Новые тексты

VR   Первоначальный вариант данной работы представлялся Харрисоном Уайтом – живым классиком социологии производственных рынков – в рамках доклада на Международной конференции «Экономическая социология на пороге третьего тысячелетия» (Москва, январь 2000 г.). Однако на тот момент статья еще не была доработана и в электронных материалах конференции она отсутствовала. Сейчас мы предлагаем окончательный вариант данной работы, любезно высланной нам автором. Нужно заметить, что данный текст весьма не прост для чтения. Однако надеемся, что у наших читателей хватит сил, чтобы раскрутить заключенную в нем логическую линию.

Markets and Firms

Notes toward the future of economic sociology[1]

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Persistent directionality in continuing flows is the most striking characteristic of the present economy, which has evolved around repetitive production by organizations each invested in some considerable specialization, in a layered system of intermediate goods or services, each with recognizable upstream and downstream. Within each market each producing organization learns to seek a distinctive niche for its output commitments among a nest of peers able to establish themselves jointly as an industry or market which has become taken-for-granted in the perceptions of other markets and firms upstream and down of them. The market interface shields the firms from uncertainty in the flows. .An ordering by quality disciplines the niches.

These markets are social constructions. Active guidance comes from watching actions of these other peers as signals of that market. They reproduce themselves as molecules built from these firms as atoms. Each molecule arrays its atoms linearly.

Their settings in flows of intermediate products are what distinguishes these from older sorts of market that deal in given stocks. Economists take markets as fundamental, but as yet they have no way to characterize the process and structure through which particular firms actually constitute a market; so they largely pass over particular <u>firms</u> by settling for a stylized story of pure competition. On the other hand, analysts of firms' histories and strategies, as well as structures, usually pass over particular <u>markets</u> and focus on various relations among, and orientations by, firms. Neither of these approaches has been able to provide a plausible account of a production economy, because neither explains how markets and firms interdigitate as they co-evolve.

A main goal of economic sociology is to integrate the two framings by markets and firms and thereby achieve a more complete realism. Together these two offer richer basis for understanding cultural and psychological dynamics and styles which cross-cut economic action. Together the two also sustain more incisive analyses of larger scale and longer term, in capitalization and business cycle.

This chapter provides a partial overview, largely qualitative, of a family of mathematical models (White Forthcoming)[2]. Distinct varieites of these production markets are located on a map according to valuation sensitivities. The models thus uncover commonalities despite diversity--in era and industry as well as in sizes, numbers and locations of firms

The first parts describe the general setting and the signaling mechanism around which the market molecule builds. Then comes presentation of the core results for equilibrium model and its path dependencies. Possible switches in orientation along stream and more general evolutions over time are explored in the final section.

ASYMMETRIC SETTING

Firms are adding value by transforming inputs they buy and incorporate into their own product, which in turn may become input to further transformation by industries downstream. What particular set of firms find niches in and thus constitute a particular market depends on histories of substitutabilities across firms and markets. Unlike familiar markets of haggle and exchange, markets for production firms necessarily implicate not two but three roles, supplier, producer and purchaser, so that producers must look up-stream as well as down-stream in deciding what commitment is optimal given the discernible signals.

Some form of comparability across the producers is the prerequisite. It is simplest achieved in a linear ordering such as a pecking order (Chase 1974; Podolny 1993). Quality is imputed according to this ordering. Profit maximization is indeed sought by firms, quite rationally, but it only finds stable grounds as a business practice during operation <u>within</u> a quality framing as a recognized industry <u>within</u> economic networks.[i] Quality need not be calibrated by explicit index. The producers thus can sidestep having to estimate directly the potential valuation purchasers assign to each producer's flow of product or service. The tradeoff of course is that they are having to toe the line of equal valuation insisted upon by purchasers, expressed as a common deal ratio theta.

So this production economy consists in disparate market interfaces. Each is based on some matching of local variances; each orients the producers toward the direction of greater uncertainty. Production flows do not course through anonymous market intersections as hypothesized in economists' pure competition. Commonplace notions of supply and demand become contingent and relativized, since it is matchings of local variabilities that establish viability of market profile.

