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Measuring IT Effects On Status Quo Bias In Decision-Making

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1. It Is An Irrational World

Classical utility theory looks at decision making as choices between prospects and says the economic reason for selecting choice “A” over choice “B” is because the decision-maker has an expectation that “A” will produce greater utility than “B”, and that selecting “A” adds to overall utility – in that it doesn’t work against the utility we currently enjoy. Indeed, the normative model of rational choice assumes most people both should and do operate as classical economists say and make decisions based on maximizing utility (Kahneman & Tversky, 1979). However, beginning with the work completed by Daniel Kahneman and Amos Tversky in the 1970s, which was expanded by William Samuelson and Richard Zeckhauser in 1990s, and continues into the 21st century through research conducted by Nayakankuppam, Kempf and others, there is overwhelming evidence that *utility theory* and *rational choice* are rarely the reasons behind the decisions made. The thirty year old contrarian view to classical economic theory, *Behavioral Economics*, has found that the mental processes behind decisions are almost never black and white. Behavioral economics says decisions are strongly influenced by the point of reference against which the decision is judged, and that reference point is often the *status quo*, which may be accurately described as the existing state of affairs.

The influence of the existing state of affairs provides a reference or *anchoring* point in the decision-making process. Essentially, we attempt to simplify and run new information using the existing reference point as the start of our data synthesizing editing phase. Kahneman & Tversky included this editing process in their *Prospect Theory* in which they implied that utility theory was wrong because the influence of our bounded rationality meant that decisions were never based purely on gains in utility, but were decided based upon several behavioral factors that prevent us from being truly rational (1979). Kahneman & Tversky also found that decision-

making followed an asymmetric pattern in responding to loss aversion when measured relative to the individual's initial status quo position (1979). They found that while utility theory said people made decisions to increase overall wealth or benefits, prospect theory found that utility is defined by gains and losses and how they occur.

One of the basic tenets of utility theory is saying that regardless of how you frame a problem, if you include all of the essential information in your description of the problem that you will always arrive at the same solution (Kahneman & Tversky, 1986). This is known as the *principle of invariance*. As an example, if the problem is to find the quickest way to drive from Saint Louis to Kansas City and the possible solutions included I-70; I-70 and all east-west Missouri highways; or I-70 and all highways, railways and waterways in the state; invariance says I-70 would always be the answer selected. However, contrary to the rational utility theory of choice, Kahneman & Tversky said describing a problem in different ways often gives rise to different solutions utility and invalidates the invariance principle (1986).

One of Kahneman & Tversky's strongest studies contradicting invariance was where subjects were told 600 people would die from a disease. However if Program A was adopted 200 people would be saved, while if Program B was adopted there was a 2/3 probability that that no one would be saved and a 1/3 probability that 200 would be saved. The study results were 78 percent of the subjects picked Program A, even though both answers are statistically the same. However when solution Program B was left the same, but Program A was changed to say 400 would die, 78 percent of the subjects picked B, although the odds for all three answers are equal (1981).

Kahneman & Tversky showed framing affects decision making. Highlighting Highway 40 in yellow on the two multiple choice answers of my Saint Louis to Kansas City road trip

could influence people to select the highway instead of the interstate. However, in addition to my framing of the solutions I am dealing with the anchoring position or any status quo bias of the decision-maker. Even though I-70 would be the best choice, what if the decision-maker had been in an accident on I-70 last year? That anchored memory could result in a trek down Highway 40 even if the pace was slower.

How does status quo bias affect decision-making? Samuelson and Zeckhauser found folks disproportionately maintained the status quo when presented with better alternatives (1988). In a series of experiments the daring duo had subjects work through problems that were neutrally framed and ones that had a status quo anchor. They found the status quo anchor had a predictable and large effect on decision-making. Samuelson and Zeckhauser also found that the more choices the subjects were given, the stronger the bias for maintaining the status quo (1988).

Why is the status quo so often maintained? A decision-maker may select the existing state of affairs due to company policy, habit, convenience, fear or due to heuristics. Samuelson and Zeckhauser view it as a “deeply rooted decision-making practice stemming partly from a mental illusion and partly from psychological inclinations”; they say status quo bias is the result of the following (1988).

