CONSUMER INFORMATION DISSEMINATION:

ENABLING TECHNOLOGIES AND RESULTANT IMPACTS ON CONSUMER CHOICE, MARKET COMPETITION AND SOCIETY

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Introduction

Since the 1970's the world has entered the "Information Age", called so for the wealth of information that has shaped the way human beings live and work all across the globe. Growth in technology has been the great enabler of this era, mainly via the invention and integration of computer networks in nearly all aspects of life. The key point here is that of integration; economically successful nations have derived benefits from information-sharing (enabled by computer networks) in order to gain efficiencies that may not have been practical otherwise. In economical terms, this enabled Pareto improvements, simply via having all manner of people connecting to each other, to the benefit of the overall society. The United States is a prime example of such integration, allowing increases in the speed of knowledge transfer, which has ultimately shown unprecedented increases in levels of productivity and growth. Computing and telecommunications technology has caused the sharing of information to become faster and faster, between individuals, corporations, scholars, families, and even nations.

There is a price to be paid for increases in networking technologies, however. Not only is knowledge easily exchangeable and transferable, but data is just as easily available as well. Information is usually defined as the gain of knowledge through experience, observation, instruction, data and research. For the purposes of this analysis, we will use the operational definition of information as the gain of knowledge via data, which is the main mode of information transfer in the era of computer networks. So, does this imply that the gain of knowledge via data transfer is not valuable? As a social scientist, I would be the first to argue for the importance of data in society, causing us to make generalizations and inferences about populations and economies that had been impossible to make and verify in preceding eras, enabling us to refine and test our theories about how we perceive the economy, human beings, social problems and the like. However, because of the speed of growth in networks, societies have been unable to keep the flood of data transfer in check, which could potentially have huge consequences on our lives. The issue here does not have to do with data transfer causing difficulties in society, conventional wisdom tells us that the case is exactly opposite. It is in the utilization of the data being transferred where a potential threat emerges. To illustrate this point, let's study the case of nuclear proliferation; most recently in Iran. This is a difficult issue because Iranian officials and scholars have clearly stated that any nuclear technology used therein is for civilian purposes alone, mainly to generate renewable power sources rather than for military or defense purposes (Fadai, 2005). On the other hand, Iran has had a long history of instability, and thus the potential for conversion from civilian to military use of Iran's nuclear program is not entirely inconceivable. South Korea is an example of a country where nuclear power has been used for civilian purposes, thus displaying that the data being transferred is not a threat unto itself. However, the same data that is used to construct nuclear power plants can be used to construct nuclear weapons, thus illustrating that the data can be used for benefit or harm in the same breath.

Nuclear weapon proliferation is but one example of where the increased availability of information has led to problems for the security forces of entire nations. Another frequent example of information dissemination seen today is with the problem of "Identity Theft" wherein a criminal assumes the role of another human being electronically and then takes advantage via this forgery to steal money, merchandise etc. This issue is so prevalent, this has caused an entire services industry (identity theft insurance services) to form and prosper (Feldman, 2003). The idea of a corporate entity being able to identify its consumers (or of a public agency being able to identify its citizens) via electronic methods is certainly not new, nor is it an exclusive product of the information age. The focus of this paper is based on the issues that arise when corporate entities have greater access to consumer information, and how this may cause economic burdens and the perceived impacts on consumer choice, competition, and thus on a society as a whole. Identity theft is but one single negative aspect of the housing of personal information within corporate entities. There are other seemingly more difficult issues to contend with, specifically when the equation boils down to consumer privacy and protection. Due to the greater computing power at the disposal of marketing departments across industries, corporations look ever closer at consumer behavior and use any data that they can obtain to increase revenues. It is, in fact, the charge of marketing departments (in businesses) to anticipate consumer demand and react accordingly, but through various practices including advertising, inventory placement and targeted marketing, the departments are now capable of actually increasing the demand for their product(s). Thus, as corporations define and capture demographics via product specialization and "brand management"[1], they are able to create and maintain mini-monopolies, selling not only the product itself, but a specific style or design that consumers may identify with. While this particular topic is explored in greater detail below, it is necessary to mention that manner of product marketing creates barriers to entry in the market, hence causing burdens on the economy as a whole.[2] The economic burdens placed on the economy are a direct result of the market "barriers to entry" simply because it is more difficult for entrepreneurs to "break in" to an

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[1] The term "Brand Management" is a marketing term introduced by Proctor and Gamble PLC in 1931. It pertains to the idea that corporations are able to increase the "perceived value" of their products in order to increase the demand of said product.

[2] Please see section entitled Retail Stores below

established product market, using high amounts of capital just to increase the acceptability of the new product to a level wherein they can adequately compete with existing products.