Supply and demand just emerge as byproducts from the interactive process of establishing market and thence product. As just one example, consider the Scottish knitwear sector in textiles. Social scientists have studied current operation intensively (Porac et. al. 1995: see White Forthcoming, Chapter 6) and there is a published history also (Gulvin 1984). A higher standard of 'fully fashioned' wear evolved in Scotland as several distinct markets in this sector, many centered in hand production. They together generate about a third as much as the mass-produced English knitwear. Each of these Scottish markets has had to and continues to

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[2] In some lines of business, accolades for <u>higher</u> quality in a firm's product accompany a cost structure <u>lower</u> than that of any peer judged of lesser quality. The signaling mechanism as originally proposed by Spence (1974) refers only to this paradoxical situation, which I also can and do include (White Forthcoming, Chapter 5 and thereafter).

have to earn recognition and identity for its product, an evolution in which 'demand' and 'supply' co-invent each other.

MARKET MECHANISM

Production flows in monetarized economies have been greatly augmented by specialization over decades in dedicated production facilities. Therein lies the conundrum. Commitments are required, period-by-period, to sizes of flows in the next period, in the face of risks and uncertainties in placement and procurement. There is a crucial distinction between assessable risk and uncertainty, as argued long ago by economist Frank Knight (1921). Producers seek footings in the direction where they perceive Knightian uncertainty.

Only one axiom is required for modeling: <u>The principal business of any actor is finding footing in and for interactions with other actors who are also seeking footings in what thereby becomes a sustained course of action</u>. Each producer looks to and at a market profile, which translates present indefiniteness from across the market into a definite menu. Observability governs the mechanism of such market, which constitutes a molecule with firms as atoms.

In order to estimate this rivalry profile in which it is caught up, each competitor scans the market positions of its peers. Concretely, it scans the volume and price of other producers in order to find apt footing for itself by suitable commitment to volume of its own. This commitment in turn signals to the others its own location on this very profile of rivalry which they are thereby together constituting, in continuing re-enactment of last month's or quarter's pattern of commitments. Buyers, on their side, insist with every producer on the same ratio, theta, of perceived value to amount paid.

It proves feasible to set all this up mathematically using elegantly simple approximations to the contextual facts of valuations[3]. This yields explicit models calibrated around two ratios from four parameters (a, b, c, d), each of which summarizes (exponentially) reaction tendencies regarding the various producers, as to volume and quality, in their two contexts, one of suppliers and one of customers. Explicit solutions are obtained, although extensive numerical computations and simulations usually are required to establish predictions when parameter values are inserted into the equations. Simulations also are needed for exploring strategic manipulations (Bothner and White Forthcoming).

MODEL AND CONTEXT FOR MECHANISM

An explicit formula is derived for W(y), the profile that can reproduce itself, in worth W for volume y produced by a representative firm.

$$W(y) = (A y^g + k)^f \qquad (1)$$

Here the only descriptors of this 'representative' firm are the y, its volume of product, and W, its revenue and thence market share. Just the reaction ratios appear in g and in f; whereas they along with the deal ratio theta are folded into A. This profile must be consistent <u>both</u> with ordering of producers from the cost structure each perceives <u>and</u> with their ordering by relative satisfactoriness to buyers of a given amount of product. This implies a common ordering by quality from one vis-à-vis another producer's distinctive product. None of the participants measure quality explicitly, and so values of the index n for particular producers should not and do not figure in equation (1). The equation simulates how perceptions and calculations of participants interact through a market profile, the W(y). It is only we analysts who stipulate quality as explicit values of some index n;

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[3] These approximations are known as Cobb-Douglas functions (Nerlove 1965).

Performances of firms in the market depend on context, context as sensitivity ratios, in addition to particular quality levels of member firms. With the description of this market context itself kept simple as well as realistic, the W(y) model can highlight this context as the crux of market survival and performances, which are the dependent variables. The particular niche a firm achieves on quality does of course seem crucial to it. But to understand and predict outcomes for the market and its array of firms, only the existence of some appreciable range in quality matters, rather than the particular values of n. One can show in detail how to work back from observed outcomes for all firms in a market to the set of n values (White Forthcoming, Chapter 8), but these can be put on the shelf for present purposes.

In actual observation the 'profile' for a market joins a few points in the W and y plane, one for each of the firms. Besides quality index, the market is indexed as a whole configuration doubly within the formula. Once is by the shift constant k shown in equation (1). Each value of k specifies a different one of the family of similar profiles of formula (1). It is an index of the history or path of interactive jockeying by firms and buyers from which emerged the profile. The second indexing is by the buyer's deal-criterion, theta, which is incorporated into A. It may depend on the particular path or history but will tend to be set by mores which have emerged across markets in that sector of the economy as to how good a deal buyers expect to settle for. That requires attention to influences from whole other markets around the given one, which below will be captured in another exponentiated parameter, gamma.