Rational Decision Making Under Uncertainty

Our rational mind says if the conditions or choices under a new scenario are the same as they were before, a former decision that produced acceptable results should produce the same acceptable results this time around. In addition, if the new decision builds on the old decision and is interdependent, then changing our minds this time around could produce high transition costs because we would effectively have to start over. An IT (information technology) related example of this is a story I once read saying that new computer keyboards have been developed that

arrange letters differently and are more productive than the QWERTY keyboard that has been in use for a century and a half. However, the cost and time of retraining everyone's fingers to recognize the new design would be astronomical. The high transition costs of the better solution forced maintenance of the status quo solution. Selecting the QWERTY choice demonstrated status quo bias, but it was the result of rational decision making because the transition costs of another decision would be high.

Another IT example I remember from my younger days was being told that if you selected IBM hardware you would never get in trouble, even if IBM was less productive or more expensive than other makes. IBM was often selected merely due to its brand cachet that exploited the endowment effect and resultant status quo bias, even though the transition costs for going against the status quo would possibly be lower. However, if insufficient information was provided about alternatives, then it is rational to maintain the status quo because of the risk of unknown transition costs.

Cognitive Misperceptions

The *endowment effect* was named by Richard Thaler and has to do with loss aversion (1980). The foundation of behavioral economics results from Kahneman & Tversky's finding that losses hurt more than gains and that we try to protect what we have from loss – we become risk averse; however, we become risk seeking when a loss has occurred because we try to get back what we've lost (1979). Thaler's research found that we place an irrationally higher value on what we already own than we would pay to acquire the same thing (1980). It says sellers demand a premium to compensate for the loss of giving something up. The status quo bias comes from decision-makers placing an irrationally high value on feelings already held and decisions

already made, this results in a disproportionate aversion to giving up what we already hold in place of acquiring something new.

A second cognitive misperception related to the first is anchoring. Although I already mentioned that decision-makers use an anchoring point from which they begin their evaluation of alternatives, that point may not be rooted in reality.

To use an example of how anchoring can affect decisions, several years ago I told a room of twenty three students that they were to guess which of two travel packages were more expensive, and to tell me the price of each package. I described one package as two coach air tickets to Banff in Alberta and a five day motor coach tour of Lake Louise. The guesses ranged from \$700 to \$1900 and were distributed all over the board. I then described a seven day Caribbean cruise for two with coach airfare to Miami, and had prearranged for one of the students to then say “Boy, I’d pay \$2,500 for that”. Although I had one student that guessed the cruise was \$700, the estimates of all of the remaining students were clustered between \$2,300 and \$2,700. I then explained to the class that the purpose was not to guess prices, but to show how a value perception would be used as an anchoring point even when the class knew the student that had shouted out \$2,500 didn’t have a clue what travel costs were. By the way, the cost at that time of the Banff trip was \$3,200 and the Caribbean cruise for two was \$1,800. Anchoring means an alternative solution may not get adequate consideration because the decision-maker has an inaccurate perception of the status quo.

A Psychological Commitment Coming From Incorrectly Perceived Sunk Costs, Regret Avoidance Or A Need For Consistency

Although my memory of economics says that changes in incremental utility should drive decisions, often where new money is spent is based on the placement of old money, also known as *sunk costs*. In the IT world these sunk costs are referred to as legacy costs or

lights-on costs that are needed to keep existing IT applications and infrastructures perking along (Benson *et al*, 2004). Indeed, 80 percent of an IT budget may be allocated to existing projects due to, what Benson called, an entitlement mentality, which contributes to status quo bias (2004).

I don't believe studies were needed to convince folks that individuals would rather not do something they'll regret later; that results from the guilt we feel that mothers teach us. The wrinkle in this is Kahneman & Tversky discovered that we feel much worse if things go badly because of something we did rather than didn't do (1982). I have found in many organizations the consequences of missing a good choice are far less than trying something new and failing. There is less risk in maintaining the status quo and justifying the decision as one of company policy or not rocking the boat than there is reward in raising one's profile.

