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The art of collecting art : a Keynesian "beauty contest game" ?

In his masterpiece, *The General Theory of Employment, Interest and Money* (1936), John Maynard Keynes wrote the following: "Professional investment may be likened to those newspaper competitions in which the competitors have to pick out the six prettiest faces from a hundred photographs, the prize being awarded to the competitor whose choice most nearly corresponds to the average preferences of the competitors as a whole; so that each competitor has to pick not those faces which he himself finds prettiest, but those which he thinks likeliest to catch the fancy of the other competitors, all of whom are looking at the problem from the same point of view. It is not a case of choosing those which, to the best of one's judgement are really the prettiest, nor even those which average opinion genuinely thinks the prettiest. We have reached the third degree where we devote our intelligences to anticipating what average opinion expects the average opinion to be. And there are some, I believe, who practice the fourth, fifth and higher degrees." This comment was directed at the way people price shares on the stock market, which is quite far from matters related to art or the semiology of images; of which more, later.

What is commonly known as the "*p-beauty contest game*", where p differs from 1, consists in asking participants to pick a number, say between 0 and 100, the winner being the one whose picked up the number which is closest to *p* times the average of all numbers chosen by the participants in the game. In this version of the game, the result should *converge* towards the Nash equilibrium, which is 0 if $p < 1$.

Why is that ? Because if a large number of people (called "*Level 0 players*") pick up numbers randomly, the average of their numbers will be 50. If $p = 2/3$, then the expected "winner" should be the one who choses 33. However, a second level of people (called "*Level 1 players*") will double-guess that, shoot at 33 directly, thus lowering the average. In anticipation of such a behaviour, and expecting that most people will be going for 33, a third level of people (called "*Level 2 players*") will go for 22. And so on, ending up at 0.

In a game effectively played in 1997, with 1.382 contestants who are readers of the Financial Times, and therefore presumably good – on average – at economic and mathematical reasoning, the average guess was 18.9, leading to a winner at 13, i.e. somewhere between Level 3 and Level 4 players.

The average pick of undergraduates in Germany, Singapore, the Wharton School of Business and Caltech seems to have been 40, in several studies analyzed by Colin Camerer in a 1997 article (*Taxi Drivers and Beauty Contests*, in Engineering & Science), meaning that the person picking 27 would be the (theoretical, as these were separate games) winner. A sample of PhD students in economics picked on average 25. However, when people play multiple rounds, their results get closer and closer to what game theory predicts, i.e. zero.

Keynes was trying to explain stock-market bubbles, as investors will tend to buy what they think other people will buy, thus driving prices up and generating market bubbles. It is the so-called "greater-fool theory", because you expect, when buying an asset, that there will be a yet greater fool to buy it after you, in which case you will have been proven *ex post* not to be such a fool.

Now, this "game" has in fact many applications in the world of "looks", the visual arts and design, where Keynes started in the first place. Let us take two examples. An obvious one could be car design, and contributes to explaining why most cars look alike, and in any given category can only be distinguished by their logo and little else. Once technical specifications and norms are taken care of, marketing specialists inevitably wonder which design will please most people buying into that particular category. Obviously those buying Ferrari will not go for the basic Toyota, and each culture will have its own visual preferences. Just as for the beauty contest, and within a given visual culture, the question for the car-maker is not "what is the prettiest design?" but "which of these designs will either attract the more people, or deter the less people?". If all cars from all car-makers of a given segment looked exactly alike but for their logos, the only justification for price differences would be their technical performance and reliability. *All other things being equal*, and given that most cars in the A to D segments share components from the same manufacturers and are built in a similar manner, car prices should be identical at a level that barely keeps the most efficient organizations alive. This is the equivalent of a bubble: the value for the shareholders would essentially disappear.

Car designers try to give a visual identity to their cars which acts as the signature of a particular brand, and then tend to stick to it, knowing that there are clusters of "visual affinity" which ensure a degree of brand loyalty. But they have to take into account the center of gravity of their market, say Europe, the United States or China, for any particular segment – such as SUVs or large sedans - and all brands with the same center of gravity for a particular segment will produce cars looking *fairly similar* during the same period of time. That "common look" is akin to a Nash equilibrium for the car segment, while each brand may achieve a variant of that equilibrium. Attempts to produce a "world car" will lead to a design which is practically deprived of any visual salience or character, as was the case of the Ford Mondeo for instance, which was created, as the name tells, to span the markets of the whole world ("world" translates as *mundus*, in latin).

Products targeted at only a small number of people need to be expensive, and in order to sell at that price they must belong to one of two categories: “luxury”, which requires to introduce additional objective or apparent qualities in terms of materials, services, and other features, or “trendy/fashionable”, which implies that the object carries a symbolic value that will allow its owner to be seen as belonging to a given “non-monetary” category which he aspires to, or fancies (“chic”, “modern”, “socially responsible”, “sexy”, “original”, and so on). Obviously the two categories can overlap.