The shape of the market profile proves to depend primarily on context, expressed in the two ratios a/c and b/d. But the market profile is subject to decomposition and unraveling by competitive pressures within the market. Unraveling depends on history or path dependency as summarized for the profile as a whole in theta and k. For some contexts, the profile can unravel for any values of shift constant k, and for most contexts this is so for some values of k. Yet the unraveling may be contingent on the qualities of producers seeking to be in the market. The shift constant k is held to be more labile than quality locations, and these in turn are held to be less stable than the main features of context for the whole market represented by the valuation parameters.

VALUATION PARAMETERS

The real crux lies in /two tradeoffs in valuations across the three layers of actors. **One tradeoff** is with respect to how valuation of sheer volume grows for producers as compared with growth from the buyers' perspective. The modeling strategy is to estimate each of these growths in valuation by a <u>single</u> number, which is in fact the exponent of a power function (c for producer side, a for buyer side). That is what greatly simplifies the portrayal and hence yields an explicit formula as solution. It can be justified as an approximation on those pragmatic grounds, but this is also the assumption natural in an account of what these businesspersons are themselves jointly constructing out of their own ongoing perceptions and assessments.

A market profile W(y) is not, after all, the work of some mathematician or a bunch of engineers, it is more like the discipline observable in conversations (Sacks 1995; Gibson 1999), or that observable in greetings among kinfolk (White 1963), or that seen in vacancy chains (White 1970; Stewman and Konda 1983) or in residential segregation (Schelling 1978). These interactions are intricate and involve subtleties, but commitments can issue only on the basis of approximations that are workable off the cuff, in the field. In the same spirit, the first tradeoff of the two sides' valuations is taken to be just the ratio of these two numbers, exponent a for growth in buyer satisfaction with volume, to exponent c, for growth in costs that the producers anticipate from volume growth given their procurement arrangements.

Such a number that stably characterizes some situation, process or entity deserves special recognition. If such number is not just an idiosyncrasy but rather is applicable across some determinate family of instances it is called a parameter (White 2000). For the family of production markets and their members, a and c are parameters.

If that were enough, varieties of markets could be mapped into just points along a line that measures context by size of a/c. Indeed, that (plus allowing for theta, but not k) is close to the claim orthodox theorists make for their dream world of pure competition (see White Forthcoming, Chapter 11 and end of Chapter 5).

 Instead turn to the **second tradeoff**. This is between how the buyer side valuates quality growth and how the producers' side valuates quality growth in their cost built from relations with suppliers. Again, a single parameter, an exponent, is used for each valuation, b and d respectively. And again the tradeoff is equated with the ratio, with b/d. The W(y) model does argue that the distinctiveness of the various firms and their products within a market can be captured in their order by quality portrayed by n.[4] But the particular values of n for a market have been put on the shelf as secondary. What really counts for market survival and firm performances is some balance between the second tradeoff and the first tradeoff.

MARKET PLANE

Figure 1 locates varieties of market in a plane. One dimension is a/c, the other is b/d. The plane assigns a niche to a market as a whole according to these two tradeoff ratios governing the balancing of its firms' niches into a viable profile. The main payoff from the whole model is this state space.

-- FIGURE 1 ABOUT HERE --

 Performances can be characterized in terms of quadrants, of rays and of sub-regions. Price variations can be predicted from equation (1) using the two ratios of the four valuation parameters. Differences in patterns of profit will follow, along with market size and the relative shares of firms in it. This all follows from the market's construction through niche-seeking, through searchings for identity by firms, in terms of signalings validated in aggregate by buyers.

So performance of markets can be distinguished crudely according to a split into four quadrants around the point (1,1) shown at the center. The quadrants are constructed by crossing the two regions in which a/c is less than 1 or greater than 1 with the two regions in which b/d is less than 1 or greater than 1. In words, a/c < 1 is where for any growth in volume, demand goes up more slowly than producers' cost; whereas a/c > 1 is the region where demand goes up more rapidly with volume than does producers' costs. On the other dimension, similarly, b/d < 1 is where for any increase in quality, demand goes up more slowly than does producers' cost; whereas b/d > 1 is the region where demand goes up more rapidly with quality than does producers' cost. Quite different histories are characteristic for the markets in the different quadrants, and also different tendencies to turn into non-market forms of one sort or another.

