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Perspectives**

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Aims and Scope

TMC Academic Journal provides opportunities for publication of *original and unpublished works* of the Staff of TMC Educational Group and any other contributors whose work is accepted by TMC Educational Group for publication. The contributions must be in the English language. All works are invited for publication in the fields of Business and Information Technology.

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Editor's Note

It has been a challenge for me to manage the publication of this issue of TMC Academic Journal given the wide scope of my responsibilities. However, strong support from TMC management, my seniors and colleagues has helped me overcome all obstacles in order to publish this issue as per schedule.

This is also a special issue for the following reasons. Firstly, we have received contributions from well-known academics such as Dr. Signal, former Pro-Vice Chancellor of Monash University, Malaysia Campus; Associate Professor Coghill, Co-Director of Monash Governance Research Unit, Monash University; Associate Professor Lee from De Lasalle University and Professor McGregor from Mount Saint Vincent University. Another good news is that an author whose article was published in TMC Academic Journal has received "research points" for her article. This means TMC Academic Journal has slowly gained academic recognition. Finally, all contributions were subjected to a stringent double-blind peer review process which aims to improve the quality of TMCAJ. As a result, although we have received overwhelming responses to the call for papers, a number of manuscripts were not accepted due to lack of academic scholarship. Research articles authored or co-authored by the editorial member(s) have been reviewed by at least three reviewers, instead of two.

The articles in this issue reflect inter-disciplinary perspectives in terms of the themes and contents. The topics range from research on the economic impact of quantum computing, rethinking of growth and progress in the context of Singapore, consumer-citizen loyalty to research on health-related issue in the Philippines and cyber crimes in India. This issue also includes a short report on credit card use and debt and three research notes on data replication, corporate governance and sustainable tourism from young TMC scholars who have just embarked on their research career.

I am thankful to the reviewers for their time and effort to review the manuscripts. Without their support, I am unable to handle a large number of submissions. A very special note of thanks goes to Associate Professor Lee for his intensive involvement in the review process, our internal reviewers: Ms. Eva Chia, Dr. Monica Walet, Dr. Kumaravel Appavoo, Mr. Kaleem Farud; and our guest reviewers: Ms. Manuelita Contreras, Dr. Fara Azmat, Dr. Parisa Rungruang, Ms. Anjelika Baravikova, Associate Professor Kenneth Knapp, Dr. David Squirrel, Mr. Colin Ong and Dr. Asoka Balasooriya. Ms. Dorothy Tan is always in my list of appreciation for her great contribution and enthusiasm. She has vetted all accepted manuscripts in order to ensure they are free from grammatical and spelling errors. Finally, I am thankful to colleagues who have shown interests in the journal and I look forward to receiving your manuscripts.

Huong Ha (PhD)

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Associate Professor *the Honourable Dr Coghill, Ken* was born at Mansfield, Victoria, Australia in 1944, qualified as a veterinary surgeon, worked as a Victorian public servant, and served as a Councillor, a Member of the Victorian Parliament and Parliamentary Speaker before joining Monash University. His PhD was a study of ministerial responsibility and accountability. At Monash University, he teaches *Governance* and *Business & Government* in Masters Programs and supervises PhD research students studying governance. He is a world leader of research into capacity building programs for parliamentarians. Dr. Coghill is a Co-Director, Monash Governance Research Unit.

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The Economic Impact of Quantum Computing

Robert J. Bignall

TMC Educational Group

Abstract

The somewhat counter-intuitive laws of quantum physics offer a way of performing some computations much more rapidly than is possible using a conventional computer that operates in accordance with the laws of classical physics. In this paper we consider the possible economic implications of this.

Keywords: Computational complexity, quantum cryptography, quantum computing

Introduction

Many economic sectors and industries have been transformed by the ability of information technology to communicate, store and process vast amounts of data. However, conventional computers have inherent limitations to their power, which cannot be overcome by scientific and engineering advances that enable the construction of ever faster processors. These limitations will remain even if computer processing power continues to double every two years or so, as has been the case for the past fifty years, because the problem is not one of hardware, but follows logically from the nature of the software that is executed by that hardware. Some types of problems are exponentially hard for conventional computers, in the sense that as the problem size increases, the number of processing steps required to solve it grows so quickly as to overwhelm even the fastest of supercomputers. This

raises the question whether it may be possible to build a different kind of computer that is not subject to such limitations.

In 1982, the physicist, Richard Feynman, suggested the idea of constructing a computer that exploits the laws of quantum mechanics in the way that it processes information. It was subsequently shown that it is not only possible in principle to carry out a computation by encoding the data to be processed using the quantised attributes of (say) a configuration of isolated sub-atomic particles, but also that such a "quantum computer" could in theory perform certain kinds of computations far more rapidly than any known program running on any conventional computer. A further major breakthrough occurred in 1994 when the computer scientist, Peter Shor, proposed a method whereby a quantum computer could in principle be used to efficiently factorise large numbers. The implications for the banking and finance industry could be

very significant. For example, some public key encryption systems that are commonly used to ensure the security on-line financial transactions are based on the confident belief that it takes far too long for any computer to find the factors of the product of two large prime numbers.

The discovery of a quantum-based algorithm for factorisation has led to a widespread assumption that quantum computers should be able to efficiently solve other commercially important hard problems. If that turns out to be the case, then the development of a practical quantum computer could have an economic impact that would be even more revolutionary than that of conventional computers.

This article provides an outline of what is currently known about the theoretical capabilities and limitations of quantum computers. It takes the form of a general discussion and does not assume any expertise in physics or information technology. The conclusions may be of interest to those whose areas of specialisation include economics or banking and finance.

Computationally Hard Problems

The theoretical foundations of computer science were laid down in 1936 and 1937 in a famous paper by the British mathematician, Alan Turing (Turing, 1936). Within fifteen years, practical general purpose computers had been built and were starting to become available for

commercial use. A further fifty years of research and development has led to information technology playing an indispensable role in all modern economies.

Turing was the first researcher to formulate a rigorous definition of what it means for a problem to be solvable using a mechanical computational procedure. Based on his definition, Turing (1936) showed that there are some problems that an automatic computer cannot solve, even though such problems can be specified in a precise and mathematical fashion.

Any computer program that outputs a result is mathematically equivalent to an algorithm that takes an integer value as its input and evaluates some arithmetic function using that input. This provides us with a straightforward and consistent way of reasoning not just about what computers can and cannot do, but also about the limits of their efficiency. An algorithm is defined as "efficient" if the number of computational steps that are needed in order to execute it is at most a polynomial function of the size of its input. For example, a computer can multiply two numbers efficiently because one can formulate an algorithm for doing this such that the number of steps required is proportional to the square of the total number of digits in the input values.

A large number of problems lie somewhere in between those that can be solved efficiently using a

computer and those that cannot be solved at all. For example, as far as anyone knows, the problem of factorising an integer cannot be solved efficiently using a conventional computer. It is easy to factorise an integer that is just a few digits long. However, the number of steps required to find the factors of an integer can grow exponentially as the size of the integer increases. This means that even if technological advances ensure that the speed of computer processors keeps doubling every two years on average in accordance with Moore's Law, the general problem of factorisation will always be intractable using any known computer program, in the sense that one could always easily provide input values that were large enough to overwhelm any existing computer's processing power. Using current computers, a randomly chosen integer with just a few hundred digits cannot normally be factorised because it would on average take longer than the current age of the Universe to complete the computation. If such a number happens to have just a few factors and they are all reasonably large, then the problem of factorising it is effectively impossible. It would simply take too long.

Factorisation is an example of a NP problem, where "NP" is short for "non-deterministic polynomial". The class of NP problems has the property that one can check the correctness of any proposed solution efficiently, even though actually computing that solution in the first place may take an impossibly long

time.

Factoring an integer is a typical example of a NP problem. One can quickly check whether or not a given integer is a factor of some other integer, because there is an efficient algorithm for performing long division. However, the number of possible factors that would need to be checked is an exponential function of the number of digits used to represent the integer. None knows of any efficient way of finding a number's factors. From the point of view of practical computation, one is essentially no better off than one would be if one performed a brute force search and checked every eligible integer in turn (that is, every integer from 2 up to the square root of the number). Of course, some numbers are very easy to factorise, and there are always various tricks and short cuts that one can use to efficiently eliminate many of the possibilities. Obviously, once one has found one factor, the problem becomes easier. However, no matter how ingenious one might be in pruning the search space, on average the number of steps required is thought to remain proportional to an exponential function of the input size. That is because there are some numbers for which one cannot escape from the combinatorial explosion of possibilities that need to be checked.

The product of two large prime numbers can be used as a public encryption key. If one uses the well-known RSA algorithm (named for the initials of its inventors, Rivest, Shamir and Aldeman) to encode a

message using such a key, then the resulting encrypted message can only be decoded by someone who knows the two prime factors of the key. Since it is relatively easy for a computer to find two random large prime numbers and then multiply them together, a computer that needs to communicate in a secure fashion with another computer via an insecure network connection can construct an encryption key and then publicly communicate it to the other computer to use for encrypting the message that it sends back. An eavesdropper may be able to discover the key but will not be able to decrypt the message that has been encoded using it. Only the originator of a key is able to decode a message that has been encoded using that key. There are a vast number of suitably large primes to choose from, so public encryption keys can be created, exchanged, used once, and then discarded. This approach is very secure, unless some eavesdropper finds an efficient way of factoring large integers.

The class of NP problems has been extensively studied because many significant problems fall into this category. For example, the well-known "travelling salesperson" problem is of this type. Briefly, given a collection of cities that are all connected by roads, the problem is to find the shortest trip that enables a salesperson to visit every city just once and then return to her starting point. Many scheduling and optimisation problems are in the class NP. The travelling salesperson problem has an additional special

property, called "NP completeness". NP complete problems have the intriguing property that if anyone was able to discover an efficient algorithm to solve a given NP complete problem, then that algorithm could be adapted to efficiently solve any NP problem. Factorisation is clearly in the class NP, but as far as anyone knows, it is not a NP complete problem. Indeed, there are some theoretical reasons to believe that it is not, although there is no known rigorous proof that this is the case.

This raises two important questions.

1. Is it likely that a quantum algorithm for efficiently solving a NP complete problem will be found? If such an algorithm exists, then any NP problem could be efficiently solved with the aid of a quantum computer.
2. What can be said about the power of quantum computers? Specifically, what sort of problems could they solve efficiently, and which problems will remain intractable even for quantum computers?

These questions are discussed in the final section of this paper. The next section outlines in a little more details how quantum computers work.

It should be noted that the set of arithmetical functions that could theoretically be computed using a quantum computer is the same as the set of such functions that can be computed on a conventional

computer. In this sense then, conventional and quantum computers have the same computational power. Moreover, any problem that can be solved efficiently using a conventional computer could in principle be solved efficiently by a quantum computer. In other words, quantum computers are at least as efficient as conventional computers and, as we have observed, for some problems they appear to be far more efficient.

Quantum Information

The communications engineer, Claude Shannon, systematically studied the concept of information in a ground breaking paper published in 1948 and in a monograph published the following year (Weaver and Shannon, 1949). Information can be quantified, with the smallest measurable unit of information being a choice between two possible alternatives, typically represented by the binary digits of 0 and 1. Conventional computers store information using a set of memory cells, each of which can assume one of two possible states. Thus the smallest unit of memory can store exactly one binary digit, or "bit." Sequences of bits can be used to encode the information that the computer processes and may be represented using any medium that can assume two distinct and observable states, such as a transistor that acts like an on-off switch, or a small region on the surface of a CD-ROM that either reflects or does not reflect a beam of laser light. If one has an array of such basic memory units, where n is a

positive integer, then that memory can be used to represent any one of 2^n possible pieces of information; for example, 2^n different numbers.

Quantised properties of sub-atomic particles can in principle be used to digitally encode information. For example, whenever the quantised angular momentum or "spin" of an electron is measured along a given axis, it is always found to assume one of two possible orientations, denoted by "up" and "down." The fact that there are always two possible outcomes means that an electron's spin could be used to represent exactly one bit of information. However, the somewhat counter-intuitive properties of quantum mechanics which follow from the fundamentally random nature of the sub-atomic world, ensure that something more than this can be the case. When the particle is part of a collection of similar particles that are sufficiently isolated from the rest of the world, it can assume a quantum state that may be thought of as being a superposition of its two possible discrete states. The effect is that, until it is observed or measured, it appears to behave as if it is in both of its possible states simultaneously. This means that an array of n such particles that is isolated from the rest of the universe, instead of encoding just one of the 2^n possible numbers that can be represented using n bits, behaves as though it is encoding all of the 2^n possible numbers simultaneously. For this reason, the term "qbit" is used to denote a unit

of information in an isolated quantum system. If one can carry out a computation using a set of n qubits rather than bits, then the effect, under the right circumstances, may be the same as carrying out the same computation in parallel on all 2^n possible values. This implies that a quantum computer, because it uses qubits instead of ordinary bits, has the potential to be exponentially faster than an ordinary computer. That in turn raises the possibility that many important and commercially useful problems that are highly intractable even on the fastest of conventional computers could be solved quickly and efficiently on a quantum computer.

However, there are some important caveats. Firstly, it is only possible to observe one of the many possible states that a quantum system may have assumed. The effect of interacting with the system in order to measure it is that it "collapses" into the state that is observed. So, when we carry out a computation using qubits, we can obtain as output just one of the vast numbers of possible results that may in theory have been computed. This means that conventional computer algorithms are of no advantage on a quantum computer. It may compute in parallel all of the results of a computation for all possible inputs, but we are prevented by the laws of physics from being able to observe or measure all of these possibilities. We can only ever observe one computed result. The key insight that makes quantum computers potentially useful is that sometimes it is possible to

arrange for the computation to occur in such a way that all of the computational pathways that lead to the "wrong" results constructively interfere and cancel each other out, while the pathways leading to the desired answer are reinforced, in such a way that the answer that we are seeking has a high probability of being observed when the state of the system is measured at the end of the computation. As matters stand, devising quantum algorithms that have such a convenient property requires considerable ingenuity. However, a number of quantum algorithms of this sort have been proposed and experimental tests have shown that they can actually work. Such algorithms are necessarily probabilistic, in the sense that the computed result is not absolutely determined, but is skewed in favour of the desired answer in accordance with some probability distribution. However, by repeating the computation a number of times, one can converge on an answer that can be accepted as correct to any required level of confidence.

