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INVENTORY OF DYNAMICS IN ART MARKETS

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Each art market shapes to its context. I look only at markets that shape around competitive choices of commitments by a group of producers who lie intermediary between the sources they craw upon and the buyers they deliver to. Today I apply to art markets an explicit model for profiles of commitments that can sustain flows from procurement side through the producers to the buyer side.

Producers of plays mediate such flows for each theatre art market. Years ago I predicted what contexts yielded a market and with what outcomes for producers, for each of five genres, including Broadway musicals and repertory theatre. Today I try this for a number of other arts, as well as revise the theatre predictions. Take markets in new paintings as example. Upstream are the painters generating works, downstream are collectors who buy new paintings. Some market mechanism gets induced if flows go beyond haphazard purchases through individual encounters of collectors and artists. Art dealers are the intermediaries who through competition with each other are able to sustain a market. A specific genre and/of geographical region usually comes to mark off some particular set of dealers who emerge into competitive awareness of each other.

FRAMING

Individual artists and collectors of course attend to the number of paintings generated and acquired each period, but volume is sizeable enough to be analyzed as commitment variable only at the level of dealers. These dealers compete in establishing distinctive niches by quality within the overall flow in a genre. A dealer builds stockpile across particular artists to sustain a distinctive quality within that genre in eyes of collectors, who will envisage appropriate payment according to both this quality and the total flow, the ubiquity of works from that dealer.

But can this work for the contexts, some or all, distinctive of one genre and another? And at what profile of prices across that set of dealers? With what outcomes in volume, profit and revenue for a dealer above the payments made back upstream to painters?

And how pleased are the collectors? The dealers take the initiative, make the market via the profile of their commitments for next season. The collector side can only insist on getting as good a tradeoff of volume with quality from one dealer as from another. Yet of course the collector side will vanish if the deals though equally good each exceeds their pain threshold, the most they would pay.

Dealers turn from a fuzz of hints regarding disparate collector preferences. My core claim is that instead they calibrate their commitment choices by comparison to the profile through the choices they observe from the other dealers: Each dealer chooses the volume that will maximize its profit over what it estimates will have to be paid back upstream for the various volumes of new paintings.

DUAL FRAMING AND OPPOSITE ORIENTATION

That was also the framing for my earlier application to theatre markets, which drew on the mathematical formulation that was later laid out most fully in my 2002 book *Markets from Networks*. Today I also use another, dual framing of the model. Both framings are reported in the 80 page working paper that has been made available to you.

This second, dual framing examines which, if any, among a whole inventory of possible contexts for a market will sustain any given profile that has a constant curvature, whereas the earlier framing was used to derive all profiles (if any) of whatever shape that would sustain a market for one particular context.

Results for the new framing are simpler and easier to portray, while still identifying the main features found with the earlier framing. The new framing has the advantage of drawing equal attention to an opposite incarnation of the profile mechanism (whereas that was kept just to chapter 9 of the 2002 book).

A market profile can be oriented back upstream. The <u>same core claim</u> that dealers cue on each other now follows from their turning away from the fuzz around signals of payment claims that would be accepted by artists—now the ones seen as opaque, temperamental—to supply the flow of paintings to the dealer. So this is Orientation Upstream, opposite to the Orientation Downstream assumed previously.

In either orientation the dealer works with an estimation formula for payment on one side—label it 'back'—as it focuses on offering equally good deals to the other, opaque side—label it 'front'. So the inventory of contexts can use much the same building blocks to describe all contexts in an inventory for a market.

Explicit solutions are desirable so schedules of valuation according to volume for a dealer are kept to the same and simple shape for all the dealers. Differences in quality between dealers are reflected in spacings between these context schedules, which nest across the set of dealers. Anyway, dealers, like producers in other industries, keep their own estimation formulas for back-side simple (that is for cost with downstream orientation and for customers' payment with upstream orientation.

CONTEXTS: Inventory around quality and volume

In order to predict viability of and outcomes from market profile according to context, the modeler must supply some estimation formulas for valuation schedules describing each producer as seen by their front side. The front side being too opaque is what moves the set of dealers to key to each other's choices as the main signals to guide choice. Again for simplicity use the same, and simple shape, an exponential schedule by volume of valuation by the front side.

<u>Quality is the fulcrum</u> of the market profile mechanism, either orientation. Unless producers nest in the same order on cost schedules as on satisfaction schedules with respect to volume no profile can be confirmed by their choices. To build a broad inventory of contexts, allow first for any locations of the set of dealers, whatever their number, on a quality index of niceness. Insist that valuation schedules for front side next in the same order, though usually with different spacings, as for the back side.

All this description of context is detailed both in the long paper you have and in the 2002 book.