The two lines splitting the plane at unity ratio will of course cross at the center point, (1,1). But this crossing is left blank in Figure 1. Performances predicted for a market are extreme for either ratio being unity, but in opposite ways so that the predictions break down when they

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[4] Such assignment of quality is justified and explicated by the Economics of Convention School: for a penetrating analysis and direct application to the W(y) model see Favereau, Biencourt and Eymard-Duvernay 2001.

intersect. Just around <u>the central point is a black hole</u> of contexts which will not support a W(y) market. This is just as we should expect, since the market interface equilibrates itself by trading off variation in volume valuation with variation in quality valuation, which becomes difficult as sensitivities on the two sides tend toward equality.

Two of these quadrants tend toward symmetry: In the lower left, the upper hand is held by buyers as to both volume and quality increases. Here producers vie for buyers who are relatively limited in their demand for volume and quality relative to what they cost producers. High volume production is lower quality, lower cost. Here it seems hard for producers to grow and there may tend to be more of them in a market, in conditions similar to those in population ecology theories of organization (Carroll and Hannan 1995). And this is closest to pure competition, the idealized model convenient for orthodox economic theory in which buyers see no differences in quality.

But we need to probe within each quadrant. Also shown in Figure 1 is the diagonal ray running from the origin through the center point (1,1). Profit rate will tend toward equality and at a very high value among firms in a market near this diagonal, while at the same time the absolute volumes and revenues of the firms are shrunken. By contrast, near the splitting line at $a/c = 1$, the market will tend to be swallowed up into one large firm which however will not be profitable at all.

Equation (1) suggests some similarity in performances for markets lying along any ray through the central point. Now put together rays within quadrants to identify also wedge sectors. On one side of unity, the triangle between the diagonal and the horizontal ray is labeled ORDINARY, and on the other side such triangle is labeled EXPLOSIVE in Figure 1 Equilibrating the market profile in ORDINARY depends on the volume valuation tradeoff ratio a/c between the two sides being <u>larger</u> than the quality valuation tradeoff ratio b/d. Exactly the opposite statement holds with respect to the triangle EXPLOSIVE.

Thus the lower left quadrant contains the ORDINARY triangle, where producers vie for buyers who are relatively limited in their demand for volume and quality relative to what it costs producers. High volume production is lower quality, of lower cost and substitutability. This is closest to pure competition, the idealized model of microeconomics in which there are no differences in quality. Here it is hard for producers to grow; they tend to be many and may approach the condition described in population ecology models. The upper left quadrant contains TRUST, an asymmetrical region, where there is high demand per volume cost (favoring mass production) but lagging demand for quality relative to its cost of production. This tends towards a non-market form in which firms divide up markets by volume shares or to conglomerate. The lower right quadrant is another asymmetrical region, where there is high demand for quality relative to cost, but lagging demand for volume relative to cost. The key dynamic is undercutting of quality by low-quality producers who all choose the same volume/revenue position, driving out layer after layer of higher-quality producers and making market unsustainable: so call it UNRAVELING. The tendency is towards a guild arrangement, which fixes quality levels, and restricts market entry.

The upper right quadrant contains the NOVEL triangle, which becomes split between EXPLOSIVE and CROWDED. Here there are increasing returns to scale. The entire market becomes more profitable the bigger it is; this has the character of waves of buyer enthusiasm, something like social movements taking place in the economic realm, or bandwagon effects in the popularity of products. These are most characteristic of novelties which catch on and become defined as the cutting edge of fashionability or respectability or technology. With such basis of quality, buyer enthusiam grows faster than producer cost with quality.

This is where intuition gets exercise, and at the same time concedes <u>how essential is guidance from the explicit mathematics of the W(y) model</u>. In the dull contexts where valuations by buyers both of volume increases and of quality increases are below costings of these by producers, the two sides will not come to agreement on profile of compensating payments W to producers <u>unless</u> the volume valuation sensitivity ratio is more nearly even than that for quality (the ORDINARY triangle). In those dull, ordinary contexts, quality difference can't play as much role as relative sensitivity to volume shipped if a market is to sustain itself as a viable profile. The real test of intuition is then to argue out why the opposite balance between volume and quality sensitivity ratios applies when both instead are high--in hot markets so to speak where buyers pressure harder. The crux is that in this quadrant of contexts a market is more vulnerable to other markets located cross-stream from it, and will thereby splinter into sub-regions of different viability and performance, according to substitutability with other markets.