So far, the quantum computations that have been successfully performed in the laboratory have only worked with a very small number of qubits. To obtain a genuinely useful speed-up in computing time, one would need to be able to create a configuration of perhaps a hundred or more qubits. However, as the number of qubits in a quantum system increases, that system becomes more and more unstable and is increasingly likely to "decohere," or collapse into some particular state, before the

computation completes. If that happens, then some quantum information is effectively lost and the computation fails. Since the smallest disturbance can lead to decoherence, it is technically very challenging to build a working quantum computer. Some researchers have even claimed that decoherence may occur spontaneously¹. To date it has not been possible to maintain more than a dozen or so qubits in a suitable stable configuration². This is far from being sufficient to carry out a computation that could not be more easily and inexpensively done using a conventional computer.

While there are formidable technical problems that must be addressed in building practical quantum computers, there are currently no compelling theoretical reasons for doubting that such challenges are surmountable. It is therefore probable that a useful quantum computer will be built one day. When that happens, RSA and related encryption methods may become useless in the form in which they are currently employed and the security of many electronic commerce transactions could be compromised.

¹ Netherlands Organization for Scientific Research (2005, July 18). Fundamental Limitation to Quantum Computers. *Science Daily*. Retrieved on June 29, 2008, from <http://www.sciencedaily.com/releases-/2005/07/050708060942.htm>

² Perimeter Institute for Theoretical Physics (2006, May 8). 12 qubits Reached In Quantum Information Quest. *ScienceDaily*. Retrieved on June 29, 2008, from [releases-/2006/05/060508164700.htm](http://www.sciencedaily.com/releases-/2006/05/060508164700.htm)

Fortunately, a solution to this looming problem exists and, rather fittingly, it has been provided by quantum physics. It turns out that one can use qubits to securely communicate a private encryption key. There are various protocols, or ways of doing this, but they all exploit the fact that the act of detecting or observing a qubit collapses it into one of its possible states, with a subsequent loss of some quantum information. This makes it possible to ensure that a message communicated between a sender and a receiver using (say) qubits encoded via quantum entangled photons cannot be monitored by a third party without such eavesdropping being detected. Over twenty years of research into what is now called quantum cryptography has been very fruitful. Secure quantum based communication is now a practical technology, and it can be mathematically shown to be highly secure. In fact, there exist quantum based key exchange protocols that can be shown to be unbreakable if certain reasonable conditions are imposed on the sender and receiver. This is an improvement on the current public key exchange and encryption methods, where keeping the ensuing communication secure from attack by an eavesdropper using a classical computer depends on an assumption that is likely to hold, but this assumption has not been mathematically proved. Commercial quantum cryptographic systems are now available, although their implementation is still expensive and their use is currently restricted to communication over relatively short

distances. However, we can be reasonably confident that costs will decline and performance will improve as the technology is developed and refined and becomes more widely utilised. Eventually, we will see quantum cryptography in common use.

Ensuring the security of commercial and financial communications over the Internet and other networks will therefore require significant investment in new secure communication methods based on quantum physics. However, the cost of this pales into insignificance when compared to the economic consequences if practical quantum computers are able to solve *all* NP problems. We do not as yet know whether quantum computers will be able to efficiently solve more than a relatively small number of computationally hard problems. In particular, there is as yet no proof and no experimental evidence to suggest that it is possible to design a quantum computer that efficiently solves NP complete problems. On the contrary, some recent theoretical research suggests that NP complete problems may be beyond the power of quantum computers.

Another practical limitation of quantum computers arises from the fact that it currently requires a lot of ingenuity to come up with a potentially useful new quantum algorithm. Despite intensive research over the past fifteen years, only a small number of such algorithms are known and some researchers have come to believe that only a relatively small number of

commercially useful quantum algorithms will be discovered. On the positive side, once a quantum algorithm has been found, it can usually be exploited to efficiently compute solutions to a family of related problems. We can therefore expect that a library of basic quantum algorithms will be built up over time and that these will then provide the building blocks for quantum programming.

The analysis of quantum algorithms is difficult, because of the unfamiliar and counterintuitive nature of quantum systems. It has been recognised that a non-standard system of reasoning, referred to as "quantum logic", might help in addressing limitations of this sort. The actual form that quantum logic should take remains an open question and is the subject of ongoing research.

Summary

It is not known whether any quantum algorithm exists that solves a NP complete problem. If there is one, then all NP complete problems could be solved efficiently using a quantum computer operating in combination with a conventional computer. This would have very significant economic implications. Many important optimisation problems in industry and finance fall into the NP complete category. For example, there are no conventional algorithms known that efficiently solve the kind of resource scheduling and timetabling problems that companies such as airlines need to address as part of their every day

operations. Just a few percentage points of increased efficiency through improved optimisation of the use of resources would save airlines billions of dollars and many millions of tonnes of jet fuel every year. It would also become feasible to more accurately predict the behaviour of markets. This would have very significant implications for the finance sector.

At our present state of knowledge, all that we can be sure of is that some kinds of NP searches can in theory be efficiently conducted by exploiting the quantum mechanical properties of a suitable physical system. However, there is a growing body of evidence to suggest that NP complete problems cannot be solved efficiently on a quantum computer. This implies that, contrary to popular belief, the direct commercial impact of quantum computers is likely to be somewhat limited. The area in which quantum computers may prove to be most useful is in the study of quantum physics itself.

Perhaps the most important quantum algorithm discovered to date is Shor's factorisation algorithm. However, the ongoing technical problems involved in actually building a practical quantum computer and getting it to work are formidable. In the meantime, the economic threat posed by the discovery of Shor's algorithm has been mitigated by the development of quantum cryptography.

Further Reading

A good general discussion of the nature of quantum computers and what is known about their computational power and limitations can be found in a recent *Scientific American* article by Scott Aaronson (Aaronson, 2008). The same author's web site includes several technical papers and references that pursue these topics in more details.

A summary of recent relevant developments in the field of quantum algorithms can be found in (Shor, 2004). Shor has published his famous algorithm on prime factorisation in (Shor, 1997). This is a revised and expanded version of his original 1994 paper on the subject. These papers by Shor are available on line at <http://www.math.mit.edu/~shor/papers/>

A reasonable starting place for those readers who wish to find out more about quantum cryptography is the on-line entry on this topic in Wikipedia. This entry summarises the current state of the art and provides numerous useful links.

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Rethinking "Growth" and "Progress"

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Whether it is expanding an airport's capacity, constructing a desalination plant or establishing some new industries, we must re-define progress if we really want to avoid catastrophic climate change within the lifetimes of most readers. Progress must be re-orientated towards environmental sustainability. This is particularly important in societies like Singapore.

We all want progress but rarely think about what we mean by it. In reality, progress is neither a constant nor a universal concept.

The Singapore Government has thought more deeply about this than many governments. The National Development Minister told Parliament in February that "(w)e just feel that economic growth does not necessary lead to progress and may not benefit the environment and people" (Mah, 2008). The Minister's comment is a step ahead of most people, for whom progress means high material standards of living which are constantly rising. These lifestyles include processed foods, refrigerated and other superior forms of food preservation and storage, greater

reliance on labour-saving devices, larger and more complex homes, rapid transport of people and goods by their powered vehicles and sophisticated communications.

The seemingly inexorable economic expansion arises in several guises. Population increases produce demand for particular goods, services and jobs. Technological innovation and changes in design, whether functional, purely aesthetic or fashionable, lead to increases beyond maintaining a steady-state.

By way of contrast, societies that use simpler technologies, often dismissed as "primitive" societies, are more likely to accept long-standing standards of living which are within the carrying capacity of the environment in which they are located. They see themselves as part of the socio-ecology. They do not see mankind as somehow separate and entitled to degrade that environment in their own interests, whereby they would literally eat themselves out of "house and home". These attitudes are reflected in and supported by belief their systems. Materialistic progress is a meaningless concept to such societies.

The society of which almost all readers are a part is supported by economic systems that rely on progress measured by ever increasing consumption of limited resources. "Success" is represented by growth in consumption rather than maintenance of acceptable levels of consumption.

Certainly, the resources may be consumed more efficiently - less wastefully -- but the underlying measure of "successful" economic management is increased gross domestic product (GDP). GDP is measured by adding up all of the economy's incomes - wages, interest, profits - or expenditures - consumption, investment, government purchases and net exports (exports minus imports). In democratic societies, that message is repeated throughout election campaigns and voters respond to it.

In our minds, GDP growth is most often associated with energy and resource intensive activities such as appliance manufacture, civil engineering works, vehicle construction and the transport of goods, commuters and tourists. However, the goods and services could, conceptually, comprise food production, arts, sporting competitions, education, health services, government services and other economic activities involving low energy and resource consumption.

GDP growth disguises an underlying fundamental feature of the economy of any society. The simple village economy is a microcosm of our

economy. In a classic study of remote Chinese villages by Fei in the late 1930s (Fei & Chang, 1945), the production of any goods or services was found to depend on the generation of a surplus above the food needed for survival. That surplus can be exchanged or traded. Villagers are able to reliably produce significantly more food than required to meet the village's minimum aggregate nutritional needs from year to year and enable the village to support individuals who do not participate in food production - people to provide medical, educational and administrative services, for example. However, if there is little reliable surplus, then there is very limited capacity to allocate resources to treat illness, educate or provide other social goods. Those social goods are largely unavailable.

This general economic principle of the size of the surplus generated is relevant at every scale and must be taken into account in adjustments by a technologically advanced society like Singapore if it is to become environmentally sustainable. Fundamental to a sustainable climate is the dramatic reduction of carbon dioxide emissions.

In many countries, the surplus generated has been boosted enormously by the use of energy generated principally by the same processes that are producing global warming and climate change. Burning coal and oil to generate heat for electricity production, most transport and smelting and other

industrial processes is the process of releasing energy through the oxidisation of carbon compounds (coal and oil), and producing carbon dioxide.

Our dependence on an economy in which surpluses are generated by processes that are destroying the features of the environment we require for our more basic needs is a paradox that highlights some of the enormous adaptive difficulties we face. The paradox is reflected in the phenomena Wright calls "progress traps" (Wright, 2004, p. 108). Wright speculates that mankind's propensity to fall into these traps may be a product of the selection pressures to which early man was exposed. Certainly, mankind has evolved to be remarkably capable of not merely adapting to a wide range of environments but, in doing so, of modifying the environments in which people live to greater extents than any other species on Earth.

However, mankind can resolve that paradox of reliance on unsustainable exploitation of the environment if we recognise that there are alternative, viable conceptions of progress. The Genuine Progress Indicator (GPI) recognises that there are factors that genuinely improve the quality of our lives without increasing the consumption of material goods. The GPI integrates social and environmental capital such as clean air, safe streets, and the preservation of

habitat into a single measure that better reflects the things that make our lives more secure and satisfying (Redefining Progress, 2006) (Table 1).

In using such an indicator, it must be understood that some of the constituent components are incommensurate. It is a classic case of comparing apples and oranges. For example, having arrived at a measure of safe streets, how can one unit of street safety be valued on the same scale as the value of an orange or a manufactured product? The relative values assigned to them are at best matters of judgement. That judgement may be highly democratic - determined by surveys of public opinion or through focus groups - or it may be derived by a panel of experts.

Nonetheless, this indicator has conceptual value. It can be used to compare the conventional measure of growth in consumption, GDP, with the improvement in the quality of our lives, GPI, as Talberth, Cobb and Slattery have shown in Figure 1 (Talberth, Cobb & Slattery, 2006).

Talbert et al's findings clearly suggest that there is a significant, growing gap between consumption and the real quality of life (Talberth & Boharab, 2006). In other words, increasing consumption has not been accompanied by significant progress in the factors that do make for better lives.

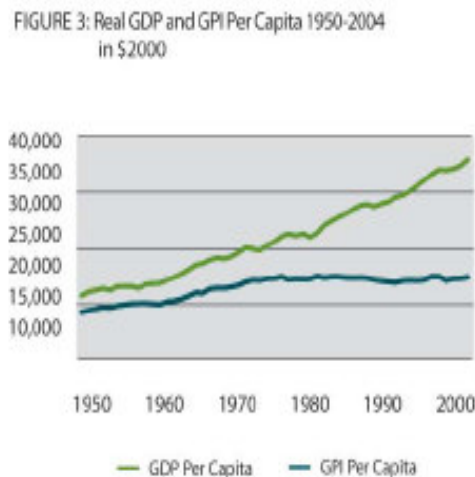
Table 1. Genuine Progress Indicator component factors

Positive factors (contribute to GPI)		Negative factors (high values diminish GPI)	
<i>B</i>	<i>Personal Consumption</i>	<i>C</i>	<i>Income Distribution Index</i>
<i>D</i>	<i>Weighted Personal Consumption (BxC)</i>	<i>J</i>	<i>Cost of Crime</i>
<i>E</i>	<i>Value of Household Work and Parenting</i>	<i>K</i>	<i>Loss of Leisure Time</i>
<i>F</i>	<i>Value of Higher Education</i>	<i>L</i>	<i>Cost of Underemployment</i>
<i>G</i>	<i>Value of Volunteer Work</i>	<i>M</i>	<i>Cost of Consumer Durables</i>
<i>H</i>	<i>Services of Consumer Durables</i>	<i>N</i>	<i>Cost of Commuting</i>
<i>I</i>	<i>Services of Highways and Streets</i>	<i>O</i>	<i>Cost of Household Pollution Abatement</i>
		<i>P</i>	<i>Cost Of Motor Vehicle Accidents</i>
		<i>Q</i>	<i>Cost Of Water Pollution</i>
		<i>R</i>	<i>Cost Of Air Pollution</i>
		<i>S</i>	<i>Cost Of Noise Pollution</i>
		<i>T</i>	<i>Loss of Wetlands</i>
		<i>U</i>	<i>Loss of Farmland</i>
		<i>V</i>	<i>Loss of Primary Forests and Damage from Logging Roads</i>
		<i>W</i>	<i>Depletion of Non-renewable Energy Resources</i>
		<i>X</i>	<i>Carbon Dioxide Emissions Damage</i>
		<i>Y</i>	<i>Cost of Ozone Depletion</i>
<i>Z</i>	<i>Net Capital Investment</i>		
<i>AA</i>	<i>Net Foreign Borrowing (NB may be +ve or -ve)</i>		

Genuine Progress Indicator = D+E+F+G+H+I-J-K-L-M-N-O-P-R-S-T-V-W-X-Y+Z+AA

Source: Adapted from Talberth, Cobb and Slattery, 2006

Figure 1. Per Capita Gross Domestic Product vs. Genuine Progress Indicator (USA)



Source: Talberth, Cobb, and Slattery, 2006

Another indication that material standards of living are not correlated with happiness and satisfaction with life as a whole is found in the World Values Survey (Inglehart, 2006). The Survey reported that all societies have a broadly similar proportion of people who are happy and satisfied with life as a whole. The one significant departure in the past 50 years was the low figure recorded in the former communist states of Central and Eastern Europe.