This paper identifies four different cases that have historically used consumer data to achieve different outcomes, namely:

1. Television networks and advertising
2. Retail stores and inventory placement
3. Telephone companies and government involvement
4. Internet, spyware and targeted marketing

The impacts of each on consumer choice are identified, and an attempt is made to display how each of these industries have used the data collected to benefit themselves and the social outcomes of the practice in each case. The four cases are independent of each other and are designed to display the impacts of information gathering across the US in terms of highly competitive markets (retail stores and the internet software) and the traditionally monopolistic markets (telephony and television). The four industries have been chosen to display the different ways consumer information may be used by corporations and governments. In the case of Television and Retail stores, consumers are dealt with on a macro level, with broad generalizations being drawn upon consumer behavior as a whole. In the case of the Telephone industry and internet marketing, the consumer is dealt with individually. The case of Telephone records is dissimilar to the others as the focus is more on government involvement with data, rather than the industry's own marketing department. It is significant to point this out because in recent times, the state has had heavy involvement with phone records and thus it provides a good example of the effects of compromised consumer privacy.

History and Impacts of the Social Security Number

The history of information gathering by corporations can be traced back to a single event in time, the advent of the Social Security Number (SSN), by the US government. How this event can be traced to one of the biggest threats to consumer welfare is quite remarkable and worth mentioning. The SSN was established as part of Franklin D. Roosevelt's "New Deal" in 1935 (Desmarais, 1997). The great depression had just hit the U.S. with as much as 25% of America's workforce unemployed. Due to the unprecedented reduction in the economy, with skyrocketing unemployment to boot, the state and people soon realized that affording the means for survival (food, shelter, clothing and healthcare) was going to pose problems. For the issue of healthcare, it was Herbert Hoover's belief that charity would be able to handle the excess needs of people. The new deal was a method to pull the U.S. out of the throes of the great depression. Economists summarized that the great depression was a direct result of an unprecedented fall in consumer aggregate demand, the effects of which continued long after "black Friday". Banks ran out of capital and had to file bankruptcy all over the U.S., and thus the population (the ones that continued working) would tend to save as much money as they could to protect themselves against further recessionary tendencies of the economy. Hence, people had lost faith in the economy and the lending institutions of the day, resulting in huge levels of savings kept outside of the banking sector. Consumer spending had been drastically reduced, so the U.S. government came out with a system known as "Social Security" in a bid to alleviate one of the reasons for "mattress-style" savings most Americans were using (Romer, 1992). Thus, part of the solution to the great depression led to the creation of the SSN by the US.

The SSN itself is an example of “functionality creep”, where a piece of technology was intended for one use, but ends up being used in multiple dimensions, not linked to its intended purpose. The SSN has been the primary driver for customer identification in all sorts of consumer and consumer-related industries in addition to government and academic divisions of the economy. Any computer programmer that is heavily involved with database design can attest to the importance of a “Primary Key” for a particular database table. A primary key is a term for a unique identifier for every record contained within a table. In most databases, the unique identifier could be a meaningless number, but one that is indexed and catalogued for faster and easier retrieval of information. In addition to the primary key functionality, the SSN also allows for the transference and translation of the consumer information between industries. This information is worth its weight in gold to marketing departments across the US, especially in corporations utilizing telemarketing agencies in order to increase their customer base. The SSN identifies each person in the economy to both the state and corporate entities. It can potentially be linked together with financial transactions, travel habits, phone calls, purchasing habits, educational and criminal records, contact information, etcetera. Therefore, every aspect of an individual’s life can be scrutinized to an alarming degree (Pike, 2005). Law enforcement agencies are allowed to use such information (in conjunction with court permission) as evidence against a suspect.

The SSN has also had a significant impact in the financial services industry. It has become easier for financial institutions to track individual consumer spending habits and usage of financial resources. Any individual having spent time in the US is familiar with this concept. In order to financial institutions to lend money to individuals or corporations (or to gauge the risk involved in financing), the institution in question begins by accessing the clients credit report. The credit report is a summary of how an individual or corporate entity has utilized past lines of credit. For individuals, the credit report is accessed using the social security number. The credit report contains an individual's past employment history (as an indicator of stability), repayment record, debt control and amount of credit inquiries. This is a standard operating practice undertaken by lending institutions for all forms of lending activity (Avery et al., 2004). This standardization would not have been possible without the SSN, though the SSN was not originally intended for this form of usage.

Television Advertising

During the 1950's, cable television was introduced in the US. Before that time, US consumers had the option of watching a handful of channels such as ABC, NBC etc. received in households via a local antenna. Understandably, the picture quality of the channels received was rather poor (especially in rural areas), hence not only did the demand for television quality increase, but the demand for more channels increased as well. At the same time, the falling cost of television sets contributed to the increase in the aforementioned demand. The cable industry combated the poor signal quality by carrying the signal over coaxial cables rather than broadcast towers. The use of coaxial cables increased the number of channels that could potentially be carried over the networks, opening up the markets for large numbers of competing television stations. In the 1990's, the advent of DBS (Direct Broadcast Satellite) gave cable the first taste of competition in the broadcast market. DBS further increased the number of channels that could be carried over the network, allowing for an even greater number of television network companies to take root in the growing market (Rohrs, 2003).