For this quadrant, it is important to introduce a third dimension (gamma), the substitutability of one market's producers for another's, which can affect also how good a deal the buyers get. In the third dimension, the NOVEL region divides into two: CROWDED, which is where the optimum number of firms is rather small, and the aggregate market size decreases if more competitors are added. This fits the cases of high-prestige novelties, where imitators reduce the economic social movements' enthusiasm and dry up demand. CROWDED occurs with relatively more substitutability of other industries (as in very novel and especially faddish products; longer established industries have smaller gamma as substitutabilities are discovered). With less of this substitutability, takes the form of; there is more effort at collusion or other suppression of competition so that point for markets are in the EXPLOSIVE sub-region of NOVEL.

PATH DEPENDENCE

Performance in fact depends on k, as in obvious from equation (1). Each firm in a market has its own volume and revenue and it is only in the special case they all do have the same relative performance, profitability, that closed formulae are obtained for market solution. This is the special case of k=0. Then a mathematical formula enables one to see just how markets straddle between the two extreme performance packages described earlier for diagonal ray and horizontal splitter, according to the intermediate ray they lie along. This is indicated in Figure 2 [5].

-- FIGURE 2 ABOUT HERE --.

The results in Figure 2 guided our previous qualitative claims. But the special case of k=0 does not yield viable market profiles in the other two quadrants, TRUST and UNRAVELING, where firms cannot exhibit the same relative performances and numerical solutions are required. What we do see is that almost everywhere in the market plane one can expect a great deal of path dependence. That is a fundamental prediction from this family of models. The extreme region is CROWDED where any value of k, positive, zero, or negative indexes a path yielding a viable profile—earlier the richness of these contexts was emphasized.

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[5] This Figure derives from later in my forthcoming book than Figure 1 and it provides for the paradoxical situations of note ii above: Figure 2 is rotated ninety degrees from figure 1 to accommodate extension of the b/d axis to allow negative values.

At most points on the map, any positive value of k can yield a viable market profile, but only positive values. One can see from equation (1) that this means it is the market profile offering higher ranges of revenues that is robust dynamically. This is at the same time a market profile that will tend to enable member firms to cover any fixed costs over and above the variable costs that enter in their optimization choices, as Favereau et al. (2001) have pointed out. And in the rich CROWDED region, covering fixed costs would not be a focus.

Return now to ORDINARY. The other triangle making up the quadrant with ORDINARY is made up of contexts which <u>cannot</u> sustain a market for any value of k. Numerical, and thus messier, solutions of the W(y) model are needed to guide interpretation here, as was also true for the other two whole quadrants in which profiles with k equal zero cannot yield viable markets. In fact markets from this bottom triangle are much .like those for the whole UNRAVELING quadrant.

It becomes most obvious in this region that testing viability of a market profile requires looking at the particular spread of locations of firms on quality. In fact some points in UNRAVELING can yield viable market profiles—only for positive k, as in other quadrants. But now that will be true only if no firms are seeking niches from lower quality.

ORIENTATION AND EVOLUTION

Unraveling invokes strategic moves by individual firms. But there may be strategic moves by a whole market. Boundary changes may be induced.

Intrinsic to the production economy is the distinction between upstream and down. This is little noted in economic theories and business analyses but is foundational to my theory. One implication is so basic that the W(y) theory falls if it is invalidated. Each market must exhibit an orientation either upstream or downstream. Orientations, up-stream or down-stream can be seen as historical outcomes of an evolutionary sifting process, just like memberships in the production markets themselves. But orientation might be switched.

The account so far has presupposed down-stream orientation. Orientation in fact constructs itself in the most problematic direction; the unproblematic direction is left to habitual ties (White Forthcoming, Chapters 9, 10). An orientation up-stream for markets generally may be produced by inflation or war shortages, during which downstream prices are left as calculable and emphasis is turned to coaxing suppliers. . Another possible version for up-stream is colonial producers of raw materials with high overseas demand, who concentrate on exploiting their own suppliers. Former Soviet state enterprises might have been yet another version: their barter network with counterparts was focused on procurement rather than marketing[6].

Within the US economy, up-stream orientation can be indexed for some particular market by the relative prestige and size of sales and advertising relative to procurement departments. A set of discount supermarket stores may come to constitute just itself as a market oriented up-stream seeking bargains from suppliers while confident of tailoring sales. Bothner and White (2001) exploit the W(y) model to examine strategic uses of switch in orientation. Bothner's simulations point to great potentials for gain from switching.