Indeed, the increasing consumption is causing damage to the environment on which our lives depend and depletion of resources on which material standards of living depend. Most dangerously, it brings a declining sustainability to our lifestyles and a heightened risk to both consumption levels and the security.

There is no problem in the availability of technical solutions. They are well known. Massive efficiency improvements could be easily and economically introduced. Many "new" technologies have been known for decades. Most are affordable and relatively simple. Other potential technical solutions are under development. They would enable mankind to rely on environmentally sustainable activities through which to generate necessary economic surpluses.

The problems are not technological but concern mankind's capacity to avoid another of Wright's progress traps.

The challenge facing mankind at every level -- individual personal actions, local communities, the Singapore Government and internationally - is a re-thinking of progress as orientated towards environmental sustainability. A different conception of progress leads to a re-orientation of governance. No longer are government policies, regulations and market design geared to ever greater squandering of limited resources as the source of economic surpluses. Rather, the focus will be switched to placing a high value on the production of social and environmental goods and on curbing damage to the atmosphere and other parts of the environment.

A number of countries have already taken a lead in developing policies and legislation in that direction. One of the better examples is the USA, particularly in the State of California. The state established the *California Air Resources Board* (CARB) in 1996. CARB is required to develop regulations and market mechanisms to reduce California's greenhouse gas emissions to specified targets. It is empowered to:

- Establish a California-wide greenhouse gas emissions cap for 2020, based on 1990 emissions, by January 1, 2008.
- Adopt mandatory reporting rules for significant sources of greenhouse gases by January 1, 2009.
- Adopt a plan by January 1, 2009 indicating how emission reductions will be achieved from

- significant greenhouse gas sources via regulations, market mechanisms and other actions.
- Adopt regulations by January 1, 2011 to achieve the maximum technologically feasible and cost-effective reductions in greenhouse gas, including provisions for using both market mechanisms and alternative compliance mechanisms.
 - Convene an Environmental Justice Advisory Committee and an Economic and Technology Advancement Advisory Committee to advise CARB.
 - Ensure public notice and opportunity for comment for all CARB actions.
 - Prior to imposing any mandates or authorizing market mechanisms, CARB must evaluate several factors, including but not limited to impacts on California's economy, the environment and public health; equity between regulated entities; electricity reliability, conformance with other environmental laws and ensure that the rules do not disproportionately impact low-income communities (Schwarzenegger, 2006).

The European Union has also introduced a comprehensive range of measures. Some EU member states such as Germany have taken even stronger action. For example, a high proportion of German houses now have photovoltaic roof panels, feeding electricity back into the grid at highly attractive "feed-in" tariffs, lowering household consumption of centrally-generated

electricity and reducing the load on the transmission grid. German houses are also remarkable for the meticulous attention given to minimising heat loss in cooler months and heat gain in summer.

Like Singapore, many European cities have excellent public transport and private cars are much less used there than in other countries like USA and Australia.

However, the type of progress rethinking open to countries like Singapore raises different issues for many neighbouring countries. For less developed countries, such as Indonesia, economic surpluses remain important to build social capital such as better standards of health and education. Such countries look at the evidence of the link between the generation of surpluses and the increase in carbon dioxide emissions. It is tempting for them to assume that the surpluses must be produced by following the path to "progress" taken by the developed countries.

They can also argue persuasively that the countries that polluted the atmosphere the most have a moral obligation to redress that damage.

However, to do so is to overlook a huge advantage available to societies with a lower dependence on carbon. Those societies can actually leap-frog others that have to retro-fit huge sections of their economies, replacing inefficient and carbon-dependent installed plant, buildings and equipment. Countries with low

carbon economies can progress directly to advanced low carbon economic activities in the same way as hand phones have displaced the demand for landlines in many areas.

By rethinking "progress", as has the Singapore Government, and re-orientating governance towards new conceptualisations, developed countries can achieve the reforms necessary for sustainability and less developed countries can avoid progress traps and leap ahead to more viable social, economic and environmental policies and practices.

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Consumer-Citizen Loyalty Relationships in the Context of Corporate Social Responsibility

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Abstract

After discussing the theoretical constructs of customer loyalty, corporate reputation, corporate social responsibility (CRS), and corporate citizenship, the paper develops and explores the new idea of 'consumer-citizen loyalty relationships; within the context of each of these theoretical constructs, especially CSR. The investigation shared in this paper is conceptual, with research the next step.

Keywords: Consumer-citizen loyalty, corporate citizenship, corporate social responsibility, customer loyalty, global consumer citizenship

Introduction

This paper agrees with Dick and Basu's suggestion (1994) that corporations can gain from reframing customer loyalty as a *loyalty relation-ship* to be nurtured and managed. It further proposes that corporations could reframe customers as global consumer-citizens (akin to corporate global citizens), thereby prompting corporations to manage customer loyalty relationships from a new perspective - that of long-term *consumer-citizen loyalty relation-ships* between corporate citizens and consumer-citizens. This moves the dialogue away from customers and firms to *global citizenry*. After discussing the theoretical constructs of customer loyalty, corporate reputation, corporate social responsibility (CRS), and corporate citizenship, the paper explores the

idea of *consumer-citizen loyalty relationships* within the context of each of these theoretical constructs, especially CSR. The investigation shared in this paper is conceptual, with research the next step.

Customer Loyalty

Customer loyalty is an important concept for corporations. It refers to the non-random tendency of customers to keep buying products and services from a firm and concurrently associate mostly positive images with that firm (Maignan, Ferrell & Hult, 1999). In general terms, it refers to attitudes toward a company and resultant patronage behaviour (Pirsch, Gupta & Grau, 2006). Customer loyalty can manifest itself through one or a combination of five dimensions (some also call these antecedents or

consequences of loyalty): attitudinal, behavioural, situational, personality traits (propensity to be loyal) and resistance to competing offers (Ruddle-Thiele, 2005). Pirsch et al. found that institutionalized CSR programs (rather than point of sale programs) lead to greater customer loyalty because customers perceive the companies making a positive difference in communities due to the positive moral stance taken by the firms. Institutionalized CSR programs involve seven activities including support for human rights, employee diversity, charitable giving and community involvement. Where point of sale promotions strives to drive up sales by increasing customer purchase intention, institutional programs are intent on building *relationships* with stakeholders (Pirsch et al., 2006).

Indeed, in their seminal work, Dick and Basu (1994) underscore the long-term importance of corporations' successful management of customer loyalty. They conceptualize customer loyalty or repeat patronage as a *loyalty relationship* informed by a concept they call relative attitude. Their notion of attitude assumes that repeat patronage is better predicted if one considers the customer's attitude about the corporation *relative to the competition* (rather than in isolation). A high relative attitude contributes significantly toward long-term maintenance of loyalty. High customer loyalty leads to lower propensities to consider alternative corporations (brands), higher resistance to counter

persuasion from competitors and increased positive word of mouth (Dick & Basu 1994; Maignan, Ferrell & Hult 1999). Walsh, Mitchell, Jackson and Beatty (2008) report, "increased customer loyalty benefits are hugely important in deepening relationships with customers" (p. 12).

Customer Loyalty and Corporate Reputation

Reputation and identity are a firm's soft assets, representing a competitive advantage that is hard to imitate and even harder to maintain (Walsh et al., 2008; Money & Gardiner, 2005). Walsh et al. report that corporate reputation explains three quarters of customer loyalty (see as well Andreassen & Lindestad, 1998). Also, Thompson (2005) recognizes that transnational corporations (TNCs) are becoming increasingly interested in fostering and preserving their *reputation capital*, which is closely linked to corporate identity and image, which are not the same thing. Corporate *reputation* is the "observers' collective judgements of a corporation based on the assessments of financial, social and environmental impacts attributed to the corporation over time" (Barnett, Jermier & Lafferty, 2006, p. 34). Corporate *identity* is the "enduring, central features of organizations that makes them distinctive from other organizations" (p. 33). Corporate *image* is the impressions people have of the firm. Barnett et al. explain that the identity of the firm can remain static while its image and reputation can change, meaning

reputation capital ebbs and flows as judgements of the firm accumulate over time. Part of a corporation's *reputation capital* is its performance vis-à-vis its obligations to society and the environment, called corporate social responsibility (CSR).

Corporate Social Responsibility and Customer Loyalty

"CSR has become ... *the* major concern for the corporate business world" (Thompson, 2005, p. 132). Concomitantly, the criteria for keeping customers loyal to a company is broadening to include CSR, albeit only a micro fraction of large TNCs are reporting related CSR initiatives, estimated at 2.5% (Thompson). CSR refers to open and transparent business practices that are based on ethical values and respect for employees, communities and the environment. It encompasses a concern for: (a) human rights, labour and security; (b) enterprise and economic development; (c) business standards and corporate governance; (d) health promotion; (e) education and leadership development; (f) human disaster relief, and (g) environment (Corporate Social Responsibility Forum, 2000). Corporations concerned with their CSR act on moral and ethical considerations as well as commercial ones (Thompson).

Conceptualizations of CSR have transformed over the years, moving from it being: (a) a social obligation to enhance the bottom line (legal, economic, ethical and philanthropic); (b) to a stakeholder obligation

(beholden to those affected by the firm's direct actions rather than beholden to the whole of society); (c) on to an ethics driven approach (a positive commitment to society in addition to the self-interest, bottom line); and, (d) also a component of the management process and strategic planning (Maignan & Ferrell, 2004). All four notions of CSR persist today and inform this discussion, some developed in more details than others to make salient points.

As noted earlier, research has confirmed that there are links between CSR, corporate image and customer loyalty. Andreassen and Lindestad (1998) found that corporate image directly, positively, impacts customer loyalty. Maignan, Ferrell and Hult (1999) report that customer loyalty is a benefit of corporate citizenship (a concept to be discussed shortly). They found that the more proactive the corporation is relative to CSR, the greater the customer loyalty. The Environics International (1999) millennium poll found, in an open-ended question, that 56% of citizens identify social responsibilities as a major factor influencing their impression of firms. A 2001 GlobalScan monitor notes that 49% of citizens state that CSR related factors are most important when making patronage decisions (includes labour practices, business ethics, environmental impacts and responsibility to broader society). The Environics International poll reports that a corporation's reputation is at risk (leading to lower customer loyalty) when customers

have negative perceptions about the firm's CSR performance. Half of the global citizens in this poll talked with significant others (word of mouth) about corporations' social and environmental behaviour. Two thirds of *citizens* (66%) want companies to contribute to broader societal goals. Almost three quarters (71%) take corporate citizenship into consideration when making purchase decisions. de Man (2007) reports that 80% of citizens expect companies to be held at least partially responsible for all 14 of the social, environmental and economic actions tested for in the GlobalScan annual CSR monitor. She also notes that there is a widening gap between what the public expects from a company vis-à-vis CSR and their perceptions of how well companies are faring, with the perception becoming more and more negative as time goes by. All of these findings imply that a corporation's CSR image will directly impact customer loyalty.

Interestingly, Walsh et al. (2008) found that the social and environmental responsibility of a corporation is not significantly related to customer loyalty. They explain away this incongruent result by claiming that "social responsibility is not a company generated phenomenon, as companies simply try to do what society, i.e., consumers, think is good at a given point in time" (p. 3). Their finding seems counter-intuitive given the compelling results from recent surveys about consumers' loyalty and CSR. Consider that a recent GlobalScan/HP Canada survey

(Hewlett-Packard, 2006) found that 92% of Canadians said the more socially and environmentally responsible companies are, the more likely they are to do business with them (inferring loyalty to a company). Consider as well GlobalScan's (2005) discovery that 70% of consumers hold companies responsible for CSR related activities and that failure to fulfil them seriously damages a company's reputation. Also, half of consumers hold companies fully responsible for citizenship responsibilities, including solving social problems, reducing the divide between haves and have nots and tackling human rights abuses. Moreover, GlobalScan found that companies taking on citizenship responsibilities can differentiate themselves thereby boosting their reputation and contributing to loyalty (as suggested by Dick & Basu, 1994).

Lichtenstein, Drumwright and Braig (2004) offer a plausible explanation for Walsh et al.'s (2008) unexpected negative correlation between CSR and customer loyalty, claiming that something else may be going on that the original operationalization of the variable did not capture. In this case, Walsh et al. operationalize the CSR variable as "supports good causes" and "is an environmentally responsible company." Maignan, Ferrell and Hult (1999) characterize this as a narrow focus of corporate citizenship, calling instead for a more holistic conceptualization. Perhaps this narrow definition of CSR as social and environmental responsibility leads to the unexpected negative correlation with

customer loyalty. This line of thinking, that the construct of corporate citizenship is complicated and intricate, is continued in the next section.

Corporate Citizenship

In more detail, Maignan, Ferrell and Hult (1999) contrast the concept of *corporate citizenship* with *corporate social performance*, which in itself is a construct amalgamating three related constructs: corporate social responsibility, corporate social responsiveness and corporate social responses. They then define corporate citizenship as "the extent to which businesses meet the economic, legal, ethical and discretionary [societal betterment] responsibilities placed on them by their various stakeholders" (p. 457). This definition is holistic in that it integrates a particular response characterized by (a) four types of responsibilities and (b) the notion of proactive responsiveness (instead of reactive, defensive or accommodative). A proactive firm is aware of, anticipates and meets its stakeholders' demands, with primary stakeholders comprising customers, investors, suppliers, employees and government agencies and secondary stakeholders comprising the media and special interests groups (not directly engaged in transactions with the firm). Proactive firms anticipate future responsibilities and act beyond minimal requirements. The Environics International (1999) poll found that the majority of citizens want companies to go beyond the minimum definition of their role in

society and strive for building a better society at high ethical standards.

Locke (2002) explores the construct of corporate citizenship, concluding that there are four variations differing on the role of management, the focus on profit versus social betterment and the limits of corporations' responsibilities. He suggests that when corporate decisions are understood to affect those beyond the company (especially beyond shareholders and stakeholders like suppliers, customers, creditors and employees), the actual governance structure of the corporation has to change to better ensure *corporate democracy* (evident when stakeholders have explicit roles in corporate decision making, Thompson 2005). Locke refers to this change in corporate structure as *social activist citizenship* (relative to minimalist, philanthropic and encompassing modes of corporate citizenship). For the three latter forms of corporate citizenship, firms can maintain their existing structures and just do extra activities: agree to voluntary monitoring of sourcing policies, scrutiny and transparency to ensure a balance among the triple bottom-line issues of business/profit, environmental, and social responsibility.