Today, with the number of channels ever increasing, the amount of networks dedicated to a particular genre of television has similarly increased (Gardam, 2006). As far as television profitability goes, a television network exists to make advertisement revenues. There are exceptions to this, of course, such as channels like HBO and Showtime, which fall under the "pay-per-view" category, with their main source of funding coming through user membership. Leaving these networks aside, extremely specific networks have started creeping up in the last decade. G4TV and GSN (game show network) are examples of such networks, with G4TV catering solely to the video-game generation of the 80's and 90's. Similarly, SpikeTV and the Oxygen network claim to cater solely to men and women respectively. This development holds under the monopolistic competition market framework, in that products[3] from each television network are comparable but not perfectly substitutable, and each producer has some particular market share.[4] Therefore, as new firms enter the television market, they do not directly compete with the existing producers, but rather seek to target a certain demographic, thereby creating "mini-monopolies" rather than capturing the market share of the larger existent firms. Surely, capturing the largest demographic would yield the highest levels of viewership and by implication, the highest level of ad-revenues, but in this particular case, the goal of creating a large viewership is secondary to increasing and maintaining advertising revenues. Thus, a relationship between viewership levels and advertising revenues may exist, however the direction of the relationship is ambiguous. An increase in viewership may result in larger

[3] Here, products are understood to mean television shows produced by each competing network.
[4] Market share for television can be thought of in terms of the targeted or captured demographics of viewership.

advertising revenue, but an increase in advertising revenue may enable a better quality of programming, which could potentially increase viewership. By defining a particular target demographic that is not currently being catered to, a broadcast firm could be able to command advertising revenues from other firms interested in reaching the targeted demographic. This advertising revenue could be captured faster as compared to the new firm taking the industry leaders head-on, and would lower the risk involved for the production firm in reaching their consumers as well as lower their costs.[5] This assumes, of course, that the products being advertised are specific rather than general products.[6]

One of the recurring assumptions made in dealing with markets, is that of product homogeneity. However, even if two competing products are completely substitutable, it is the charge of the marketing department to introduce product differentiation in order to capture a larger market share via “brand management”. This is the exact reason why there are so many different kinds of laundry detergents, each with their claims of adding a certain chemical, allowing for better performance. The implication here is that marketing departments are catering to a certain demographic within the population, and they know exactly how to reach their demographic. Following up with the detergent example, a certain company would know that their key demographic is female homemakers (though that is less true today with more and more women joining the workforce). Given a limited advertising budget, the detergent company wants to make sure they reach the largest amount of female homemakers with their advertisement. On the

[5] To illustrate this point, suppose a fisherman is interested in catching and selling tuna fish. The fisherman would then be better off casting a small net in an area of the ocean known to contain tuna fish, rather than casting a wide net over the entire ocean. In this way, he increases the probability of a big catch, and reduces the cost of the net. Metaphorically speaking, the “net”, in the case of production firms, is advertising costs.

[6] For the purposes of this study, a “general” product is defined as one that is not demographic specific, meaning that potential consumers are made up of the entire population, such as a generic restaurant. By contrast, a “specific” product is defined as one that is targeting to a particular group in a population, such as toy soldiers or power tools.

television spectrum, there exists a television network, which caters solely to women. It would then be rational to assume that the detergent company would be more likely to advertise on the channel catering solely to women, as opposed to a channel catering to the largest viewership. Similarly, companies that offer a general product would find it prudent to consider advertising on a network targeting the highest number of viewers. In order for this system to work, corporations must inherently know who their key customer base is, and make a strategic decision to either appease their existing customer base, or reach out to newer demographics, or both (Spangler et al., 2003).

For any corporate entity, it is essential to know what the key target market is, especially in the face of high competition. Such practices help to keep prices down and quality up, though not necessarily simultaneously. Again, in the case of detergents, consider two competing brands, Arm & Hammer (A&H) and Tide. The key product for both is laundry detergent with each company claiming a different demographic. Tide entices consumers by adding certain ingredients to their product (such as Febreze, a fabric odor freshener) and promising a better detergent, thus justifying the higher price. A&H, on the other hand, choose to keep its prices low by selling simple laundry detergent. This product differentiation keeps both corporate entities in the same market, operating at a profit, but simply catering to different tastes. Therefore, both companies would again choose to advertise on different channels on TV simply because they are after different sets of people. In the case of near homogenous products within the market, corporations would tend to cultivate and maintain brand loyalty by highlighting superior aspects of their products, or even creating a “image” of consumers that utilize their product.

