Appendix 2: *Markets from Networks* - précis of the book

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I outline this story on production markets from six angles:
    first, their emergence with context upstreams (purchasers) and downstreams (buyers);
    second, a price profile by volume mechanism that bridges procurement to production to buyers;
    third, explicit modeling of markets as higher level actors with a given context;
    fourth, mapping the whole spectrum of viable markets;
    fifth, how agency accommodates within such organization; and
    sixth, tugs-of-war cross-stream in a sector of markets.
Social construction of this self-adjusting mechanism suggests predictions not conceived by existing economic modeling around cognitions. The windup of the book notes how building of culture is companion to this organization story. References are to White (2002).

#1 Context and emergence

1A. ONE-WAY FLOW: from suppliers upstream toward purchasers downstream through producer firms as atoms aligned within a market molecule—generalizing the division of labor into role structure along this stream for firms within industries, …
<div align="right">Chapter 1</div>

IB. evolved from PUTTING-OUT SYSTEMS of previous centuries where further division of labor was grafted into mercantile systems of trade (in household production, subsistence agriculture, etc.) that generated banking systems able to sustain such cycles of generalized exchange.
<div align="right">Chapter 1</div>

1C. KNIGHTIAN UNCERTAINTY of business is what induces firms to huddle as a production market and thus gain identity downstream as a whole line of business with a quality niche for each firm.
<div align="right">Chapter 1</div>

1D. The PARTITION into market molecules emerges by trial-and-error among firms whose distinctive productions become recognized jointly as a product, a line of business distinct from the other markets emerging in interactive search for footings with buyers and other competitors.
<div align="right">Chapter 1</div>

IE. QUALITY EMERGES AS CORRELATE WITH VOLUME across firms' productions through interplays of signalings along stream via the:
<div align="right">Chapter 16</div>

#2 Market mechanism, pp. 71-77

2A. ASYMMETRY IN COMMITMENT – in each period, the producer must commit to procurement for the production volume it expects to sell at its price.
<div align="right">Chapter 1</div>

2B. A producer deals with gross receipts, denoted by $W(y)$ for worth of its shipment of volume y, with the price profile being $W(y)/y$. Each firm READS SIGNALS from along the existing REVENUE PROFILE BY VOLUME across all firms, plotted as $W(y)$ to guide its own next VOLUME COMMITMENT – which is…

2C. chosen to MAXIMIZE its net revenue after paying for procurement volumes needed from upstream, …

2D. subject to acceptance downstream as an EQUALLY GOOD TRADE-OFF of QUALITY FOR PRICE as among its peers.

2E. Producers thus are interlocked through some one market profile constituted by their own choices from what they observe. The MARKET PROFILE IS VIABLE only if those choices of y confirm the W(y) which framed them.

#3 Modeling market viability by context, pp. 71-77

3A. In each market producers thus interact with THREE LAYERS of actors: those upstream and downstream, plus its own market members.

3B. The market model should be explicit, and yet intuitively simple, to conform with satisficing constraints on business observations and actions.

3C. Choices by producers from this revenue profile by volume are subject to downstream acceptance, and this also validates them as a PROFILE BY QUALITY, with buyers in aggregate supporting the same transitive ordering of producers with respect to quality as to volume.

3D. The mechanism cannot be sustained when the number of member firms is either very large (>20) or small (<3), but their exact locations along any quality index, designated by n for niceness, are secondary as long as the cost schedules of firms have the same ordering:

3E. So specify sensitivity of valuation to quality, n, by the exponential power law: one exponent, d, for cost upstream and another, b, for desirability downstream: n^b and n^d. NEITHER IS OBSERVABLE by any participants, nor need they be.

3F. Volume produced, y, by each firm is OBSERVABLE by peers. Use the exponential power law for sensitivity of valuation to volume, too: one exponent, c, for cost upstream and another, a, for desirability downstream. The former, y^a and y^c, but not the latter, are known by the producer.

3G. This is a realistic model for a market as competition in differentiated goods.

#4 A map of market contexts, pp. 71-77

4A. Pure or perfect competition is an ideal type which can be seen as a set of special cases within the model above. With firms differing only on cost structure, not quality, only the parameters a and c for volume are germane. But with buyers not distinguishing the sources for various volumes, a loses meaning, All such sets of firms thus can be mapped on a single line segment by value of c for cost of each of the firms, Then knowledge of buyers' valuation function ("demand curve") would

predict what price level would equate that aggregate with the sum of productions, from these maximizing producers who are able to turn a profit: the so-called "Law of Supply and Demand."