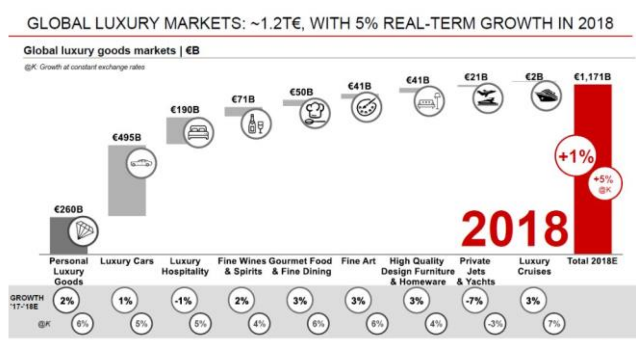
Now, purchasers of such goods also take into account what they believe *others*, whom they consider their peers or rivals, will think of their owning such a good, be it a luxury car or whichever other product. Indeed, goods which are purchased mainly for their symbolic value, and therefore in order to be *seen* owning such goods, follow at least in part the logic of the beauty contest game. This is why sales attendants often mention that a particular garment or model is preferred by the clientele, or sells particularly well: it channels the desires of the purchaser and spares her the agonies of wondering which is the most desired (and not desirable, in the abstract) model. The sale attendant *designates* the Nash equilibrium.

Key to the “game” is the prize: if there were no prize, there would be little point in wondering what the others will choose, except for some intellectual curiosity. In the case of the Keynesian beauty contest, as in so many other such contests, the prize is a sum of money, or equivalent; say, a trip or a cruise which usually few participants really want, i.e. would have purchased spontaneously on the market. The function of the prize is both to stimulate participation and to give some consistency to the notion of “winner”. Actual games have shown that the higher the value of the prize, the greater the number of participants, which makes economic sense; more importantly, the greater the number of participants the more the weak law of large numbers will apply (for any nonzero margin specified, no matter how small, with a sufficiently large sample there will be a very high probability that the average of the observations will be close to the expected value, therefore within the margin).

In the specific case of luxury or trendy goods, the prize is mostly symbolic: to be oneself categorized – in the eyes of the beholders – as a member of the social, cultural, or “visual” category (e.g., being deemed attractive, or wealthy) to which the purchaser wishes to belong. And the choice is as much positive (what you buy) as negative (what you must *avoid* to buy, or be seen with). The role of prescribers is essential in a “game” where – contrary to the simple mathematical game mentioned above – there can be many “Nash equilibria of taste”, none of which can be identified by the use of simple mathematics. In that game, knowing many people as a result of an intense social life is a way to solve the conundrum: it is the equivalent of peering over the shoulder of many participants in the game of numbers, and therefore having an edge for guessing the average. But when tastes change, or the number of social interactions is insufficient, or the category to which one aspires is different than the one she currently belongs to, guessing is trickier. Enter the prescribers and influencers.

What about art itself ? Not only is the "cultural segment" to which one belongs to (or aims at belonging to) particularly critical, informed, and ego-inflated, so that your choice of an art piece which is by definition meant to be *exhibited* (unless it is a fake Da Vinci) matters from a symbolic perspective, but the monetary value of such an art piece will depend on the convergence of tastes of a sufficiently large or prestigious sample of collectors in the near or medium term. This is particularly true for contemporary art, where the symbolic value may vary widely in time, and even vanish entirely, except for artists or works which belong to "art history" such as, say, a good Basquiat, Peter Doig, Adrian Ghenie or Anselm Kiefer. Art fairs, for example, are a way to position yourself, to detect the trends, to feel where the wind of collective interest – which has already gathered speed in the specialized circles - is blowing. There are striking affinities between the beauty-contest game and the game of collecting art.

It may be added that the global art market is now worth around 40 billion dollars per annum, of which 5 billion is made online, projected to become 9 – 10 billion with five years. The art market is roughly the size of luxury furniture and home appliances worldwide, or of gourmet food and dining. Furthermore, the online sales of some of the most important luxury goods companies is now approaching 50%. The "lower half" of the art market is becoming a segment of the global luxury market, as a graph by the consultancy firm Bain & Company clearly implies.



In this market of symbolic values, it is easy to spot a number of converging trends around contemporary political or social "issues" which the community of collectors either wishes to be associated with, or is forced willy-nilly to be associated with, if they want to remain "in the game". Matters of gender, race, identity or other "differences" now dominate a large part of the market for contemporary art, as any visit to major art fairs will show. While the car maker will need to carefully analyse the segment which his company is addressing so as to converge towards a "common taste", or the maker of luxury goods will try and seduce a number of artfully-carved segments of high net worth consumers, artists and their merchants or prescribers need to identify the issues around which a market of symbolic projection will exist, which in turn will sometimes generate "symbolic bubbles" in the way hypothesized by J.M.Keynes for financial assets. The best of these works will remain as witnesses of such a period in the history of human concerns and attitudes; the rest will crumble.

It will be interesting to explore further the logic of the Keynesian “beauty contest game” in the now globalized art market, and a quantitative approach may shed some light on the way this “game” (according to the meaning given to such word by the game theory) is being played.