In the case of minimalist, philanthropic and encompassing corporate citizenship, it is the directors of the companies who continue to make the decisions. When social activist corporate citizenship

comes into play, the actual corporate governance structure has to change so it directly includes overt and observable stakeholder involvement (Locke, 2002). Engaging civil society actors in dialogue, deliberations or direct negotiations are examples of corporate democracy, of citizenly activity. These and other activities enhance the role of stakeholders by stimulating stakeholder activism, trimming the power of CEOs and raising the profile of non-executive directors (Thompson, 2005). Making changes to the actual corporate structure to accommodate corporate democracy is not easy for firms. In fact, Thompson posits that firms are turning to CSR as a substitute process for corporate democracy because it is less threatening than reforming the entire governance structure.

This paper suggests that if firms want to avoid changing their entire governance structure, they could opt to reframe their customers' predispositions for loyalty, doing so within the context of global citizenry. After all, if corporations are reframing themselves as global citizens (Thompson, 2005), it makes sense that they re-conceive one of their major stakeholders, customers, as global citizens, especially since customer loyalty is becoming deeply associated with CSR. If we accept that customer loyalty is a relationship that needs to be monitored and nurtured (Dick & Basu, 1994), it is reasonable to suggest both parties in this relationship be perceived as citizens - consumer citizens and corporate citizens.

From Customer Loyalty to Consumer-Citizen Loyalty

The label customer comes with certain connotations. The Greek root for customer is *custom* or habitual practice (one who patronizes an establishment regularly). The common business interpretation of the word customer is someone who purchases and uses a good or service (with *custom* first attributed to buyer in 1409). Other labels for customer are buyers, clients, patrons, users and consumers. The word *custom* also stems from the translation of the Greek word *sunetheia*, in the sense of common usage, common practice, being used to doing something (Harper, 2001). This paper suggests that corporate citizens consider *getting used to* viewing customers as consumer-citizens. While customers or consumers tend to be self-interested, isolated and inward-looking, citizens tend to be politically interested, informed and outward looking (Scammell, 2000). Also, while the use of market metaphors (e.g., customers) weakens civic engagement obligations of citizens and officials, accountability in a relationship is strengthened when people are defined in terms of citizenship instead of consumers (Brewer, 2007).

If two in three *citizens* (66%) want companies to contribute to broader societal goals (Environics International, 1999), it is time for companies to begin to see people as citizens instead of just customers, especially if this shift in perspective

can benefit corporations' triple bottom line (profit, societal and environmental obligations). Instead of trying to *reduce* citizens to consumers or customers, firms could work instead to affirm that corporations' citizenship behaviour is a reason for them to be loyal patrons of their establishments. Scammell (2000) says quite plainly that, whether through enlightened self-interest, pure opportunism or fear of public shaming, commercial success is increasingly linked to the treatment of consumers as concerned citizens. Forward thinkers in the field of consumer behaviour actually define the citizen as "a *responsible consumer*, a socially-aware consumer, a consumer who thinks ahead and tempers his or her desires by social awareness, a consumer whose actions must be morally defensible and who must occasionally be prepared to sacrifice personal pleasure to communal well-being" (Gabriel & Lang, 1995, pp. 175-176).

To manage this new consumer-citizen loyalty relationship, corporations would not have to deal with all consumers, just the opinion leaders. GlobalScan (2001) reports that 13 to 15 percent of any population influences the opinions of their fellow citizens (meaning the remaining 85% are followers). These opinion leaders are far more prone to engage in issues related to CSR and to expect more from companies than minimal, fiscal performance (EnviroNics International, 1999). In particular, these social activists consumers expect companies to

exercise citizenship by playing a socially minded leadership role to improve conditions for everyone (GlobalScan, 2001) - to be good social activist corporate citizens (see Locke, 2002). Corporations have to be ready for more moral and ethical consumption. People continue to be more inclined to use social, environmental, human and labour issues as key choice criteria, replacing the current strong focus on price, quality and durability. Consumers are poised to be supportive of a public-private partnership approach to solving global problems - as global citizens (GlobalScan, 2002). "In coming years, companies will be under greater pressure to deliver on their broader social responsibilities" (GlobalScan, 2001, p. 2). This shift will entail new notions of citizenship.

New Notions of Citizenship and Consumer-Citizen Loyalty

Schattle (2005) reports that social activist citizens who self-identify as *global citizens* use "the term to communicate a sense of loyalty to humanity at large" (p. 121). These same people explain that their sense of being globally connected originated in their local context and then expanded to cut across domestic/national politics into the international arena. He explains that global citizenship involves thriving within (and ensuring the continuance of) local public space while creating and building a global public space. He found that social activists equate the term global citizenship with civic republican notions embracing

awareness, responsibility and participation in politics and society. This perspective is in opposition to libertarian discourse (free market ideology) that views global citizenship as code for competition and technological competence so as to compete in the global marketplace. At the global level, there is a softening of public support for the free market economy accompanied with a growing support for government regulation (although support for libertarianism is still high, with the majority of people thinking it is the best system on which to base the future of the world). At the same time, the majority of people do not believe the world is going in the right direction; do not like the way society is progressing (GlobalScan, 2008). This growing pessimism explains the global citizenship movement from the bottom up (Schattle). The past few years have witnessed the simultaneous development of the anti-globalization movement, of shareholder activism, and of corporate governance reform (Maignan & Ferrell, 2004), mainly because of new notions of global citizenship.

Indeed, Frey (2003) maintains that the concepts of citizen and citizenship have to become more flexible for a global society. In the traditional sense, citizens, whether consumers or corporations, hold rights in speech, participation and decision making in the public sphere (Thompson, 2005). In the spirit of conceptual flexibility, there is also room in the private marketplace

sphere for the idea of consumer-citizen loyalty to corporate citizens. Hayden (2004) agrees that citizenship (especially global citizenship) needs to reflect concrete social relationships that make up interaction and communication as opposed to just participation in the public sphere. He argues that citizenry can emerge through creative processes of world building and the nurturing of social imaginary, motivated by solidarity, in particular, "alternative solidarities" (p. 3).

The notion of consumer-citizen loyalty (instead of customer loyalty) is reflective of an alternative solidarity - a relationship between consumer and corporate global citizens. GlobalScan (2008) asked people their opinion about how their respect for a company would change if that company partnered with an NGO, a national government or/ or the United Nations. On average, 80% said their respect would increase (the corporations' reputations would be enhanced) because companies could be trusted more if they aligned with a trusted sector of society, more so if these were multi-sector partnerships. This inclination to trust a firm more if it partners with a trustworthy societal sector comes at a time when trust in social institutions is at an all time low, declining in all sectors, especially TNCs (GlobalScan). Would the company's reputation be enhanced if the corporation partnered with consumer-citizens in a loyalty relationship? This paper posits that the answer is yes.

What would this new loyalty relationship look like? Taking direction from Thompson (2005), firms could augment the concepts of stakeholder representation and interest with the notions of *championing and stewardship*, as they reframe customer loyalty. Corporations would then assume that consumer-citizens are working in concert with them for issues of social and environmental responsibility, as well as a sustainable bottom line. Champions and stewards take on the character of *acts-citizenship*, a matter of acting in a way that invokes a civic virtue (Thompson). Basically, this paper proposes that people will more likely be loyal to a firm if that firm respects their voice as a fellow global citizen. More than being just paying customers displaying ongoing patronage, consumer-citizens would be partners in the betterment of society. Lichtenstein et al. (2004, p. 17) submit that "when a corporation behaves in a manner that is perceived as socially responsible, consumers are likely to infer that it has certain desirable traits that resonate with their sense of self. As a result, consumers are more prone to identify with the corporation; in so doing, they behave in a manner that supports the corporation's goals," thereby enhancing loyalty and enriching the loyalty relationship manifested in continued patronage of the firm. The customer loyalty relationship identified by Dick and Basu (1994) would transform to a consumer-citizen loyalty relationship managed by the corporate citizen to the benefit of the firm and for social

and ecological betterment.

Corporate Citizenship, Reputation and Consumer-citizen Loyalty

A company's reputation (and reputation capital) will improve if a multi-faceted approach to CSR is adopted, combining operational performance with citizenship commitments (GlobalScan, 2008). This multi-faceted approach could include the new concept of consumer-citizen loyalty. This conceptualization represents more than semantics. Taking steps to ensure that consumer-citizens remain loyal to a firm (instead of customers remaining loyal) means corporations would focus on monitoring their CSR practices with the sole intent of retaining the loyalty and patronage of other like-minded citizens. They would relate to consumers as one global citizen to another, in solidarity for the betterment of society (while respecting obligations to primary stakeholders, see Maignan, Ferrell & Hult, 1999). This globally beneficial partnership could lead to a less adversarial relationship and make corporations less inclined to avoid stakeholders (Kolk & Pinkse, 2006). Because nearly all stakeholders in North America and Europe (94%) agree that corporations should assume CSR monitoring responsibilities (GlobalSpan, 2008), it is not prudent to avoid these stakeholders.

Customer loyalty refers to the behaviour of repeat customers who are patrons of a firm. Consumer-citizen loyalty could refer to their behaviour of repeat patronage of a firm, *loyal patrons* because of the latter's CSR performance and their role as corporate citizens. Firms do have a triple bottom line to worry about - profitability and performance, as well as both social and environmental issues (Thompson, 2005). This obligation does not disappear if firms decide to nurture consumer-citizen loyalty relationships. What will change is the assumptions they bring to this relationship. Rather than trying to retain *customers*, they will be sustaining fellowship with like-minded global consumer-citizens along the mutual journey for social betterment, more plausible if the firm is profitable while maintaining *citizenry-reputation capital*. A consumer-citizen loyalty relationship would mean that a firm's corporate identity (its sustaining character and underlying assumptions and value systems) would have to change and likely its corporate image (perceptions of the firm).

Strategic Advantages of CSR and Consumer-citizen Loyalty

CSR has strategic importance for many companies, especially those taking direct and visible steps to communicate their CSR initiatives to consumers (at this point in time only 2.5% of firms, Thompson, 2005). Research shows that keeping consumers satisfied will keep them loyal, and that keeping them

informed of CSR initiatives enhances satisfaction. Also, if firms can accommodate customers' social norms, it is in a better position to win the social contract, allegiances and customer support for the firm (Luo & Bhattacharya, 2006). However, even though CSR initiatives can represent a robust public relations strategy and increase customer loyalty (Gupta & Grau, 2007; Lockwood, 2004; Luo & Bhattacharya; Pirsch), the loyalty relationship must encompass more than after-the-fact reporting of CSR successes or initiatives undertaken by the firm. To remain loyal, consumer-citizens need to know their voices count and that they have a role to play in the corporation's decision processes vis-à-vis activities that better society. A well-managed, transparent relationship serves to enhance this loyalty and patronage.

This loyalty is even more pressing in light of Environics International (1999) finding that, while consumers are holding corporations more responsible, the same consumers are very skeptical that corporations can assume this role, rating non-government organizations and governments four times more likely to meet their accountability standard. This lack of confidence in the firm can lead to loss of loyalty, but can be mitigated with enhanced relational integrity. To that end, firms concerned with CSR obligations can deliberately choose to engage with stakeholders out of a sense of moral duty to ensure that their activities contribute positively to well-being of various actors (Barracough & Morrow, 2008; Kolk &

Pinkse, 2006), especially customers, and now consumer-citizens.

Conclusion

Integrating three notions of citizenship informs the development of the construct of consumer-citizen loyalty (see Figure 1): global citizens, consumer citizens and corporate citizens. Furthermore, just as customer loyalty entails voluntary patronage of a firm, CSR involves voluntary contributions by a firm to a better society and cleaner environment (Weber, 2008). This inclination to volunteer both patronage and societal contributions may mean it makes sense to ask corporations to *voluntarily* embrace the idea of consumer-citizen loyalty relationships to better ensure success with the environmental and social aspects of their enterprise.

Making sense of CSR processes within corporations is a new trend that could inform the future development and uptake of this theoretical concept. CSR processes pertain to how managers think, discuss and act with respect to key stakeholders and the world at large (Basu & Palazzo 2008). For instance, Thompson (2005) asserts that hard definitions of citizenship require status recognition to be a legitimate actor in a political community. From a more flexible stance, this paper does not advocate that firms confer citizenship status on customers; rather, it proposes that firms change their CSR processes so that they perceive customers differently, shifting to the notion of

consumer-citizens. This way, both the corporate citizen and the consumer-citizen enter into a more even relationship that could affect loyalty to a firm (while benefitting society and the environment).

This paper proposes that corporate citizenship vis-à-vis CSR can be informed by the notion of a *consumer-citizen loyalty relationship* leading to the improvement of the triple bottom line. Everyone could win in this alternative form of global solidarity - the firm, all members of society and the ecosystem - with corporations taking the lead as global citizens. Both consumer-citizens and corporate citizens could become *loyal patrons of each other*, society and the environment, thereby all becoming global citizens with a sense of loyalty to humanity at large.