Consistency drives status quo. We try to main consistency by avoiding *cognitive dissonance*, which my undergraduate psychology class said was caused by trying to keep conflicting ideas or truths in our heads. If another solution could be better than what we already think is good, we try to resolve why we didn't select the better solution the first time around, especially if the new solution was also around when we chose the apparently "inferior" solution first. If we can rationalize why we made the wrong choice initially we may select the new solution – a mental process something like "you didn't tell me it came in yellow, if I had known that...". According to Samuelson and Zeckhauser *self-perception theory* also drives our need for consistency (1988). The theory would be akin to that of legal precedents wherein previous court rulings are used as a basis for new decisions, thus self-perception says if our last decision worked once it should work again. A final aspect driving consistency is the need for *control*. Past decisions made give us the illusion that we somehow have some control over events. To wit, if we stop at the newsstand to buy a paper five days in a row and the bus comes to the stop exactly

five minutes after we buy our paper, there may originate a little voice in our heads telling us the reason the bus arrives five minutes later is because we buy a newspaper, so, to keep the bus on-time and our lives consistent we must continue to buy a newspaper each day. The illusion of control also contributes to consistency and along with cognitive dissonance and self-perception theory result in a psychological commitment towards maintaining the status quo.

Rational decision-making, cognitive misperceptions and psychological commitments are all reasons Samuelson and Zeckhauser say result in significant and predictable status quo bias (1988). However, they believe the best explanation of why it occurs is because status quo bias acts as an anchor. Schwenk says anchoring in the status quo causes decision-making to be simplified causing an illusion of control resulting in an inaccurate assessment of risks that leads to a premature rejection of alternative solutions (1984). He says that information may be ignored if it suggests gaps between performance and expectation.

What are the results of this bias? It may cause individuals to not do as much research on alternatives because, after all, the status quo already works for us (perhaps Herbert Simon's notion of satisficing is an explanation of status quo bias in that individuals have already determined the limits of their bounded rationality and do not wish to go further). Samuelson and Zeckhauser say status quo bias adds friction to resource allocation (1988) – as mentioned previously, in the IT world feelings of entitlement of existing IT programs may result in large portions of the budget being viewed as untouchable.

A final aspect contributing to status quo bias resulting in less than optimum decisions is the cost and time constraints on defining several alternative solutions. Many management theorists of the 1960's and 1970s, like Steinbruner or Mintzberg, recognized the problem but could not provide solutions (Schwenk, 1984). Indeed, Kahneman & Tversky sarcastically

referred to trusting results obtained from small amounts of data as a belief in the ‘law of small numbers’ (1979). However, because IT can process enormous amounts of data both cheaply and quickly, I wonder whether the problem of too limited solutions may be at an end. This raises the question as to whether IT may reduce status quo bias by providing sufficient information on both the status quo selection and alternative choices to make rational decisions.

2. Can IT Mitigate Status Quo Bias

IT can help the decision making process by comparing the expected outcomes of a decision against actual outcomes, or by assigning more accurate probabilities to the different outcomes. A corporation often has at least a temporary advantage over another due to information asymmetry where one corporation has more information than others (Zhu, Weyant, 2003). However, IT may aid in reducing this asymmetry by enabling all firms to have the same information.

The investment world I started in thirty years ago was a place of imperfect information. Part of the value of a stockbroker to a client was the exclusive information the broker could furnish about a particular company’s financial outlook. Although Hollywood likes to portray this information as being obtained by “dumpster diving” or more nefarious means, the reality is the brokerage firm with the best information was usually the one that had spent more hours poring over paper pages of corporate document filings or crunching earnings per share estimates on their Hewlett-Packard 12E calculator. Regardless of how the asymmetry was produced, it was possible to obtain a competitive advantage by giving clients data or direction that was available no where else. Today, public corporation document filings are available over the web at the SEC and the ubiquity of computers – and people with nothing meaningful to do, cause data and

direction on almost any investment to be available to everyone at the same time. IT has eliminated information asymmetry for most investments.

IT has also minimized or eliminated information asymmetry from many decisions in other areas. Businesses have a better understanding of their customers due to Customer Relationship Management (CRM) technology, Monte Carlo modeling can vomit out a plethora of possible solutions on any topic where data is available to all with preassigned degrees of accuracy, and Internet news feeds instantly communicate to all parties every breaking factoid on every subject.

All of this symmetrical information gives organizations more choices than they have ever had before, but it should be remembered that Samuelson and Zeckhauser found that the more choices the subjects were given, the stronger the bias became for maintaining the status quo (1988).

Status quo bias attempts to cognitively reduce the effect of new information by telling us that the old way was best. One way to address this is not to directly attack the status quo and thereby raise defensive walls, but to use IT to provide support for conflicting ideas. For example, IT may provide the ability to compare and contrast multiple solutions on a variety of criteria.