Orientation possibilities direct attention to questions about the actual over-time process through which such a W(y) market comes to establish itself with its profile. Each production market gets itself together as a collection of peers only amidst other like nuclei for other markets. Markets come out of networks of firms, but the primary question is not the formation of cliques and dense clusterings along stream. On the contrary, firms in search of protection

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[6] Randall Collins suggested these last two illustrations.

against the winds of Knightian uncertainty are shying away from reliance on clusterings along habitual ties, which, although comfortable in the short run, can inhibit scanning and adaptation to changes and opportunities. The effect is to group together firms which have little direct connection which, instead, are in structurally equivalent positions, upstream and down, with respect to the networks of flows.

This is how some set of producers, amidst a partitioning with other such sets, come to key on one another in establishing differentiated niches as a set. This set comes to be recognized as the place to go for a whole line of goods that have come to be seen as differentiated varieties of that industry. This means an industry derives from structural equivalence rather than cliquing (Burt and Carlton 1989).

The exact paths of evolution are endlessly variable, dependent on contingent incident and impacted by variation in what neighbor markets are up to. How can one understand these evolutions? Turn, first, to an analogy from network modeling of other social contexts where actors are coming to cue on one another in some mobilization as they seek guidance on sources and sinks of services amidst flux of contingencies.

The analogy is to the work of Heckathorn (1997) on evolution. He has developed and empirically implemented network modelings. He has a target population of people who are drug injectors and thereby are exposed to becoming HIV positive. They seek one another out for information on and access to drug sources as well as life style. This is usually divorced from their ordinary lives--much as market ordering of producers is divorced from their own primary individual operations in producing. Heckathorn's actual design is for users to track other users and thereby constitute a representative population for Heckathorn.

He specifies Markov Chain models with estimates of fixed transition probabilities between subsets of the resulting population, such as by gender and ethnicity and town. The point is that this is a plausible model not just of his specific process of target acquisition, which was motivated in part by offering reward coupons for each referral of new subject. It can more generally model the process of self-constitution of a set out of pre-existing network population and thus serve as prototype for market formation.

Heckathorn's further key idea is the role of homophily in biasing the coagulation out of sets around similarities in orientation. This is akin to distinct industries forming within an overall sector of inputs and outputs according to propensities and identities of the actors searching. In both applications there will be sifting by similarity that is complementary to the striving for distinct niche in overall final grouping.

Heckathorn finds that attribute types seem to dominate path dependencies. He analyzes self-aggregating clusters of users that are only partially correlated by town of residence, an analogue to industry for firms. The key additional step is to invoke a generalization of the Markov Chain to a 'mover-stayer' model (cf. White 1970). This offers some paradigm for investigating market dynamics.

A second guide to understanding evolution comes from examining how boundaries emerge and are maintained. The Burt and Carlton paper cited above is entitled "Another Look at the Network Boundaries of American Markets" and it seeks "clearer distinctions among the market environment in which organizations operate" (Burt and Carlton 1989, p. 723). They argue that structural equivalence within the networks plays a bigger role than connectivity, but they have to reason from census data that is aggregated across the many markets making up an SIC category.

From less aggregated data, Zuckerman (1999, 2000) distinguishes market memberships of individual firms. He also does not have data on evolution, but he does propose and validate a

boundary-maintaining mechanism for markets. Investment analysts have considerable impact on a corporation's worth through their advice to investors, much of it based on discussions with executives of those corporations. What Zuckerman hypothesized was that these analysts, like the participants themselves, would have trouble understanding and following firms whose market membership was not clear-cut. Zuckerman showed that analysts tend to downgrade stocks of such firms. He went on to show further that the corporate executives thereupon took corrective action. The analysts thus are acting as gatekeepers for these markets as social constructions.

Boundary breakings of various sorts nonetheless may be key to strategic maneuvers. Simulations can show that they can have significant impacts on performance (see White Forthcoming, chapter 9). Changes in boundaries of markets also will be a major avenue for impact of the state on the economy: Fligstein (Forthcoming) offers theoretical framing and for case studies of industries see Campbell, Hollingsworth, and Lindberg (1991).

CONCLUSION AND DISCUSSION

The market is like a social molecule of firms rather than a mere abstraction called up in some string-maze of firms in a sea of perfect competition. Producers seek shelter from uncertainty together under a market umbrella induced through their own actions as a set who have come to eye each other and be eyed by others as structurally equivalent in networks of business relations (Burt 1992). The present model offers a story to displace the pure competition story about markets involved in production.