<div align="center">Chapter 11</div>

4B. Real competition, however, is much more varied, as the parameterization by *a,b,c,d* can approximate. Which profiles W(*y*) can satisfy both downstream and producers sides? Derivations just for a representative firm with arbitrary *n* establish the exact curvature required by any given context as specified by *a,b,c,d*. For computing this curvature ONLY THE TWO RATIOS are needed: *a/c* and *b/d*. This makes intuitive sense: each is a ratio between the upstream (cost) side and the downstream (buyer) side in their sensitivity of valuation to variation in volume and in quality, respectively.

<div align="center">Chapter 3</div>

4C. Instead of averages, VARIABILITIES determine the equilibrium, as to shape. HISTORICAL ACCIDENT, what particular trial W(*y*) established itself, determines scale of market profile, designated by *k*, a constant of integration.

<div align="center">Chapter 3</div>

4D. A two-dimensional MAP is needed to differentiate PROFILE CURVATURES according to contexts for a market. The attached figure for the MAP is from Figure 6 in the article following, that includes the examples from the French wine study. A profile curvature corresponds to each point, characterized by the two ratios *a/c* and *b/d*. One interpolates firms along a revenue profile to find size, market concentration, profit levels and the like. Numerical calculations are commonly required, depending on the particular path index *k* and set of firm qualities that are observed.

<div align="center">Chapter 3</div>

4E. Parts of MAP are cross-hatched to indicate that curvatures for these contexts cannot, regardless of height index *k*, yield a viable market profile one in which each producer optimizes, with profit positive, at volume unique to it, with buyers accepting flows from all these producers as equally good tradeoffs of quality for volume. Other isolated points and lines in the MAP also don't yield viable markets. But the big trouble is vulnerability to disruption of the profile by some producers.

<div align="center">Chapter 4</div>

#5 Eruptions of agency

5A. Establishing one of these market profiles is a matter of trial-and-error in jointly adapting to context; so it requires eruptions of agency and strategy by would-be participants that go beyond following existing norms and roles.

<div align="center">Chapter 13</div>

5B. The basic indeterminacy, for given curvature, is the height of market profile, which is indexed by *k* (integration constant showing path dependence). In most areas within the MAP, ONLY ONE RANGE of *k* (either plus or else minus values) yield viable profiles, as indicated on MAP. And of course each allowed value of *k*, together with the given curvature, will yield different particular results for a given set of firms as to size, absolute and relative profitability, etc.

<div align="center">Chapter 3</div>

5C. Pushing and shoving between firms over particular niches on quality disappear if their production infrastructures correspond to their ordering on *n*, so that self-interest keeps them distinct. But A MARKET PROFILE CAN UNRAVEL when a bunch of firms aim for the same niche despite differing costs, because each expects to make a profit there. (This occurs especially

with low-quality firms.) One whole polygon of contexts in MAP is labeled as exposed to unraveling.

<div align="center">Chapter 4</div>

5D. KNIGHTIAN UNCERTAINTY may loom UPSTREAM instead of downstream in perceptions of a market, or even of most all markets in say an inflationary era where obtaining supplies appears more problematic than does satisfying customers. A dual form of market mechanism, oriented back upstream, obtains. One also can predict for what contexts profitability is likely to be larger with one orientation rather than the other. This can be additional motivation for the joint agency maneuvers by market firms required to switch orientation.

<div align="center">Chapter 9</div>

5E. MOVES TO INVEST IN A FIRM'S INFRASTRUCTURE are keyed to anticipated increase in quality rank and attendant likely growth in profit, or in sheer size and hence status per se. Modeling banking for the economy is required to pursue this.

<div align="center">Chapter 12</div>

#6 Cross-stream interaction and market sectors

6A. CROSS-STREAM INTERACTION BETWEEN MARKETS generalizes cross-quality interaction between firms within a market. There is some range of similarity in products as well as overlaps in interaction partners upstream and/or downstream: Call this GENERALIZED SUBSTITUTABILITY within GENERALIZED EXCHANGE.

<div align="center">Chapter 6</div>

6B. This cross-stream aspect of market context requires specification. Just one parameter is adjoined, gamma for substitutability, as a multiplier of the exponential powers that designate buyer preferences. This gamma projects MAP out into a THIRD DIMENSION.