All of the IT in the world will not change stubborn management. Studies conducted over three decades ago found that even when information about all alternatives was available to make an informed decision that the “rigorous details” that were available to decision-makers were rarely asked for, and that these new alternatives were never fully appraised (Carter, 1971).

For a more recent example, the failures of the Federal Emergency Management Agency (FEMA) became apparent with their incompetent handling of Hurricane Katrina. FEMA had on the books something called a Hastily Formed Network (HFN) that was designed to be an IT based structure put together in response to a crisis that would provide comprehensive

information about all of the resources available (Denning, Hayes-Roth, 2006). HFN did provide the data needed to make appropriate decisions, but appropriate decisions were still not made. The decision-making problems shown by Hurricane Katrina are not due to a lack of information or a failure of IT, but to a failure to act on the information received.

Can status quo bias be overcome? If status quo bias is recognized it can be lessened. Just as airline pilots are taught to use objective measures of altitude and distance in addition to their own eyes people can be taught to counter the effects of status quo bias. One group of authors suggests a few ways to avoid the status quo trap:

- Look at your objectives and see whether the status quo acts as a barrier to achieving your goal.
- Identify other alternatives without exaggerating the costs of problems in not selecting the status quo.
- Ask whether you would choose the status quo if it wasn't the status quo.
- Remember the status quo will change over time (Hammond et al, 1998)

In addition, new ideas could initially be presented as “next-best” solutions to the ways things are currently being run and gently be brought into the decision-making process. Cognitive dissonance may be thwarted because we can endorse new decisions by telling ourselves that old decisions may be safely reexamined because IT has given us new data that we didn't have before.

A model can help force decision-makers to consider all points of view and not simply the status quo. Benson took Michael Porter's concept of a *value chain* and tweaked it into a strategic model for making IT decisions, but the concepts underpinning the chain are useful for all decisions (Benson *et al*, 2004). Their decision model basically says consider your strategic goals,

look at your resources, decide how to measure your decision, and based on the best performing decision determined by your metric, take action.

What metrics should be used to show that alternatives may be better than the status quo, or at least worth considering? There are the financial ones such as what the different proposals might mean on return of equity, or sales, or markets, or earnings per share. A few more IT oriented metrics might be quality of service, pricing benchmarks, six sigma or gain sharing. The metrics selected need to be defensible, independent, worthwhile and believable.

A potential problem in determining whether IT reduces status quo bias is whether the information created by IT is believed. If IT creates a decision benchmark that is later determined to be shallow, the whole concept of the fairness and accuracy of IT can negatively affect future decisions and therefore may harden existing bias (Koch, 2006). It is necessary to create a benchmark that is defensible and to disclose the limitations inherent in any metric.

The problem IT itself is having is its metrics are under scrutiny. IT costs may be examined as a percentage of revenue in total or broken down into legacy costs and new proposed costs, split up on a per employee or per user basis, or perhaps defined by adapting a metric used by the industry (Koch, 2006). By one standard IT costs and service may seem acceptable, but by another metric the same levels fail. The perception of contradictory metrics may also work to strengthen status quo bias.

Another consideration is if IT provides better and more thorough information will the decision-maker be so overwhelmed that the status quo is defaulted to? It has been suggested that people prefer decisions based on simple heuristic models better than decisions resulting from complex algorithms (Slovic, 1975). In addition, too many choices can inhibit selection. A study by Iyengar and Lepper at a local supermarket had one tasting table with 24 jams and another

with six jams. Of customers passing the six jam table 60 percent stopped and 30 percent bought a jar of jam. At the mega-jam table 40 percent of passing customers stopped and only 3 percent bought the jam. In this case too many choices lead to less satisfaction and resulted in inaction (2000). In a more specific study of choice overload and the status quo Iyengar and Jiang, using data supplied by Vanguard 401(k) participants, indicated that as fund options in a 401(k) plan increased the average employee's probability of participation dropped and the amount dumped into money market and bond accounts, the default choices, increased (2003). Will increased information actually increase status quo bias?

I would hazard that James Clawson would say information does not increase status quo bias. Clawson has written about the concept of infocracies, which he says are the IT Age successor to the bureaucracies of the industrial revolution (2000). He maintains that infocratic laws supersede personal judgment – which would imply that personal status quo bias might be supplanted by organizational bias – but he goes on to say that data supersedes organizational policies and that the consensus of data interpreters will result in bias free decisions (2000). His brave new world has decisions made openly with everyone participating in a values-based environment.