Firms come to make some product X in an evolving economy as and only as they form a new type of tie with peers, not with suppliers or buyers. They form these ties on the basis of structural equivalence within existing networks of procurement and sales. Such a set of peers becomes known jointly as a package. As each firm jockeys for a distinctive niche within the resulting market, the set thereby spreads knowledge of, encouraging demand for, this X, in part by inducing comparisons of quality/price tradeoffs which support the observed volume-price profile of the market. This array of niches on quality becomes established as the place to go for X, as the market for X.

The array settles out because buyers insist on a quality/price tradeoff and thereby producers settle into an ordering by volume with the niche of each maximizing its profit, revenue minus cost. The array becomes established as the place to go for X, as the market for X, whose very boundaries are established in the formation of the market. Push and pull interact in building each other up through this market pump that runs on differentiation. The curvature of the price profile is what disciplines this market. Supply equaling demand is a byproduct rather than a driver.

This model of social construction derives from centrally sociological theories of roles, identities and network embeddings (Granovetter 1985; Nohria and Eccles 1992, White 1963. Yet is also germane to relational theory of contracting, to principal-agent theory, to Transaction Cost Economics, to rational choice theory, and to Industrial Organization theory. A W(y) market is both a construct, analogous to a grammar, and also a tangible system of discourse, as well as also an actor with ties to other markets.

This model offers an alternative approach to that in Orthodox microeconomics offers little guidance to empirical studies of production markets. Applied work is energetic in its detailed case studies, speculations and statistical surveys but has no central unifying models applicable across observable market situations. The W(y) model answers a 70-year old call to an operational and behavioral microeconomics from economist Edwin Chamberlin (1933).

The principal aim however is to join the re-founding of economic sociology underway since 1990 (Swedberg 1997, 1993). Investigators must pick their way through bewildering congeries of common sense and stereotypical accounts which variously distort the realities of social constructions. Parametric frameworks established by mathematical models can greatly enhance interpretability amidst such complexity. Extensive simulations can be combined with numerical calculations to enlarge and refine these mathematical solutions and extend them to dynamics.

Production flows, of goods or services, these are what most markets regulate today, rather than exchanges of existing stocks as in traditional sorts of markets. Three roles, not just buyer and seller, are involved. Putting-out systems of production were precursors of the production market economy, and today's trends toward greater sub-contracting point back toward that. I argue that more and more of economic action is becoming engrossed into such network systems of production markets. Edge markets that deal with services are becoming more prominent, bringing more of social activity into the economy. Large production organizations are being unpacked into congeries of smaller organizations linking together in such production markets. The parametric mapping of contexts in the market plane can site a variety of these distinct types of market construction. Newly concrete predictions in case studies as well as fresh policy implications can result.

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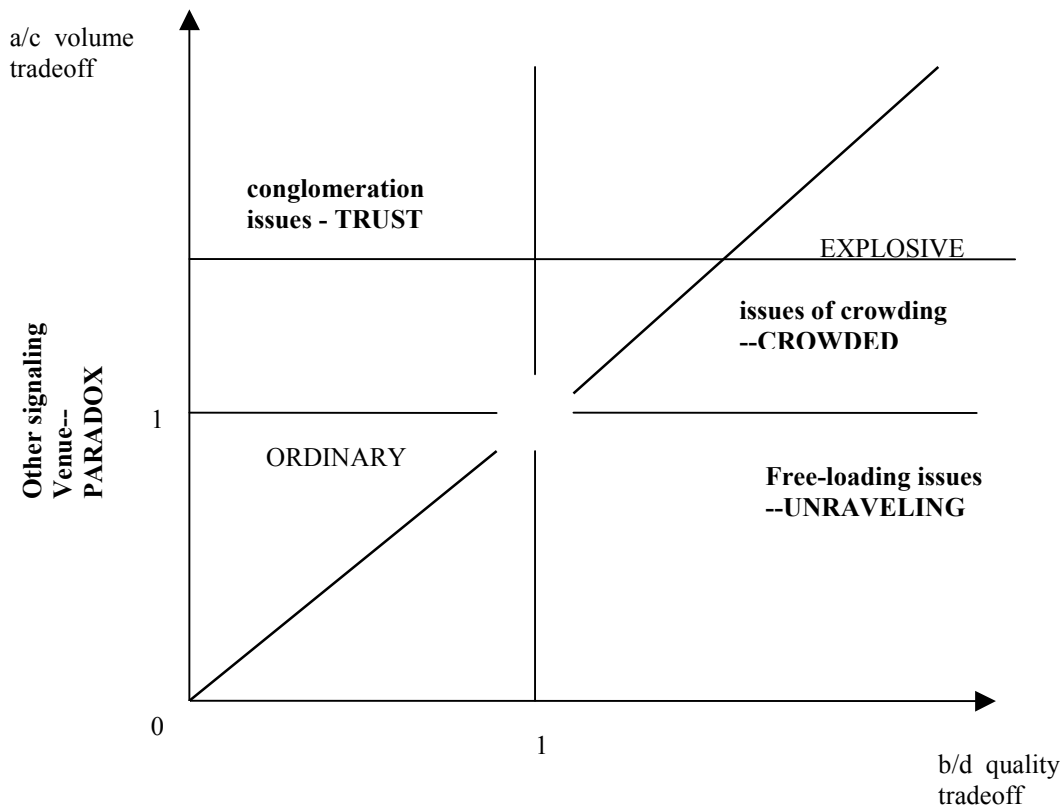
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Figure 1.