<div align="center">Chapter 7</div>

6C. Some of the markets cross-stream from a given one will cluster with it in a sector widely perceived as rather similar. They do not trade with each other but their fates are tied as they draw to and from many of the same other sources upstream and downstream. MARKETS WITHIN A SECTOR can siphon from each other (or in some circumstances anti-siphon), as I derive the example of the wine sector of markets within French agriculture in the article following.
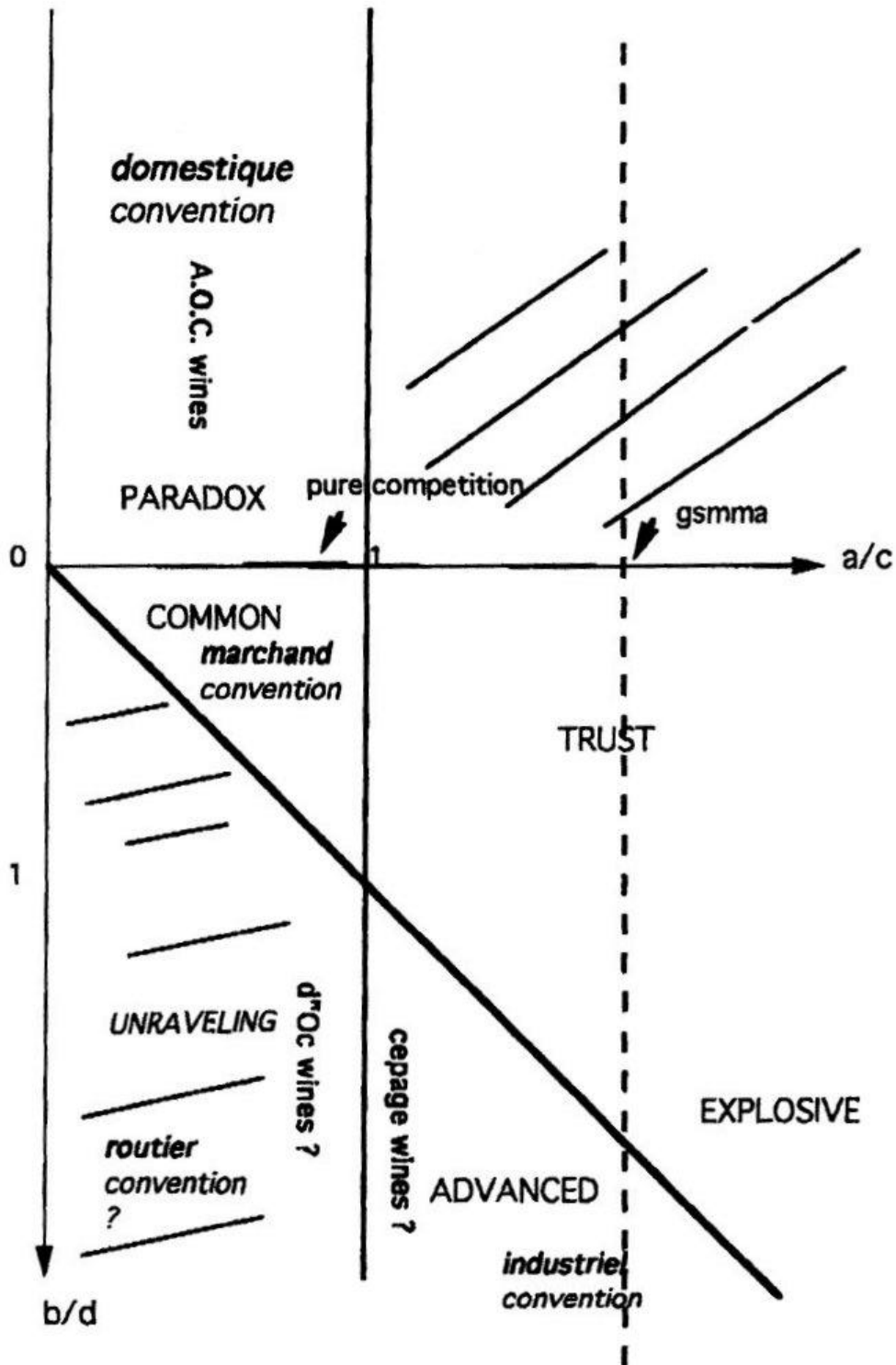
<div align="center">Chapter 6 (pp. 124-27)</div>

6D, MULTI-DIVISIONAL FIRMS are the most prevalent outcome from agency eruptions across cross-stream sectors. These are distinct from conglomerates: dissimilarity in market contexts of constituent subsidiary firms have repeatedly proved to weaken viability of the conglomerate.

<div align="center">Chapter 12</div>

References

White,Harrison C. 2002. *Markets into Networks*. Princeton:: Princeton University Press.

domestique
conventation

A.O.C. wines

PARADOX   pure competition   gsmma

0   1   a/c

COMMON
marchand
convention

TRUST

1

UNRAVELING   cepage wines ?

d"Oc wines ?

EXPLOSIVE

routier
convention
?

ADVANCED

industriel
convention

b/d

MAP. plane extended to negative b/d, with
assignments of *Conventions* and wine clusters, and
specification of substitutability, gamma