Behavioral economics says decisions are not truly rational and do not always result in the highest utility because mental aspects including our past experiences provide anchoring or framing points that color our decisions. This coloring results in status quo bias whereby the current state of affairs weighs more heavily upon our judgment than new alternatives, even though the new alternatives may be preferable. However, IT provides comparative data upon all possible decision alternatives thereby minimizing information asymmetry and permitting decision-makers to develop and use metrics that will assist them in maximizing the utility of any

decision. But some research indicates that if this information is perceived as inaccurate it could work to strengthen status quo bias. And there are other studies saying that if you provide too much information the status quo is selected more often. The question that remains is, can IT reduce status quo bias and how can its effects be measured?

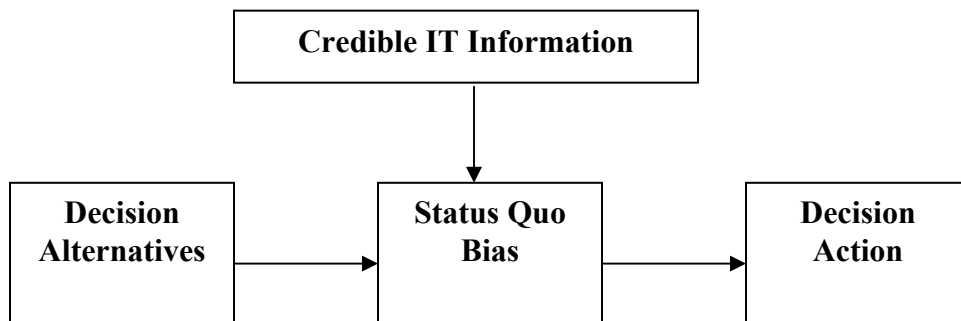
3. Measuring IT Effects On Status Quo Bias

I could not find any studies that attempted to determine the effects of any aspect of IT on any aspect of decision making, nor do any textbooks define IT either.

Mintzberg says to develop a theory one should start with an interesting question (2005). My question is what is different about IT now as opposed to a couple decades ago? What I see is IT generates more useful data now, so information about alternatives is less asymmetrical and is at times almost comprehensive. In addition, IT has developed a broad array of metrics that permit decision-makers to test the alternatives, and, perhaps most importantly, the metrics may provide answers that are not slanted by cognitive misperceptions. So, IT may produce sufficient, relevant and “clean” data that may be tested in an empirical manner.

Theory

My theory is “*Data generated by Information Technology when made available to the decision-maker changes status quo bias in decision making*”.



Mintzberg says theories should not be deductive, objective or true (2005). I didn't start this line of thought by noticing that x percent of decisions made with IT were less subject to status quo bias, nor can I claim any sense of objectivity about my theory; it simply seems to me it should work. As to truth, I've witnessed a couple decision-makers get all of the hard empirical data about alternatives in the world and they still always go back to the status quo. I'm afraid this theory is based on inductive reasoning rather than deductive reasoning and may be missing a bit of intellectual rigor as a consequence.

My theory appears to meet Samuel Bacharach's needs. A theoretical statement should be parsimonious, clear, and the boundaries of the assumptions must be understood (Bacharach, 1989). At this moment I feel my theory meets these requirements. My statement also appears to meet Bacharach's requirement of utility in that if correct my theory helps to explain why information technology may be producing decisions less affected by status quo bias, and my theory could predict that the use of IT will lessen status quo bias in future decisions. My theory also seems to meet Bacharach's requirement of falsifiability because experiments could be constructed to see whether IT actually does reduce status quo bias in decision making. The theory appears to be in the correct form.

I attempted to create both a parsimonious theory and hypotheses. This theory could be modified to address Prospect Theory issues raised in the Carnegie-Mellon study wherein the prospect theory notion that gains made people more risk averse and losses made people less risk averse were not supported when a computer intranet mediated the group discussion (McGuire, 1987).

Status Quo bias acts usually in a negative manner against maximizing utility of decision-making. If IT generated information, or IT generated metrics, could help decision-makers see the status quo as simply another alternative, rather than the default choice, the final decisions would be more rational and in greater alignment with the tenets of classical utility theory.

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