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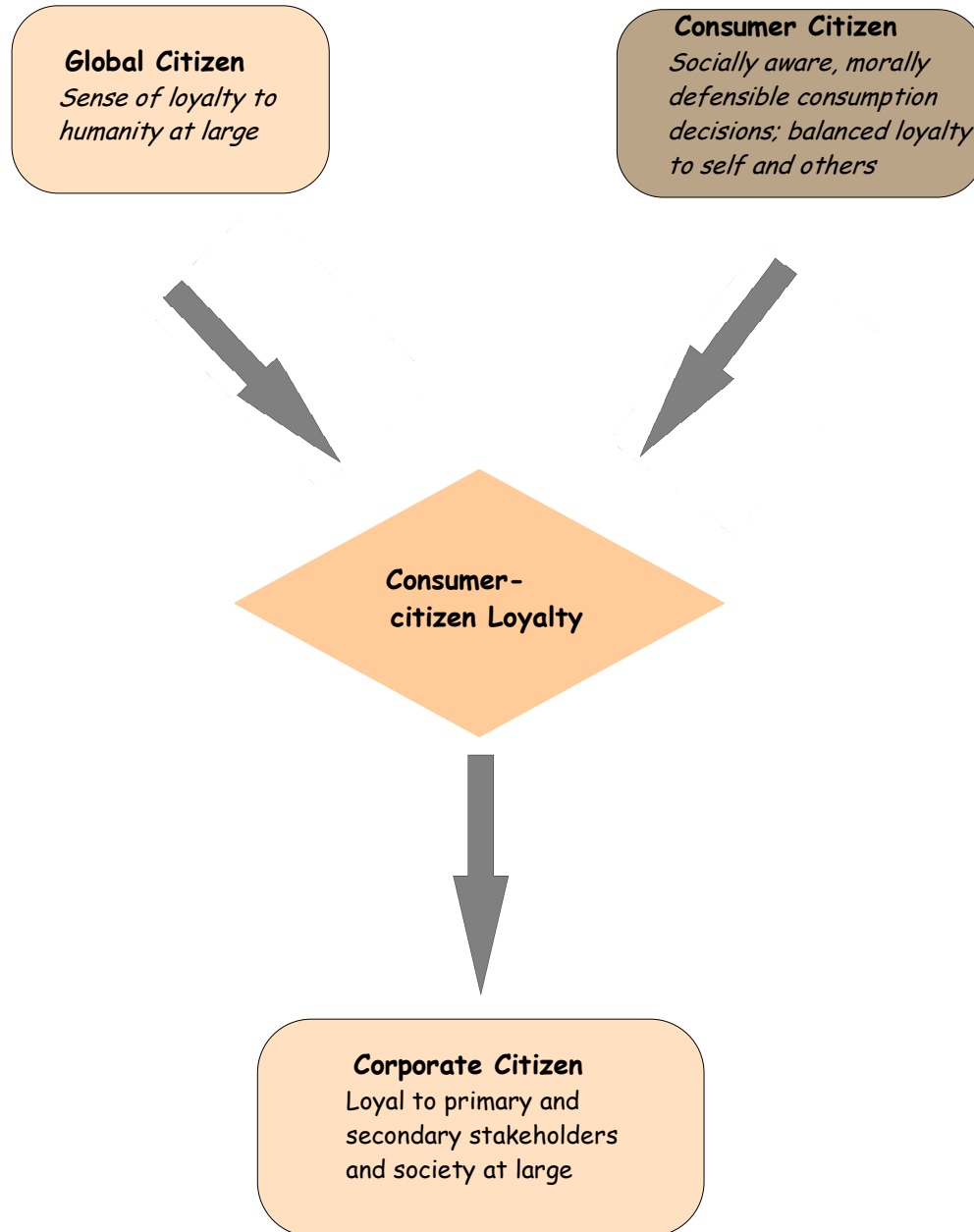
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Figure 1

Integration of three types of citizens to develop the consumer-citizen loyalty construct



Filipino Women's Use of Intra-Uterine Device and Some Contextual Variables: Knowledge for Commercial Promotion

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Abstract

In its effort to achieve contraceptive self-reliance as a result of the gradual withdrawal of foreign donations of contraceptive supplies, the Philippines has been instituting the user-pay scheme. This scheme, which requires women to pay for their contraceptives, has already been implemented, albeit in differing levels, for condoms, pills and injectables. The IUD is next to be marketed as a commercial product. To guide the IUD's transition, a synthesis of relevant and existing quantitative and qualitative information in the Philippines was undertaken. Findings suggest that IUD has commercial prospects because it has potential groups of users, and it has unique attributes on which its commercial value can be packaged. To enhance its prospects, IUD's service provision and marketing and promotion must be improved.

KEYWORDS: Commercial promotion, contraceptives, intra-uterine device, family planning, Filipino women

Introduction

The intra-uterine device (IUD) is a topic of current interest in the Philippines because of a government-led plan to promote and market it as a commercial product. Presently, IUD is offered to the public for free as a result of decades-long contraceptive donations from international organizations. However, following the decisions of donors to withdraw their contraceptive commodity support in the near future (USAID, 2003) and of the national government to move towards contraceptive self-reliance, the provision of IUD will be

instituted for all women - except the poorest who shall remain a public sector concern - under the user-pay scheme. The plan has already been implemented in varying levels for condoms, pills and injectables.

The transition of IUD provision into a commercial product requires an understanding of a range of issues that may affect its eventual implementation both positively and negatively. Much of the knowledge, with implications for the prospects of the commercial plan, could be derived from the country's decade-

long experience in the public sector use and provision of family planning. Part of this experience, particularly about method used, has been documented in the country's two large-scale, nationally representative sample studies, the Family Planning Survey (FPS) (National Statistics Office, 2002, 2003 and 2005) and the National Demographic and Health Survey (NDHS) (National Statistics Office and ORC Macro, 2004). Through women's accounts, these surveys examined and offered vital information on fertility preferences, and family planning-related knowledge, attitudes, practices and provision. While these data had been published in the surveys' respective reports and broadly discussed in several policy and program planning activities, both nationally and internationally, the evidence on IUD had not been given focal attention. In particular, this along with other prevailing data had not been synthesized to form an integrated empirical perspective on women's IUD-related experience.

In 2005, as groundwork for a series of research activities, all of which were intended to examine in depth the device's commercial prospects, a review and integration of some available evidence on IUD in the Philippines were undertaken. Much of the evidence in this report was drawn from the quantitative evidence offered by the 2004 FPS, 2003 NDHS and some other quantitative studies. Some qualitative data collected from a focus group discussion of current

IUD users, former IUD users, IUD intenders and limiters, which were part of the groundwork activities, are also offered, in an effort to provide a broad family planning context in which the use of IUD and its commercial prospects could be understood. The review focuses on married women since the FPS and NDHS analyses were mostly on these women (the public sector's family planning provision was directed at the married). In the following discussion, the quantitative data cited come from either the 2004 FPS or 2003 NDHS unless otherwise specified.

Results

Proportion of married women in reproductive ages and their fertility preferences

Of the 84.7 million Filipinos (Population Reference Bureau, 2005), one-fourth (20.869 million) are women of reproductive age (15-49). Of these women, 58.5 percent or 12.2 million are married. Currently married women have an average number of three children ever born or living. They also prefer an ideal family size of 3.2 children on the average. Six of every 10 of them do not want to have another child, and women's desire to cease pregnancy increases substantially after having two or more children. Although 79 percent of pregnancies were wanted (either during conception or at a later time), one-fifth of their births (20.3 percent) were unwanted. The desired family size among married women is consistent with that of

their husbands' in two out of three instances (67 percent).

General family planning knowledge, attitudes and practices

Among Filipino women, there is high approval of contraceptives (Casterline, Perez and Biddlecom, 1997). Likewise, their knowledge of any modern method is universal. From the focus group discussions, women were learned to be strongly in favor of family planning in general and of contraceptive use in particular because of "economic hard times".

The survey data indicated that though the majority of currently married women are ever-users of any modern method (57.4 percent), only half are currently using any method (six million of the 12.2 million married women), and only a third are currently using any modern method (four million of the 12.2 million). Contraceptive prevalence is highest among those with three to four children and those with gainful occupation. Moreover, prevalence increases with women's education and wealth index quartile, with no significant difference between urban and rural residents. However, the number of users of any modern method is more than twice as many as traditional method users. Further evidence underscores that the predominance of modern method use over traditional method use is evident among women of all age groups, and all economic, educational and residential (urban/rural)

backgrounds. While the overall contraceptive prevalence had only slightly increased in the past five years (47 to 49 percent), the movement is due mainly to increase in modern method use.

The most recent source of contraceptives is primarily the public sector (two-thirds of women get their free supplies from hospitals, clinics, rural health units and itinerant community-based providers). While the present share of the private sector as a contraceptive source is relatively small (33 percent), it has grown compared to the survey's previous figures of 26.1 percent in 2001 (National Statistics Office, 2002) and 28.5 percent in 2002 (National Statistics Office, 2003). The share of the private sector as a source has particularly been increasing for condoms, pills, and injectables - all sold in a broad price range.

Data reveal that only about a third of married women were informed, either by a public or private provider, 1) of the side effects or problems of the method used; 2) of what to do if they would experience side effects; and 3) of the other methods that could be used. The contact of non-method users with family planning providers is likewise limited. Only 12 percent of the former were visited by the latter; only between 14 and 17 percent visited a health facility (and either discussed or did not discuss family planning thereat); and most women (80.3 percent) did not discuss family planning with a fieldworker or

visited a health facility. However, with reference to mass media exposure, higher proportions of women reported having seen/read/heard family planning messages through television (64 percent), radio (59 percent), poster (40 percent), newspaper/magazine (40 percent), and pamphlets (30 percent). A fourth did not mention having access to any of these sources.

What movements and dynamics were there in the contraceptive use of married women? For example, among supply method users, were there discontinuers? Among married women who were using a supply method in 2003, 85.1 percent remained using it in 2004; others (14.9 percent) discontinued either to not use any method or to shift to another supply or non-supply method. Within 12 months after the beginning the method use, the discontinuation rate of supply methods ranged from a low of 14 to a high of 58 percent.

One-fifth of currently married women had an unmet need for family planning—about equally for spacing and for limiting births. Among these women, there were more who had no intention of using than of not using a supply method (48 versus 37 percent). Among non-current users, 55 percent similarly had no intention to use a method; in contrast, 28 percent preferred a supply method. Among current and non-current users, 88.2 percent had preference for a supply method. The number of Filipino women with willingness to

pay for their contraceptives was far greater than the number of those who were not willing (76.3 versus 23.7 percent). Women's reasons for not using, discontinuing, or having no intention to use a contraceptive revolved mainly around fertility (for example, wanted to be pregnant and to have children) and method-related concerns (for example, concerned with side effects).

Knowledge, attitudes towards, and use of IUD

Nine of every 10 currently married women knew of IUD. The percentage of ever-IUD users among these women was 9.6 percent (1.17 million of 12.0 million), while the number of current IUD users is 4.0 percent or 0.49 million. The 4.0 percent was higher by between 0.5 and 1.0 percentage-points compared to prevalence figures in the past four years. Further data indicate that IUD was the third most commonly used modern method among married women, following pills (15.6 percent) and female sterilization (9.4 percent).

The source of IUD supplies for most current IUD users was the public sector; while few others accessed the private sector (hospital clinics and medical professionals). Only four of every 10 current users who adopted IUD within the last five years before the survey were given informed choice, by public or private providers.

From the focus group discussions, women—regardless of whether they were current, former and IUD intenders, and limiters—were all positive of their assessment of the private sector. In describing private providers, discussants used the terms “better” and “organized.” For instance, they mentioned that the waiting time is short; and that there are high quality services, such as unhurried and careful insertion of the IUD; courtesy and sensitivity to the client's needs; and provision of complete information in one visit; and clean and safe facilities and instruments. Furthermore, they reported that in private clinics, it is the medical doctor who does the insertion, contrasting that in public health centers where interns are the ones who administer the service.

What are the profile and contraceptive history of current IUD users? Two-thirds of the current IUD users were between 25 and 39 years old, either from urban or rural areas, mostly having one to four children, of varying educational attainment, either with or without gainful occupation, and between one-half and two-thirds were non-poor.

As to the contraceptive history of current IUD users, data underscore that of the 4.0 percent users in 2004, one-third (1.4 percent) were non-method users in 2003, while the rest were former users of injectables, pills, condoms and traditional methods. The evidence is clear: the pill, not the IUD, was the first choice of method among users and non-users alike.

Less than 10 percent of the current IUD users in 2003 (6.4 percent) discontinued usage in 2004. Based on the first 12 months since the beginning of method used, only 14 percent of IUD users dropped out, the lowest if compared to the first-year discontinuation rates for pills (39.2 percent), male condom (58 percent) and injectables (52.7 percent). Furthermore, among the 4,168 modern and traditional method discontinuations, only 4.3 percent were IUD dropouts; the most number of dropouts was among pill acceptors, accounting for 36 percent of overall discontinuers. The majority's reasons for dropping out were method-related (for example, side effects, health concerns, and inconvenience) and fertility-related (for example, wanting to get pregnant). In terms of IUD use, method failure—becoming pregnant while wearing the device—was an insignificant factor for discontinuing IUD on first-year use (0.6 percent against pills' 3.7 percent, condoms' 7.9 percent and injectables' 1.3 percent).

Among women who had continued IUD use, they indicated in the group discussions that while they admitted to having experienced body changes as a result of method use (for example, they had weight gain; erratic menstruation period and strong menstrual flow; and mild pelvic and lower abdominal pain), they clarified that they did not regard these as great concerns to them. Regarding weight gain, for example, women took it as a good sign that their body is or compatible

with their IUD use. Heavy menstruation was likewise perceived positively in that a relatively strong menstrual flow is healthy for them because it cleanses their body and sex organ, which may prevent dysmenorrhea and myoma.

Also from the group discussions, it was gathered that women were happy of the IUD not only because of the absence of deleterious side effects but also because the device has met their expectation as an effective method for preventing pregnancy. More importantly, they were happy with the IUD because it has not had any effect on the spontaneity of their sexual relations. Likewise, they are happy with the device because, in general, they have not had any incident of the device getting expelled from their sex organ. Women attributed their relatively risk and problem-free IUD use, and its effectiveness, to their regular and prompt consultation with their health providers, and also to their personal practices, which involve—among others—the need to routinely check that the IUD is still in the right place when taking a bath; and to refrain from lifting heavy objects.

Among non-current users and those who intend to use a method or with unmet need, the IUD was a preferred future a method of 2-8 percent of women. Among non-users with preference for IUD, there was marked willingness to pay for the contraceptive (80-90 percent).

In the group discussions, among those with intention to use IUD, they said that they liked the device because it has several advantages — for instance, of being safe, effective, convenient and inexpensive. Their intent to adopt IUD also stemmed from their dissatisfaction of their previous family planning methods, ineffectiveness and side effects being the core bases of their negative experience.

Discussion

The review on which this report is based was pursued to form an integrated evidence-based perspective on which the public-to-private sector transition of IUD use and provision could be understood. Clearly, there are a number of important insights derived from the discussed findings.

IUD has potential target users. Its primary market is the non-current family planning method users who constitute half of the 12.2 million married Filipino women of reproductive age. The secondary market will be the discontinuers of supply methods, particularly of the pill, condom and injectables. Survey data suggest that the IUD market, although these will be mainly women aged 25-39 with one to four children, would consist of users with varied educational, economic and residential profiles.

Single women of reproductive age would be another source of future acceptors. Although not a priority in

the government's public sector provision, in the commercial contraceptive market in which the individual women's purchasing capacity (not public policy) is central, single women would be a significant source of future users. Like their married counterparts, the singles are willing to pay for their contraceptives.

To move these potential markets, such that individuals accept and pay for their IUD supply and insertion, they have to be fully informed of the advantages of the method. Two of its marked advantages have been strongly suggested earlier — that IUD has the highest continuation and lowest method failure rates, suggesting high level of satisfaction among its users. These attributes need to be disseminated to potential users, so that they are able to compare the marked advantages of IUD vis-à-vis other contraceptive choices, and to steer their decision to adopt the device. One probable reason as to why IUD is not a first choice method and it has low prevalence among Filipino women is that, unlike the commercial pill, it has not been marketed and promoted systematically; moreover, its supplies from foreign donors are limited.

The commercial promotion of IUD should not dwell much on establishing basic family planning and modern contraceptive knowledge and attitudes among prospective users. Filipino women from varied socio-demographic backgrounds already exhibit distinct cognitive

and attitudinal predispositions to accepting family planning and modern methods. Since the 1970s, the fertility preferences and reproductive performance of Filipinos have been gradually declining. This downtrend is reflected in the country's current total fertility rate: from 6.0 in 1973, it is now 3.5 (2003 NDHS). Factors impacting on women's fertility preferences and reproductive behavior include economic troubles and difficulties associated with child care and rearing (Clark, Flavier, Jimenez, Lee and Solomon, 2005).