Given these simplifying assumptions, intuition suggests that viability of a particular profile is decided by how downstream schedule compares with upstream schedule, and concerning not only variation with volume but also with quality. I proved

that just two ratios of downstream to upstream parameters suffice to identify which contexts sustain viability of profile. One ratio is of the exponents for volume curvature, and the other is for curvature with location on quality.

The principal framing for solutions is thus a plane in which one dimension, the ordinate, is a ratio of volume exponents and the abscissa a ratio of quality exponents. Each point on the plane fully identifies a context for a market for computing outcomes for a sustainable profile using the locations of each producer on quality index.

PROBE PROFILES

A central point in the inventory plane, at (1,1), is where four quadrants come together. In that unique context any profile of constant curvature is sustainable across the set of firms ordered on quality. So the mathematics say, but the substantive significance is that no one profile can discipline choices of the set since any profile whatever can. This market discipline thus works off and only off differences in ratios between upstream and downstream valuation sensitivities, for quality for also volume.

My new perspective on the market model is to use as probes just these market profiles with constant curvature. I locate on the inventory plane all market contexts (if any) that sustain a given perfectible profile. More than half the contexts do not sustain any of these profiles for markets oriented downstream, but the allowed portion of the plane partitions into diagonals, each containing all the points for market contexts that sustain a profile with a particular curvature. For downstream orientation these curvatures are less than unity, the profile curves downward toward the origin. From one diagonal to the next, relative outcomes across firms change incrementally. There are consistent trends in profitability and inequality in market shares across any given quadrant of the plane.

Upstream orientation induces an entirely different picture. Now only profiles of high curvature can be sustained, and each profile identifies a parabolic ray rather than a diagonal across the plane. There are analogous trends in inequality and profitability across the points that sustain upstream profiles. All of the two quadrants where no downstream orientation is sustained do sustain profiles for upstream orientation.

SENSITIVITY RATIO ON VOLUME TRADES OFF THAT ON QUALITY, FOR DOWNSTREAM MARKET, BUT REINFORCES FOR UPSTREAM

Upstream orientation works everywhere in the two quadrants off the diagonal of the plane. Downstream orientation works in half of each of the other two, diagonal, quadrants of the plane. The rays for downstream through (1,1) thus slope upward to the right while the rays through upstream market contexts slope downward to the right. And any ray goes through context points that sustain one particular profile of constant curvature. In downstream orientation then to sustain a profile when you change one ratio means that you have to change the other in the same direction: this is reinforcement. Whereas in upstream orientation maintaining a given profile requires trading off an increase in one ratio, on volume or quality, with the other.

SIZES AND REVENUES OF FIRMS

However, where a context lies in the inventory plane is not enough to establish the absolute size and revenue for a producer of given quality. That requires specifying the scald constants, not just the two curvatures of valuation schedules. Absolute size

depends, for either orientation of market, on the ratio between the scale for front-side schedule and the scale for back-side schedule. For downstream orientation that means the ratio between the scale of desirability schedule and the scale of cost schedule, each schedule a function of both volume and quality.

One can draw a distinct inventory plane for each value of this third ratio, call it alpha. But instead one can use alpha to identify which one particular diagonal through (1,1) on the inventory plane specifies exactly the same size for a given firm as context changes from point to point along the diagonal (or parabola for upstream orientation). Call this the SPLINE. Denote both a diagonal and a parabola through (1,1) as a ray.

Points on rays above the SPLINE yield larger outcome sizes for a firm, and rays below yield smaller sizes. Markets for contexts below the SPLINE thus tend to have negligible economic impact and can be ignored.

SURPRISES ON ECONOMIES OF SCALE

The market profiles with the outcomes most attractive for producers with either orientation are for contexts where the ordinate (ratio of volume sensitivities, downstream to up) is larger than one: the upper two quadrants. Obviously that is encouraged by the cost curvature being less than unity—commonly designated as increasing returns to scale or economies of scale. For downstream orientation, such profiles are sustainable only if in addition the sensitivity ratio for quality is also above unity, whereas for upstream the quality ratio has to be less than unity. This is the picture already sketched—upstream markets in off-diagonal quadrants, downstream profiles being for contexts in the quadrants on the diagonal.

This is surprising in that conventional microeconomics denies that competitive markets are sustainable in contexts with economies of scale. But no behavioral mechanism has won acceptance for markets with producers of different quality. Textbooks thus dismiss the contexts I argue are most important economically.

INDETERMINACY

The implication seems to be that a given context (the two ratios for the plane, the alpha ratio, and the quality standings of the producers) fixes what the curvature of a probe profile has to be and its outcomes for producers. But this neglects indeterminacy stemming from the size of the ratio for equally good deals. The only constraint on that has been that it be at least unity—the reward not only be equal but each better than break-even. And of course there is another source: some profiles not of constant curvature also may be sustained by a given context.