Figure 1. Market plane

Notation:

a = buyer demand for volume
b = buyer demand for quality
c = supplier cost per volume
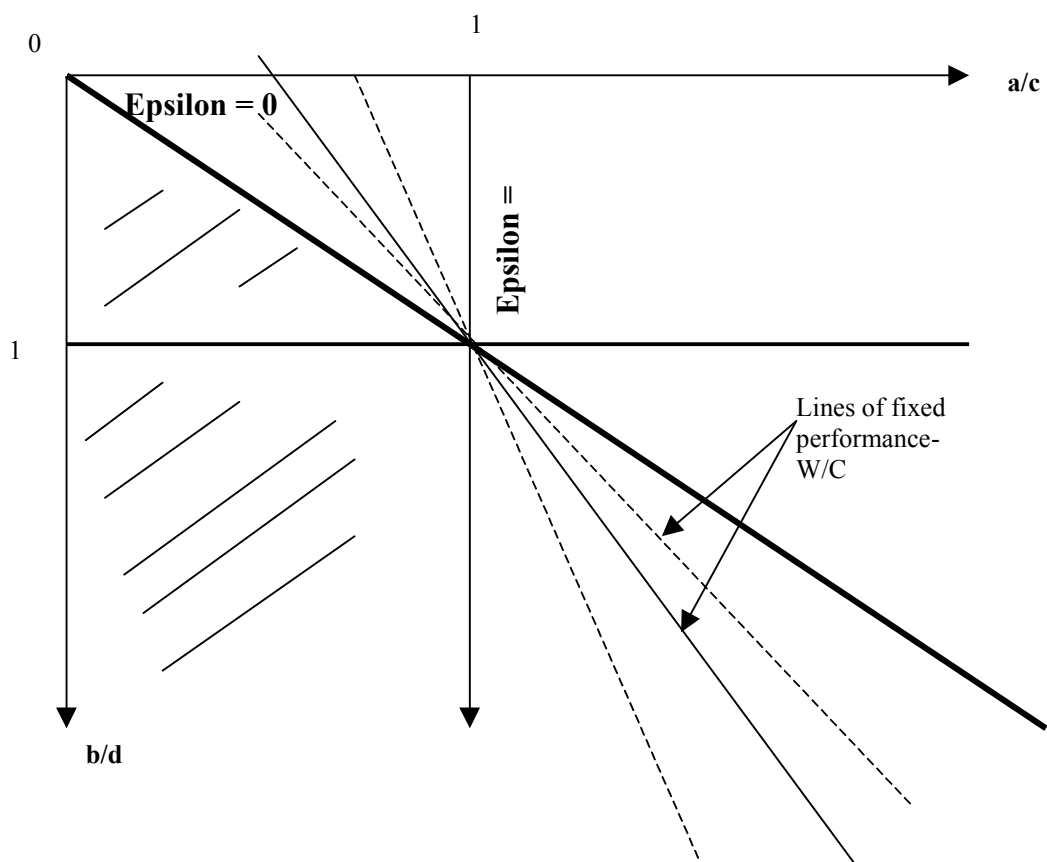d = supplier cost by quality

Figure 2.

Figure 2. Dependence of firm profitability on location along
rays in market space: ratio of W over cost, C.