To enhance the commercial marketing of IUD, strategies should make both the supply and insertion costs widely accessible and affordable (as is the case for pills and condoms). Most importantly, effort should be geared towards enhancing the service provision for IUD. Several local studies have pointed out and described the level of quality of family planning services in the country (Henry, 2001; Lamberte, Norella, Reyes and Rodriguez, 2004; MacCorquodale, 1974; Population Council, 1998; Saniel, 1979). Foremost, providers need to give women informed choice for IUD—a concern that is also lacking among acceptors of other supply methods. Furthermore, they have to address the health concerns and side effects that discontinuers associate with IUD use. These concerns of modern method use probably constitute one of the compelling reasons as to why a substantial number of married

women are not practicing family planning. Future research should investigate these reasons based on the finding that while some IUD acceptors do experience health concerns and side effects and drop out as a result, the overwhelming majority do not, or do not face the adverse consequences of such effects (as they seek prompt medical attention and carry out personal precautions). It would be interesting to examine the impinging factors on the processes, evaluations and outcomes of these reasons. In exploring this aspect, it may be worth exploring some socio-cultural beliefs regarding health concerns and side effects, and most importantly, the role of providers (Henry, 2001).

We conclude that IUD has commercial prospects because it has potential groups of users, and it has unique attributes on which its commercial value can be packaged. An enhanced service provision system — aided by effective and sustained promotion and marketing — will help strengthen this device's commercial promise. In the purview of the fast increasing population of the Philippines (now at 88.6 million) (National Statistics Office, 2008), and the widening abject poverty, the role of IUD to help Filipino women meet their small family size goal is critical.

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Cyber Crimes against Women in India: Problems, Perspectives and Solutions

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Abstract

Cyber crime is a global phenomenon and women are the soft targets of this new form of crime. Even though India has enacted Information Technology (IT) Act 2000 to combat cyber crime, the vacuum lures. Cyber crimes pose a big threat for modern women. Many studies have been done to find out the causes, types, and solutions of cyber crime. Only very few studies have been conducted to analyze cyber crimes committed against women in India and also the IT Act 2000 does not discuss them in details. There are some questions which remain unanswered. What has been done to prevent this crime against women in India? How far has it been fruitful and how the police and the judiciary are managing this growing menace? This article attempts to analyze the types of cyber crimes against women in India and also discusses the loopholes of IT Act 2000. The authors also suggest some solutions to prevent cyber crimes against women in India.

Key words: Cyber crime; cyber law; crimes against women; IT Act 2000

Introduction

The vulnerability and safety of women is one of the biggest concerns of any criminal and penal law, but unfortunately women are still defenseless in cyberspace. Especially, women from less developed nations such as India are more vulnerable as they are the new users of the internet. The Indian Information Technology Act 2000 to a certain extent has made cyber crimes punishable under the Indian law. However, the Indian Cyber law was drafted mainly to encourage e-commerce (The Preamble of the Information Technology Act 2000). Hence the question arises as to how far the IT Act 2000 is able to

guarantee personal security and dignity of the individual net surfers, especially women.

After the inception of IT Act 2000, several reported cases came up with the stories of miseries suffered by Indian women in the cyber space due to weak legal provisions in the IT Act, lack of cyber cops, cyber savvy lawyers and judges. There are only three provisions in the whole IT Act 2000 which totally covers all the cyber offences targeting human dignity and safety in the net, viz., Section 67 (publishing of information which is obscene in electronic form is punishable),

Section 70 (access to protected system is punishable), and Section 72 (breach of confidentiality and privacy).

"The internet can, and often has, become a space for predators seeking women and children" (Sridhar, 2002, para. 2). Reported as well as unreported cases pose the question in the mind of scholars, of how broad the provisions of obscenity under Section 67 and the matter of privacy under Section 72 of the IT Act should be and whether harassment against women, as described in the Criminal Procedure Code, should include the issue of cyber safety.

This article attempts to analyze the scenario of cyber crimes. The objectives of the paper are: (a) Define different forms of cyber-crimes, (b) Discuss cases, (c) Explain the causes of an increase in the number of cyber crimes, and (d) What pre-caution women should take against women in India. It tries to address these issues by examining the existing legal provisions for cyber security in India, and the precautions women should observe while surfing the internet. This paper also endeavors to provide some recommendations to the problem of cyber victimization of women in India.

Crimes against women on the internet

Amongst the various cyber crimes committed against individuals and society at large, the ones that can

be said as specially targeting women are:

1. Harassment via e-mail
2. Cyber-stalking
3. Cyber defamation
4. Hacking
5. Morphing
6. Email spoofing
7. Cyber pornography
8. Cyber sexual defamation
9. Cyber flirting
10. Cyber bullying

For the technicality of the legal provisions, we have grouped these offences under three types which are as follows:

- Cyber harassment
- Access to the personal data
- Cyber nuisance

Cyber harassment

Harassment via email

"Email harassment is a form of harassment, which includes blackmailing, threatening, constant sending of love letters in anonymous names or regular sending of embarrassing mails to one's mail box" (University of Cambridge, 2008). Other than the provisions mentioned in the Indian Penal Code (IPC) along with Criminal Procedure Code, there are no provisions in the IT Act 2000 which can help the victim in these cases except the earlier mentioned three interconnected provisions of Sections 67, 70 and 72. These provisions do not mention anything about email harassment of different types, but in general they are used

to book the perpetrators along with Section 292A of the IPC for printing or publishing grossly indecent or scurrilous matter or matter intended to blackmail, and under Section 509 of the IPC for uttering any word or making any gesture intended to insult the modesty of a woman. The victim generally goes to the police station to report the crime of harassment and thereby it is regulated as per the general laws and not by the provisions of cyber laws.

Cyber stalking

This is one of the most talked about internet crimes in the modern world. The University of Virginia (2008) defines stalking as

Behavior wherein an individual willfully and repeatedly engages in a knowing course of harassing conduct directed at another person which reasonably and seriously alarms, torments, or terrorizes that person (para. 1).

Bocij & McFarlane (2002) define cyber stalking as:

A group of behaviours in which an individual, group of individuals or organisation, uses information and communications technology to harass another individual, group of individuals or organization (cited in Bocij, 2002, para. 4).

Stalking in the internet happens when the perpetrator follows the victim continuously by leaving unwanted messages. The stalkers are motivated by either or all of the four reasons, namely: (i) sexual harassment, (ii) obsession for love, (iii) revenge and hate, (iv) ego and power trips (Bocij, 2002). The stalkers thus disturb their targets through private emails as well as public message bulletins like the social networks and chat rooms frequented by the victim. Women especially of the age group of 16 to 35 are the most sought after targets of cyber stalking. The stalkers are quick to find out new, enthusiastic or emotionally weak net users. They may first become their unknown friends to share their emotional burden and slowly become net-followers.

In the United States, surveys report that "more than one million women and almost 400,000 men are stalked annually" (Tjaden & Thoennes, 1997, p. 44). However, it should also be noted that there are also no reports to show the frequency of cyber stalking incidents (Bocij, Griffiths & McFarlane, 2002, pp. 3-5). Barring one study (Desai and Jaishankar, 2007), a full fledged survey has not been carried out in India, but from the growing number of cyber stalking cases reported in the media, it is clear that Indian women are also falling in the vicious trap in high number. Similar to the case of email harassment, stalking is also not covered by the existing cyber laws in India. It is only under Section 72

of the IT Act that the perpetrator can be booked remotely for breach of confidentiality and privacy. The victim of the cyber stalker has to request for the police assistance which is again the stalking case in the real world. The accused may also be booked under Section 441 of the IPC for criminal trespass and section 509 of the IPC again for outraging the modesty of women. The problem becomes grave when the stalker's identity is changed or is mysterious which is very common in cyber world. The police and victim as well are left with no evidence and the victim remains a silent sufferer.

Cyber defamation

Cyber tort including libel and defamation is another common crime against women on the internet (Bocij & McFarlane, 2003; Jaishankar & Uma Sankary, 2005; Petrocelli, 2005; The National Center for Victims of Crime, 2004). This occurs when defamation takes place with the help of computers and/or the internet, e.g. someone publishes a defamatory matter about someone on a website or sends e-mails containing defamatory information to all of that person's friends. The New York case of *Lunney v. Prodigy* is the most popular example of cyber defamation, where Lunney, an imposter opened several prodigy accounts under different versions of Alexander Lunney's name and then transmitted threatening e-mail messages to the local Boy Scout master threatening to kill him and molest his sons.

In India, it is smoother to express this way, i.e. there is a regular (or high) incidence of cyber defamation on the internet, but mostly such cases remain unreported, because of the stigma attached to the post reporting (photographs and news in media). Cyber defamation occurs when, agitated by the behavior of the victim, the perpetrator or the perpetrators post defaming stories about the victim. Even though this can happen to both genders, women are more vulnerable to cyber defamation as a part of teasing or due to simple jealousy (Subramanian, 2007).

Unfortunately cyber defamation is not defined by the IT Act 2000 and it is treated by the criminal justice system under the same provisions of cyber pornography or publication of obscene materials in the internet (Section 67 of the IT Act 2000: whoever publishes or transmits or causes to be published in the electronic form any material which is lascivious or appeals to the prurient interest or if its effect is such as to tend to deprave and to corrupt persons who are likely, having regard to all relevant circumstances, to read see or hear the matter contained or embodied in it shall be punished on the first conviction with imprisonment of either description for a term which may extend to five years and with fine which may extend to one lakh rupees (0.1 million) and in the event of a second or subsequent conviction with imprisonment of either description for a term which may extend to ten years and also with a

fine which may extend to rupees two lakhs (0.2 million).

The offence is well explained in the IPC under Section 500 which mentions punishment with simple imprisonment which may extend to two years or with fine or with both; and under Section 501 which states that "whoever prints or engraves any matter, knowing or having good reason to believe that such matter is defamatory of any person, shall be punished as per Section 500" (Ratanlal & Dhirajlal, 1987, p. 480).

Access to the personal data

Hacking

Hacking means unauthorized access to computer system or network, and it is the most predominant form of cyber crime. In the case of cyber crimes against women, hacking mostly happens in a social online community to demean a woman by changing her whole profile into an obscene, derogatory one. Hacking one's email ID is also not uncommon. The reasons vary from personal hatred, revengeful mind to even just for fun. Even though some social networking communities like Orkut have the option of reporting profiles as bogus, Photo-Video lock, special tools for reporting, still, many women are kept in dark, when their email IDs or even websites are hacked. Because hacking is still considered to be a financial or corporate type of cyber crime.

Email spoofing

A spoofed e-mail may be said to be one that misrepresents its origin (CERT, 2002). It shows its origin to be different from where it actually originates. The more common method used by men is to email vulgar photographs of themselves to women, praising their beauty, and asking them for a date or inquiring how much they charge for their 'services'.

Morphing

Morphing is editing an original picture by an unauthorized user or a fake identity (Nash, 2008, p. 2). It was identified that female pictures are downloaded by fake users and again re-posted/uploaded on different websites by creating fake profiles after editing it. *The Times of India* reported in October 2004 that a Delhi-based beautician told the police that her photograph was flashed on a porno portal along with her mobile number. In this case, the victim's face was morphed and because of that she received many obscene calls and messages (Nanda, 2004).

Morphing, hacking, and email spoofing are interrelated and attract Sections 43 (penalty for damage to computer, computer system etc.) and 66 (hacking of the computer system; first proviso to the said section states that whoever with the intent to cause or knowing that he is likely to cause wrongful loss or damage to the public or any person destroys or deletes or alters

any information residing in a computer resource or diminishes its value, its utility or affects injuriously by any means, commits hacking) of the IT Act 2000. The violator can also be booked under the IPC for criminal trespass under Section 441, Section 290 for committing public nuisance, Section 292A for printing or publishing grossly indecent or scurrilous matter or matter intended to blackmail and under Section 501 for defamation.

Cyber nuisance

Cyber pornography

Cyber pornography could be said to be the ugliest threat to the women. Technically, cyber pornography may seem synonymous with hacking profiles of women. The perpetrator may not only hack the woman in their profile and use it as a pornographic profile, but may continue to harass the victim by sending obscene messages or pictures.

According to Kiran & Goswami (2006), "the internet has provided a medium for the facilitation of crimes like pornography" (para.18). This is popularly known as cyber pornography.

"Studies have shown that about 60 per cent of all websites are sexual in content. An estimated 100,000 pornographic websites generate revenues in the region of \$1 billion annually" (Sridhar 2002, para.3). Unlike other crimes which are mentioned above, cyber pornography

is the exceptional crime which has been covered by the IT Act 2000 to a certain extent by Section 67 of the IT Act 2000.

Along with the IT Act 2000, the accused can also be prosecuted under various Sections of IPC (Section 290 for committing public nuisance, section 292 for sale of obscene books etc, section 292A for printing or publishing grossly indecent or scurrilous matter or matter intended to blackmail, section 293 for sale etc of obscene objects to young persons and then section 294 for doing or composing, writing etc of obscene songs and finally under section 509 for outraging the modesty of women).

Cyber sexual defamation

Cyber sexual defamation differs from other cyber defamations mentioned earlier by its motive and execution (Kelly, 2007). While other cyber defamations may happen out of frustration, anger, teasing or jealousy, cyber sexual defamation happens between real or virtually known people who feel frustrated by the rejection of their proposal or breaking of the engagement by their partner. In most cases, the accused starts publishing defaming stories in obscene languages in various social websites and then the case slowly turns into cyber pornography. In this case, the accused can also be booked under Section 67 and Section 72 of the IT Act, but the major legal provisions followed here are again the provisions of IPC, which we have discussed earlier.

Cyber flirting

This is the most common type of crime where victims are young women and even in some cases middle aged women too are trapped by the cyber flirts. The crime of cyber flirting starts as an offence quite similar to cyber pornography, when the victim is made to hear obscene songs, messages and it may finally result in cyber sexual defamation, breach of trust and confidentiality and even murder in real world (Pratyush, 2007). In the eyes of law, cyber flirting may be a very minimal petty offence but when it leads to murder of the victim, the situation becomes difficult. It is unfortunate again that except for section 72 of the IT Act which deals with the breach of privacy and confidentiality, there are no other help that can be offered by the Act to the victim and it depends largely on the prosecution to prove the burden of fact.