FOR SEVERAL ARTS, SPECULATIONS ABOUT MARKETS

Start again with theatre and then move on to markets around new paintings, ending with brief remarks concerning performances of modern dance and of symphonies, plus a previous genre of sculpture.

Theatre markets—In the late 1980s I sat on a Harold Prince committee that steered a massive survey of theatre in the USA that was funded by the NEA. Drawing on that material I published estimated locations for markets of five genres of theatre on the plane of market contexts (although there was no systematic evidence for building

valuation schedules and the ratios that characterize market contexts in any specific set of companies). I put Off Broadway in the upper right quadrant, with Broadway Drama in the upper left quadrant, with Broadway Musicals located ambiguously in between. In the lower, less desirable quadrants I put Dinner Theatre in left quadrant and LORT (League of Resident Theatres) in the lower right.

These five assignments seemed compatible with what was known about business success. But they did all assume downstream orientation of theatre market. My newly developed perspective from just probe profiles emphasizes equal importance for upstream. These new results, sketched above, indeed suggest that either Broadway Drama not LORT are less likely to be sustained with downstream orientation than with orientation upstream, where perfectible profiles can work, not just profiles with general curvature. The substantive implications are major: the claim is that producers in Broadway Drama and in LORT (but not the other three genres) give priority to putting together all their inputs for making their business commitments, priority over attention to the 'demand side.'

Markets in new painting—Say there are about seven dealers in the market for new paintings and graphics named after their Fifty-Seventh Street location. Theirs is quite distinct from the diverse scenes down in SoHo and Chelsea, and also from the Madison Avenue galleries (which are as much concerned with traffic in older paintings). On the collector side, the more works on offer at next month's shows of 57th Street market the higher they appraise works, and the dealer does not estimate that payments to the artist side escalate commensurately; so in the investing plane this market seems to lie in the upper half.

In a year when the fine arts scene is abuzz, the collector side will pay heavily for works from a dealer seen as higher quality, more' in', without that dealer fearing commensurate escalation in artist payments needed. Then the 57th Street market's contexts lie within the upper right quadrant and can yield favorable outcomes in high profits and large sales, with at the same time quite equal market shares among the seven dealers despite their ordering on quality.

In a quiet year, however, collectors will not be accepting of prices from higher quality dealers that are out of proportion to payments that the artist side settles for. In this year the market context lies in the upper left quadrant. There will be only convoluted profiles to sustain downstream orientation, and I conjecture the dealers would switch as a set to upstream orientation. In such quiet year artists likely are restless and disgruntled, making unpredictable demands, trying to play dealers off against one another – as the collector side feverishly attempt during the buzz year.

The Broadway Drama genre market also is subject to such switches as its market context shifts with cultural buzz. And both theatre and painting markets will be subject to temporary extinction. As the formulas in the working paper show, <u>first</u> there is a cone of contexts at the junction of upper left and right quadrants in which no market profile can be sustained for <u>either</u> orientation. And <u>second</u> when the third ratio, alpha for scales, is large –say the collector side just got rich from dotcom startups – then in most of both upper quadrants no substantial markets can get established. Instead markets can get sustained only in contexts of the bottom quadrants. The high alpha instead pretty much excludes all but lower quadrant contexts.

Speculations for other arts—Even with full information on contexts, uncertainty in outcomes for an art market is ineluctable, given the contingencies in producers' venturings with trial profiles, but I will offer some projections. A market for modern dance performance will tend to have contexts in the upper left quadrant. I expect the Alvin Aileys, the impresarios, to orient upstream, being most concerned with financial inducements to induce top performance, pulled out through pain. On their other side they confidently estimate attendance revenue, knowing, however, that audiences insist on reliably frequent performances from an impresario—to which the dancers are not averse. The crunch is over quality: for dancers higher standard is so debilitating a to require premium pay, while on the customer side there is not enough expertise in perception to under gird disproportionate valuations. Again an influx of new wealth on the audience side would threaten viability in the preceding contexts. Symphony orchestra performances yield a very different dynamics, with contexts in the lower right quadrant to which I assigned LORT.theatre.

End with a much earlier era. In Renaissance Germany markets around production of lime wood sculpture are analyzed brilliantly by art historian Michael Baxandall in a 1980 book from a perspective like mine: "the styles of the sculpture express rather directly the commercial character of Europe (p vii)." Baxandall too sees production as mediated by a market across producers, mediation between artists on one side and the purchasers of works on the other. He too (chapter IV) argues for the paradigm of monopolistic competition, for which I am modeling explicitly a behavioral mechanism. Baxandall of course expounds styles and techniques of art with attention to their fluctuations, trends and diffusion. There is not data to support estimation of parameters, but my reading suggests fits with predictions from my model. In the greatest era, across the major impresarios, I see the context as in the upper right quadrant, where I put Broadway Musicals.