajime Oniki, during the workshop, described for us how the notion of regulation has required a loan word to be brought into the Japanese language, from outside. In that society the western notion of regulation is so much a part of life – it is "in the air" – there is not a native word, as such.

That could suggest an alternative response to power, one which attempts to harness and to use power productively. But similar cases may also be found in the West, without particular intellectual articulation though. Sweden, and perhaps Scandinavia generally, seem in their dominant telephone operators successfully to have harnessed the power of large organizations. Sweden for instance enjoys both superb service and low prices.

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[14]With Thomas Kuhn, The Structure of Scientific Revolutions, the original description.

[15]Michel Menou pointed out that both ethnography and psychotherapy are disciplines well suited to help understand underlying structures of thought.

- Policy

The discussion of power has already broached policy, really; now we turn to mark contrasts in two closer-up topics: competition and pricing. When we move to policy, the contrasts shift from the intellectual arena of disciplines to wider constituencies, as already seen in the last section.

Competition is now a very widely accepted prescription, throughout the world. In the contrast, social dynamics also identify the role of consensus and cooperation. Though not presently so vocal, these alternative prescriptions also maintain some adherents around the world.[16]

For pricing, the debate inside economics itself continues almost unabated. But outlines are visible. Though price caps have enjoyed and do enjoy wide support, with efficient component pricing the dialog itself is returning to the regime of caps and floors which structured the debate around the breakup of AT&T. In the intra-disciplinary debate, price is again being predicated on cost,[17] which returns to a main dictate of the paradigm.

By contrast, a range of other voices would favor what could be described as community pricing. This contrast in fact stretches back through the history of policy for telecommunications. National administrations long continue to insist on "low" pricing, intended to bring all onto the net. "Value of service" pricing encapsulated the idea, and it has been used even by private carriers. Today, pricing the Internet is one of the hottest points of contention for GII policy. There the alternative view would maintain some features of the present Internet practice, in which the subscribing institution acts as surrogate for the community within that institution. A key effect is pricing for that community, rather than some cost basis on individuals or usage.

THE INDIVIDUAL AND THE GROUP

Because communications (and information implicitly) invoke physical networks, it is not surprising after all that alternative analysis concerned with social groups and human networks may come to some notice. This chapter has sought to outline contrasts between two apparent poles of thought, where many of the contrasts depend on a social versus an individual approach. We conclude by returning to our two "polar" subjects, universal service and intellectual property. As we do, I move from being observer, reporter and scribe (however far from "objectivity") to speaking as protagonist in the dialog.

On the one side, the canons of intellectual property help crystallize, I believe, the place of the individual in this analytic drama. If knowledge is really the product of shared effort, to parcel out a piece to an individual does damage to the shared heritage. This will even make a difference, when later the piece is needed by others, to assemble the *next* piece, along the path of knowledge. That which is necessarily shared, and is needed for later sharing, has been artificially hewn to a single individual. Yet, there are compelling reasons. The place of the individual in the process cannot and must not be denied. The individual is the only real starting place for any later, shared – productive – results.

On the other side, universal service is that paean to the social group – to groups which pretty clearly are fixtures in human outcomes. But history is strewn with the figurative and literal corpses of those run over by a bulldozer in the hands of some demagogue who acted "on behalf of the group." Rather than the prospect of sharing, reliance on a group may augur grim, or grisly results. Yet the sharing is necessary for many, if not most, desirable outcomes. A very large number of achievements are realized only through concerted effort.

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[16]Don Lamberton reminded us how there have been periodic swings toward, and away from, competition as the policy prescription, in the intellectual arena.
[17]Cristiano Antonelli sketched this development for the workshop.

Between the two, I will suggest an interpretation. If we imagine that the place of the individual, as against the sway of some group, has been very hard won, across history, then we appreciate how important is a style of analysis which does not do damage to the individual's position. If we also conclude that man is a social animal where outcomes simply cannot be divorced from affiliative memberships, then we may see an analytic course, over time, to take. Having opted to preserve the place of the individual, we may then try to locate that individual in a social setting which does some justice to the irreducibles of those social facts.

This chapter has tried to portray some contrasts between styles of thought which may sit, to some extent, on separate sides of this divide. If it meets my aim at all, those contrasts may suggest points where both sides can engage the questions implicit in such an agenda.