Cyber bullying

This is a new kind of offence though existed in different forms since long. There is no dearth of definitions of Cyber bullying. There are various international definitions for cyber bullying (Jaishankar & Shariff, 2008; Patchin and Hinduja, 2006; Shariff, 2005; Willard, 2003). An Indian definition in these lines was provided by Jaishankar (2008, p. 26)

Cyber Bullying is abuse/ harassment by teasing or insulting, victim's body shape,

intellect, family back ground, dress sense, mother tongue, place of origin, attitude, race, caste, class, name calling, using modern telecommunication networks such as mobile phones (SMS/MMS) and Internet (Chat rooms, emails, notice boards and groups)".

Cyber bullying differs from cyber defamation, cyber sexual defamation or cyber pornography in its motive and execution. The main motive behind such crime is to defame the target, vent out hatred, anger or frustration. Cyber bullying can happen to any woman ranging from a school child to a teenager to even a grown up woman by perpetrator of either gender.

The above discussion proves the vulnerability of women net surfers in India. While most of the crimes are booked under some sections of the IPC, the three provisions of the IT Act, sections 67, 70 and 72 only has the connotation of cyber crimes. The IT Act miserably fails to protect the cyber savvy women in India, as all the cyber crimes other than the financial or commercial crimes are grouped under "obscenity" and "breach of confidentiality and privacy" (Ministry of Law, Justice and Company Affairs, 2000, pp. 19-20), and there is no separate provision for cyber crimes against women.

Further, majority of the women victims in India never report their victimization to the police or cyber

crime investigation cells (specialized investigation bodies that exclusively deal with cyber crimes). It is true that, other than cyber stalking, cyber pornography and morphing, men are equally susceptible to the other types of crimes mentioned here. But the majority of the victims of such offences are women as can be seen from the case studies below.

Cases of cyber crimes against women in India

There are some recently reported cases in India that speak of position of the cyber crimes against women in India.

Manish Kathuria's case: A case of cyber stalking

The case of *Manish Kathuria* is the first case of cyber stalking reported in India (Duggal 2000). A person named Manish Kathuria, started stalking a lady named Ritu Kohli in a chat website. Manish Kathuria abused Ritu Kohli by obscene language and disseminated her telephone number to many persons. Due to this illegal activity, she started receiving obscene calls from many people and she reported this to Delhi Police. The Delhi police swung in to action and arrested Manish Kathuria under section 509 (outraging the modesty of a woman) of the Indian Penal Code (The Indian Express, 2000).

The cases of Air Force Balbharati School and DPS School: Cases of cyber pornography

The Air Force Balbharati School case is a landmark case of cyber pornography. In this case a student was teased, that has a "pockmarked face" (Joshi, 2004, para. 5). Raged on this comment the victim turned as an offender and created a website with sexual content. In this website, he gave details of many girls and teachers of the schools. He gave sharp description of each and every person based on their physical attributes and perceived sexual preferences (Joshi, 2004). It came to the notice of boy students and it became talk of the school. Finally, a victim's father complained and a case was registered under Section 67 of the IT act 2000 and also the boy was arrested under the Juvenile Justice (Care and Protection), Act 2000 (Joshi, 2004).

In another case involving a school case, a School boy of Delhi Public School took video clips of his physical intimate contact with a girl by a camera phone and sent it across to his friends. It was not a problem until an IIT student posted the clips at Bazee.com and it started selling for Rs.10,000. Both the boy and the girl were arrested and also the Chief of Bazee.com was arrested under section 67 of the IT Act. Later they were released on bail and the School expelled both the boy and the girl (Joshi, 2004).

Suhas Katti's case: A case of cyber defamation

The State of Tamil Nadu vs Suhas Katti is probably the first reported case of cyber defamation in India. In this case the perpetrator Suhas Katti, was arrested in 2004, based on a complaint by the victim. He was a family friend of the victim and had an interested to marry her. However, the victim married some other person and later divorced him. The perpetrators started renewing his contact and on her reluctance to marry him, the perpetrator took up the harassment through the Internet (Mohan, 2005; Naavi, 2004).

The accused was charged under Section 469, 509 IPC and 67 of the IT Act 2000. He was sentenced for the offence to undergo rigorous imprisonment for 2 years under 469 IPC and to pay a fine of Rs.500/-. For the crime of defamation under Section 509 IPC, he was sentenced to undergo one year simple imprisonment and to pay a fine of Rs.500/-. Finally, for the offence under Section 67 of the IT Act 2000, he was sentenced to undergo rigorous imprisonment for two years and to pay a fine of Rs.4000/- (Naavi, 2004).

Kaushambi's case: A case of cyber flirting that led to rape and murder

The case of Kaushambi is a unique case of cyber flirting in India. Kaushambi, a girl from Mumbai, met her lover on the internet via a

popular socializing website, Orkut. They chatted regularly and fell in love without knowing each other's marital status or even social status. Finally, Kaushambi was asked by the man to visit him in a particular place. The next morning, the local police found her dead body in the hotel where she was supposed to meet her lover (Express News Service, 2007). Even though the police have booked the case under murder, a question arises as to which provision of the IT Act would be cited, or whether or not the entire IT Act would be involved.

The case of Professor Amita Singh, chairperson of Jawaharlal Nehru University's Centre for the Study of Law and Governance: A case of identity theft, hacking and defamation

The most recent reported case of identity theft is the case of Professor Amita Singh who found one day that someone had hacked her yahoo e-mail ID. Everyone in her mailing list was sent request to help her monetarily to return to India from Nigeria. She started receiving phone calls about her health and place of visit. She complained about this identity theft to police. She could find the perpetrator with the help of one of her students; however, she found that the police were not able to take any action in this case (IANS, 2007).

Reasons for the growth of cyber crime against women in India

The reasons for the growth of cyber crime targeting women in India are mainly two-fold; legal and sociological. These are as follows:

Legal Reasons

Information Technology Act 2000 was not meant to cover cyber crimes in general as it is evident from the preamble itself. The IT Act 2000 was created mainly for enhancing e-commerce. Hence, it is able to cover commercial or financial crimes like hacking, fraud, license related matters, breach of confidentiality etc. While drafting the law, the law makers were negligent enough to include offences relating to personal safety and dignity of the net users (Kapoor, 2003). Hence the types of offences which are covered under this Act fail to combat other cyber crimes like cyber harassment, cyber sex or even cyber abuse. It is only through Section 66 (Hacking), Section 67 (Publishing of information which is obscene in electronic form) read with Section 72 (Breach of confidentiality and privacy) that majority of cyber crimes other than e-commerce related crimes are being prosecuted in India.

Cyber defamation, cyber sex, hacking, and trespassing into one's personal domain are ubiquitous in the cyber world. But there is no legal provision under the IT Act 2000 and the IPC to either define such acts or make them penal offences. The

Indian Penal Code, Criminal Procedure Code or the Indian Constitution gives special protection to women and children. For instance, modesty of women is protected under Section 509 of the IPC, while rape, forceful marriage, kidnapping and abortion against the will of the woman are penal offences under the Indian Penal code. Similarly, the Indian Constitution guarantees that women have equal rights to live a dignified life, education, work, health and food like her male counterpart. Unfortunately, when the same crimes happen in the cyber world in India, women victims do not get the same justice as the Cyber Law does not protect women's modesty in general except for Section 67 which covers cyber sex *in toto*.

Section 75 of the IT Act 2000 mentions extra territorial operations of the Act. But there is no mention about the jurisdiction of the crimes committed in the cyber space. In most cases, the ordinary provisions of the Criminal Procedure Code about jurisdiction are followed. But the question comes when it is committed in one place, affected the victim in another place, proven in another place and then finally reported to the police in another place, in which case, which country's legal provisions should it apply? The next point is very much related to the previous one as when the victim turns to the police station to register the case, the police treat it as ordinary crime in most cases and thereby cyber crime turns into ordinary crime making the victim

more susceptible to danger and trauma as the perpetrator's identity remains anonymous forever.

Cyber police cells are newly evolving in metro cities in India. Unless such cyber cells reach the remote places of India, the problem of jurisdiction can never be solved. Thus the concept of territorial jurisdiction as envisaged under Section 16 of Criminal Procedure Code and Section 2 of the IPC will have to give way to alternative method of dispute resolution in cases of cyber crimes. Even though Indian Evidence Act has been amended to reciprocate to the IT Act, when the evidences are lost due to routine destruction of data by the accused, the victim as well as the police and the judiciary becomes helpless. "The procedural obligation that has to be fulfilled under Sections such as 166 A and 166 B of the Criminal Procedure Code and in case of crimes committed outside India (i.e. prior to the approval of the central government)" are other issues that call for attention while dealing with cyber crime related cases (Pati, 2000).

Sociological reasons

The victim shies away from the police in fear of defamation of her profile as well as her family's name and often the victim is made to believe that she is the person who is responsible for the crime done to her by being trapped foolishly. As the perpetrator can change his identities in the cyber space, he may constantly threaten and blackmail

the victim in different names and identities even in real world. In India, women still do not go to the police to complain against sexual harassment, be it in the real world or the virtual world. Most of the victims are either housewives or young un-married girls who are unemployed and waiting for their marriages to be finalized. Such persons visit the internet to pass their free time and slowly become net addicted. As a result, when they are victimized they prefer to shun off the matter as they feel that it may disturb their family life.

Suggestions for the prevention of cyber crimes against women

Many online solutions are appearing nowadays to combat the issue of cyber security of women netizens in India. Several websites and blogs share some useful pieces of advice. Apart from the prevention angle from the victim, a strong legal infrastructure will help to prevent these crimes more effectively.

Keeping in view the growing number of cyber crime cases targeting women in India, it is suggested that Section 67 should be broadened to include each minute detail of obscenity.

Cyber stalking, morphing, email spoofing and cyber pornography should be defined properly. It is unfortunate that when many countries made these offences severely punishable, India has not even defined the offences in the IT Act, 2000.

There should be a separate chapter dealing only with crimes against children on the net. Guidelines for cyber protection of girls should also be included in schools.

Project works, research works, and building of networks for women and children specially should be encouraged by the government; special funds should be allocated for these types of works. Cyber cafes should be brought under strict rules and the IT Act should establish proper licensing system to these cafes. The IT Act should specify cyber tribunals, cyber cells and cyber savvy prosecution. Further if the cyber tribunals are divided on the nature of cyber crime, for instance, tribunals to try cases of commercial or financial nature, cases of sexual harassment in the net and cases amounting to rape and murder in the style of Central Administrative tribunal, Labour tribunal, Sessions court existing India, it would be easier to mete out justice properly.

Many times, ordinary police stations are unable to help with complaints on cyber crime as they lack knowledge and information of cyber law crime. Each and every police station should be equipped to handle the complaints regarding cyber crimes. As there are cyber cells for each state, India should follow the US model of having a cyber law for each state besides having a central law. Through this, the problem of jurisdiction can be tackled to a certain extent. Cyber crime is a transnational act. Even though Section 75 permits extra

territorial jurisdiction, India should enter treaties or conventions with other countries to combat cyber crimes by joint actions. It could be seen that the convention on cyber crime by council of Europe was made way back in 2001 by the European nations to combat cyber crime jointly. There is an urgent need for the Asian countries to form such conventions or to sign the European convention on cyber crime.

Conclusion

Indian Information Technology Act is the most newly enacted act compared to the cyber laws of other cyber savvy nations. While India has successfully tackled e-commerce related issues with the help of the present cyber law, the personal safety of individual net surfers needs more attention at the present. The constitutional right to freedom of speech and expression is being grossly misused in the Indian cyber space. Modesty of women, no matter how highly educated she may be, has constantly been outraged in the Internet.

Since there is no inter-country treaties between India and other neighbouring countries, particularly, on the issue of cyber crime targeting human dignity and safety in the net, it becomes too difficult when such crime happens overseas or transborder. Even when the offence is committed inside the country, due to poor legal infrastructure of cyber law, the victim remains more victimized and perpetrators bravely continue to do

mischief. Hence, revamping the cyber laws of the country is the need of the hour. There should be mass awakening programmes regarding gender victimization in cyber world in India to make people specially women aware of their rights in the internet. India is a developing cyber savvy nation and women command equal work resource as their male counterpart. Hence, it is the duty of the legislature to make cyber law a true guardian of human rights in the internet besides protecting e-commerce related issues.

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Credit Card Use and Debt: A Case Study in Melbourne, Australia

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Research Report

Acknowledgement

This note has been summarised from the final report of the research project on "Credit Card Use and Debt by Undergraduate Students in E-retailing in Melbourne, Victoria" submitted to Consumer Affairs Victoria, Australia. This research project was conducted by the author and Dr. Ken Coghill. The funding for this project was provided from the Consumer Credit Fund on the approval of the Minister for Consumer Affairs Victoria, Australia. We acknowledge the support of Monash University and the research assistance provided by Ms. Caroline Hubschmann.

Background

There has been an increase in the number of young people who become e-consumers or e-shoppers in Victoria and in Australia (Australian Bureau of Statistics, 2002; Australian Bureau of Statistics, 2005).¹ In addition, the amount of money spent in online purchases by young e-shoppers was disproportionate to their income, i.e. the amount of money they earned was less than what they spent on shopping online. Young people who

have no income or low income may face the problems of overspending online. Therefore, they may need credit card as an alternative means of spending now and paying later.

Although credit card debt may incur from both offline and online shopping, shoppers seem to worry more about debt from offline purchases. Very few young e-consumers show concerns about online security and privacy incidents which may lead to credit card fraud in online shopping (Australian Bureau of Statistics, 2005; Consumer Affairs Victoria, 2004b; Sydney Morning Herald, 2005). Furthermore, young people do not have sufficient knowledge and skills to handle financial stress caused by credit card debt and other online incidents (Australian Securities and Investment Commission, 2006; Department of Premier and Cabinet (Victoria), 2001).

Furthermore, there has been insufficient research on attitudes pertaining to using credit card for online and offline purchases by young people in Victoria. Also, there has been lack of research on how they deal with problems relating to

¹ The latest available statistics about Internet users and online shoppers in Victoria were in 2000.

online credit card fraud. Thus, this research project aims to fill this gap by (i) identifying demographic factors which affect credit card use and debt, and online shopping by undergraduates in Melbourne, (ii) identifying the patterns of credit card use and debt due to online purchases, (iii) examining the awareness of undergraduates of current and potential online risks relating to credit card fraud, which may incur unexpected credit card debt to them, (iv) examining how undergraduates deal with online incidents, and (v) making recommendations on consumer credit education.

Justification

This project focuses on research into the use of credit in the online marketplace which can in turn generate recommendations on the provision of tailored credit education targeted towards undergraduates in Melbourne. These areas are prioritised given the lack of academic research in such areas and the increased number of problems relating to credit card use in both the online and offline marketplaces, especially by young shoppers.

Methodology

This project employed quantitative research to collect and analyse quantitative data about demography, awareness and attitudes of undergraduate students towards credit card use and debt, and online

risks when they shop online and pay by credit card.

The target group for this research project is undergraduates in Melbourne, Victoria. The potential participants must be (i) Internet users, (ii) 18 years old and above, (iii) able to make independent decision, (iv) understand English without any assistance, and (v) residing in Melbourne, Victoria for at least 6 months. This group of participants was chosen for the following reason: 88% of the Internet users in Australia had a Bachelor degree and above and 62% of them resided in metropolitan areas (Australian Bureau of Statistics, 2003).² Thus, undergraduate students in Melbourne can represent the population of university students in Victoria.

This study used both hard-copy questionnaire and web-based surveys to collect data from undergraduate students in all universities which have campuses in Melbourne, Victoria.

The research design includes the following stages: literature review, data collection, conduct of pilot test, conduct of the actual survey, analysis of the data and writing a report.

². The latest statistics regarding Internet users and the highest level of education attainment were in 2002.

Summary of Findings

The findings suggest that seven variables explain students' attitudes and behaviours towards credit card use and debt in both on-line and off-line marketplaces. They are (i) age, (ii) marital status, (iii) year of enrolment, (iv) mode of study, (v) being an international undergraduate, (vi) number of hours of employment per week, and (vii) weekly income. International undergraduates, younger undergraduates, married / cohabiting undergraduates, freshmen, and non-working undergraduates are those who need more help with their credit card use and debt. A significant proportion of the respondents were not aware of online incidents which could lead to credit card fraud. Many of them did not engage in one or more popular measures to protect themselves from online risks. Also, many of them would be unlikely to seek help from government agencies, industry and consumer associations, or non-government organisations. Finally, less than 40% of the respondents have not attended workshops or seminars on financial management, and less than half of them would attend such events.

A number of recommendations are made regarding the roles of parents /relatives, credit card issuers, e-retailers, universities, government agencies, industry and consumer associations and other non-government organisations. Overall, relevant organisations need to co-operate with each other to educate undergraduates on how to manage

their financial matters responsibly and how to protect themselves from online vulnerability and online credit card fraud.

Conclusion

This research examines the patterns of credit card use and debt by undergraduates in Melbourne, using quantitative research method. The project also studies attitudes of the respondents towards the current and potential online risks, and how they have dealt with such incidents. Policy recommendations regarding consumer credit education pertaining to university students are made, based on the analysis.

Given the limited information on financial management in relation to online purchases by young people and their awareness of the current and potential online risks as well as the current measures to protect them from online vulnerability, data collected from this project would be valuable for further research on credit card use and debt in relation to young people in Victoria.

In conclusion, credit card use and debt is an under-researched area in Victoria, Australia, and this is a pilot study in this field. Further research could focus on the relationships between credit card use and debt by undergraduates in other states and with other variables.

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Data Replication and Caching in Mobile Computation

Cyril

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On going research

With the recent advances in wireless technology and mobile devices, mobile computing has become an important part of our daily life. People are using wireless network for making phone calls, download new or to listen hit songs from their favorite multimedia servers with help of various devices such as mobile phones, Personal Digital Assistants (PDAs) or laptop computers. The ability of mobile users to move and access information ubiquitously has opened up new classes of data applications. For example, people on road use their laptops to read Email, login on remote servers, buy or sell stocks, receives news or earthquake, tsunami, etc. They would also like to send messages, keep records, and communicate with each other by mobile devices; a military commander needs to gather information from his soldiers and send commands to them. However, all the advantageous of wireless access come with their own costs. Hence, sophisticated data management and resource management techniques are needed to efficiently disseminate data to mobile users. One of the basic methods to decrease the amount of remote network access, load on the

server and long query latency is replication / caching.

The various types of data access scenarios in mobile environments can be classified into two categories: the single hop based cellular mobile network and the Multi hop based Ad hoc Networks (MANETs). Clients in a single hop based cellular mobile networks are connected to the fixed network via Mobile Support Station (MSS) that provides connectivity for a certain location or cell. In a situation where installing an infrastructure is not possible because it is too expensive or too vulnerable, the multi hop based data access model may be used. Queries in these mobile environments may be time dependent (temporal) or location dependent (spatial). In both the scenarios, there is a need to maintain consistent cache at mobile clients.

Data replication / caching is especially important in mobile computing environments for improving data availability and access latencies particularly because these computing environments are characterized by narrow bandwidth wireless links, and frequent voluntary and involuntary

disconnections from the wired network. However, these features of mobile environments, coupled with the need to support seamless mobility, make cache management at mobile client a challenging task.

The focus of this research is to eliminate some of the issues concerned with replication, particularly caching in mobile environment from the recently proposed solutions.

Sustainable Tourism and its Impact on Tourism Anthropology: An Exploratory Study in Southeast Asia

Pinaki Dutta

TMC Educational Group

On going research

Introduction

Tourism is relevant to many theoretical issues of the real world in anthropology (Stronza, 2001). Stronza (2001) illustrates that the major themes anthropologists have covered in the study of tourism may be conceptually divided into two halves: one half seeks to understand the origins of tourism while the other half reveals the impact on tourism. Combining both halves only produce a partial analysis of tourism research.

Anthropological interests and natural diversity attract many tourists in this region with increasing number of international tourists for the past decades. Borman (1999), Giannecchini (1993) and Wunder (2000) argued that too much tourism, particularly if it is unmonitored and unregulated, could spoil natural beauties, affect wildlife and lead to habitat conversion. Southeast Asia is probably the part of the world most closely associated with anthropological activities with an interpretive concept of culture and social belief (Steady, 1999).

On the other hand, sustainability has become an increasingly popular tourism topic of research since the last decade. It is a concept used to reflect the need for a comprehensive analysis and management of tourism both as business and experience (Goodall and Staber, 1997). Although the concept of sustainable tourism may lack precision, it is widely accepted that sustainability attempts to mirror the more extent framework of sustainable development (Bramwell and Lane, 1993; Garrod and Fyall, 1998; Hunter, 1995; Stabler, 1997). The importance of sustainability has begun to exercise influence in a range of policy areas concerned with the physical, cultural and economic environment (Henry and Jackson, 1996).

It has been found that sustainable tourism, most of the time, tends to overlook important cultural issues such as identity, belonging, spiritual meaning, moral and legal rights (Robinson, 1999). In this omission, the sustainable tourism debate is failing to comprehend the cultural parameters between man and his

environmental relationships and the fact that social justice and the central precept of cultural consent are also parts of sustainable development (Bramwell, Henry, Jackson, Prat, Richards, and Van der Straaten, 1996).

Research Objectives

The aim of this research proposal is to develop the areas of concern due to sustainable development mainly in underdeveloped areas in this region to protect and prevent the anthropological values with respect to ecological balance. Studies show that if sustainable development is not designed properly and carefully, it will not only affect the anthropological values but also destroy the ecological balance. A combination of enormous indigenous natural resources with ancient social and cultural values makes this region a valuable tourism destination.

In other words, this research project focuses on

- Impact of sustainability over tourism anthropology
- Sustainable development and its effects on Ecotourism
- Relationship between anthropology and ecotourism with sustainable development

Justification

Tourism industry, like any other economic sector, embraces the principles of sustainable development and has increasing number of businesses with

regulatory bodies and government concerns. Therefore, the central driving force behind the concept of sustainable tourism is the concern for the destruction of the environment resources (Robinson, 1999), which has an impact over anthropologies. Most of the Southeast Asian countries are underdeveloped with tourism as the main economic resources.

Anthropology in tourism maintains the ecological balance and retains the originality of the resources. It also closely related to the ecotourism and socio-cultural behaviour of the local communities. In recent years, anthropologists are also associated with conservationists, development specialists, tour operators, policy-makers, and local leaders in ecotourism and its impacts on local communities and ecosystems. Sustainable tourism and development has become a growing concern for the environmental sustainability of tourism and anthropology of tourism.

Methodology

This research project will involve both qualitative and quantitative methods. My primary research and fieldwork will consist of interviewing participants of various tourism sectors and the government of that particular country. Other people who are directly and indirectly related to the tourism sector, international tourists and local people will be either interviewed or observed.

Research Sites

The research will mainly be conducted in three particular Southeast Asian countries, Indonesia, Cambodia and Vietnam. Other Southeast Asian countries will be surveyed through online questionnaire.

Research Techniques

This research will primarily be conducted through ethnographic techniques. In-depth interviews either via telephone or email will be conducted with local anthropologists, tourist development authorities, conservationists, local resource authorities, local people and tourist personnel. Participant observation will be used to observe behaviours of local people and tourists and the interface between them. In addition, quantitative research in the form of questionnaire will be used to gather data from tourists and local authority personnel.

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Corporate Governance and the Principal Agent Dilemma

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On going research

Background

The "cooking of financial books," within the walls of robust corporations does have catastrophic repercussions amounting to financial contagion, if I may, equilibrate this to the striking of a whip that tears through the very fabric of an economy that leaves deep scars that at times slows down the engines of economies and more importantly it sends jitters down the spines of cheque books of potential investors. In short, it creates situations of negative investor sentiments and casts dark shadows of doubt on the economic viability in the country concerned. With the recent increase in financial scandals in the corporate world, the issue of corporate governance has surged in its significance to be the only viable source of maintaining credibility and instilling faith back into the corporate world of finance.

ING, Barings, Enron, Worldcom, One.Tel all mark episodes in a series of financial disasters in the corporate world that suggests the importance of strong emphasis and practice of corporate governance. Corporate governance can be

described as an internal framework that embodies processes, policies and people, which serve stakeholders, by focusing on controlling management activities with good business sense and discipline that is derived from healthy board culture. In order for this framework to work effectively, support in the form of government legislation, and monitoring the affairs of corporations would also be needed. One example would be the Sarbanes-Oxley Act of the U.S.A in 2002.

The principal agent problem is the main area of contention in this paper as it underlies the conflicts of interests that arise due to different objectives among the principal, the owners of the business or the major shareholders and senior management, running the business. The conflict tends to arise when the principal views profits as the main driving factor of the business existence whilst the agent issue would surface in the form of managing the business so that these profits are realized or they risk losing their well paid jobs.

The agent would from time to time be placed in situations where the easiest short term solution to appease the owners would be to "cook the books," with a flick of a pen. The senior management would adjust financial statements and thus paint a picture showing investors that the organization is displaying good positive results all under the disguise of the organization which is actually at the brink of financial ruin.

Corporate governance ensures that financial statements are always made very transparent i.e. readily available to potential investors and also makes it mandatory for external auditors to provide their expert opinions on the performance of the organization. It has policies in place that would bring latent problems out in the open before further damage can be done to the vested interests of the shareholders and the organization. A different branch of accounting called "forensic accounting" has also been developed to nip the principal-agent problem in the bud. These accountants are trained to look beyond the numbers and deal with the business reality of a situation.

Research Question and Justification

This research aims to address the question whether corporate governance in the 21st century will stand the scrutiny of profit.

The principal agent problem is linked to this scrutiny for profits, simply put, corporates are so pressured to

produce profits that at times they use under handed techniques to gain an upper hand in the business world.

Problem lies in the fact that it is very hard to track corporates that are doing this, mainly because there are too many and also the field of auditing and government regulations are lax at times, there is no fail proof mechanism in place that corrects the situation until it is too late.

Methodology

Case studies will be used to examine how external auditors are not very 'external' as they may have vested interest in the companies they audit. For example, Temasek Holdings have stakes in many businesses, and some of these businesses are audit companies that go around auditing other businesses that Temasek owns.

TMC Research and Development News

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Dr. Huong Ha's article, co-authored with Dr. Coghill, Ken, on "Online Shoppers in Australia: Dealing with Problems" was published in *International Journal of Consumer Studies*, Vol. 32, Issue 1, January 2008, pp. 5-17.

February 2008

A workshop on "Plagiarism and Referencing" was conducted for TMC lecturers by Dr. Huong Ha and Ms. Ella Lim on 14 February 2008.

March 2008

A symposium on Mass Communication was co-hosted by TMC Educational Group, Singapore and Liverpool John Moores University, UK on 28 and 29 March 2008. Ms. Irdawati Juffri and Ms. Maimona Wahab, TMC Mass Communication lecturers, presented their research topics in the symposium.

April 2008

A workshop on "Plagiarism and Referencing" was conducted for TMC part-time students in Business, Mass Communication and Hospitality and Tourism programs by Dr. Huong Ha.

May 2008

Mr. Pinaki Dutta's abstract on "Multicultural Ethnicity and its Effects on the Growth of Singapore Tourism" was accepted for presentation at the Leisure Studies Association's 2008 Conference, Liverpool from 8 to 10 July 2008. Mr. Pinaki Dutta, a Senior Lecturer at TMC Educational Group, teaches Hospitality and Tourism programs.

Dr. Huong Ha is the main author of the book chapter titled "Current Measures to Protect E-Consumers' Privacy in Australia" which was accepted to be published in September 2008 in *Online Consumer Protection: Theories of Human Relativism*, edited by Kuanchin Chen and Adam Fadlalla, IGI Global, USA. Other co-authors are Dr. Ken Coghill and Dr. Elizabeth Ann Maharaj.

June 2008

Dr. Huong Ha's abstract on "Sustainability in Private Education Organisations in Singapore" was accepted for presentation at EDU-COM 2008 organised by Edith Cowan University from 7 to 8 November 2008, Thailand.

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Journals

Author's last name, initials, (year), Title of the article, *Name of the Journal*, volume number, issue number, pages.

Place the title in double quote ("...").

Example: Sam, C. Y. (2007), "Will War Break Out in the Taiwan Strait?", *TMC Academic Journal*, Vol. 2, No. 1, pp. 49-53.

Newspaper Article

Author's last name, "article", *Newspaper*, date and month, year, page number.

Conference Paper

Author's last name, (year), "title of the article", in proceedings of the (*name of the conference*), place, page number.

Author's last name, (year), "title of the article", paper presented at the (*name of the conference*), place.

Other Sources

Please refer to QManual published by Monash University (Chapter 10: Referencing at <http://www.buseco.monash.edu.au/publications/qmanual/ch-10.php>).

FORMAT AND LAYOUT

Manuscripts are to be single spaced, 11 point on A4 size paper, Comic Sans MS, margin is 1.25" each side.

Length of the paper/article should not exceed 5,000 words, including tables, figures, etc. but excluding list of references.

SUBMISSION OF LITERARY WORK

Please submit the manuscript to: journal@tmc.edu.sg

Call for Papers

Thank you very much for your overwhelming responses to the call for papers for the issue in June 2008.

The next issue of TMC Academic Journal will be published in December/January 2008/2009. We invite contributors to submit your original and unpublished research articles, book reviews and reflections in any fields of business, mass communication and IT for publication in TMC Academic Journal by the due date. All submissions are subjected to a stringent double-blind peer review process.

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