As the number of television broadcast channels increase, the overall news is good for competition in both the broadcast industry as well as consumer products. As the number of channels increase, the capital required to advertise will tend to decrease (especially on the fringe networks) allowing for increased information to consumers via advertising. This would reduce barriers to entry and could potentially allow smaller firms an equal footing with established corporate powerhouses. Overall, the future seems to be quite good for television advertising, with further increases in technology (such as Internet Protocol TV and Satellite Television) bringing competition into the broadcast markets, which would allow reductions in television subscription fees so that greater number of channels can be accessed by a greater number of people. Reduced costs for advertising would tend to reduce the costs borne by the individual consumer as well, leading to higher levels of disposable income as well as greater dissemination of information. The only drawback in this industry would be the increased “specialization” of all channels viewed such that the future may not foster “genre neutral” channels such as ABC or NBC. The reasoning for this lies in that as advertisers understand their target market and go after specific demographics, there would be no use for reaching all consumers (Spangler et al., 2003).

While reductions in the cost of advertising via television network fragmentation has no potential harm for consumers (as long as there is no exclusion of channels to the consumer), there may be certain negative implications on society. The media has the potential to shape the views of its users, and thus it would stand to reason that as society gains multiple media outlets focused on appeasing their individual demographic, the overall society would become increasingly fragmented (Webster, 2005). For example, let us assume that the current U.S. population has two purely competitive news outlets and two opposing political viewpoints (liberal and conservative).

Further assuming that both news channels are fair, unbiased, and ascribe to no particular political viewpoints[7], eventually a new broadcast firm may decide to create a news source catering solely to the politically conservative demographic. This could necessitate the need for a liberal news source to counterbalance the new firm, or even cause one of the existing larger news outlets to cater solely to the liberal demographic,[8] each claiming to be fair and unbiased in their own right. Then, the conservative and liberal audiences across America could be expected to gravitate towards the news outlet that is closer to their own values. Bertrand Russell evidences this in his words:

> "*If a man is offered a fact which goes against his instincts, he will scrutinize it closely, and unless the evidence is overwhelming, he will refuse to believe it. If, on the other hand, he is offered something which affords a reason for acting in accordance to his instincts, he will accept it even on the slightest evidence.*" [9]

This is especially true for political arguments, wherein if a person has generally conservative leanings, the evidence for the success of conservative policies need not be overwhelming, the same being true for the liberal left as well. Furthermore, the readers, viewers and advertisers of a particular news source may well influence its political leanings. Therefore, assuming that the advertisers are the major source of funding for the news stations, the former could pressurize the latter. Evidence of this phenomenon exists with the current war in Iraq, which has caused extreme differences in opinion rather than uniting the country. This political fragmentation could have the effect of the US losing national consensus on many issues ("National identity crisis…"

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[7] That is, both news sources simply report the facts and nothing else

[8] This development of an existing large firm catering to a specific demographic would be unlikely since it would necessitate the large firm reducing its viewership.

[9] Quote extracted from http://www.quotationspage.com/quotes/Bertrand_Russell on September 22nd 2006

2004). Under a democratic society however, losing national consensus is not necessarily a negative idea. It is important to note that differing philosophies analyzing a particular issue, with dialogue and discussion allowing for a solution acceptable to the majority is the essence of democracy in the US. However, there is an important distinction to be made in regards to the unit of analysis of national consensus.

For the purposes of analysis, we will split consensus into two categories, broad and narrow levels of national consensus. Broad national consensus pertains to the idea that overall macro level issues, such as prisoner treatment and right to due process, have a national consensus in that we all agree on what the moral or correct course of action is. Narrow consensus pertains to the idea and micro level issues, such as how to handle Osama Bin Laden (if captured) or how to try a mass murderer in court has a national consensus on the course of action.[10] Therefore, we have a broad consensus in the US that murder is wrong on every level. Following the same issue through, however, we do not have a narrow consensus on capital punishment or abortion (both issues that may, arguably, fall under the general category of "murder"). The narrow level issues can and should be addressed via dialogue and discussion, to see if the population can reach some consensus. The broad consensus (that of murder being wrong, for example), should not be allowed to fade. Therefore, losing broad national consensus can have wide-ranging negative consequences[11] while narrow consensus loss can actually yield positive benefits.[12] With the fragmentation of news sources in the US, there is a definite danger of losing broad national

[10] Discussions with Dr. Lloyd Dumas, University of Texas-Dallas, 2006
[11] A historical example in the context of the loss of broad national consensus would be the holocaust in Germany in the 1930's. The systematic elimination of the Jewish population at the hands of the Nazi party displays the consequences of a nation losing a broad national consensus regarding the treatment of fellow human beings.
[12] A loss in confidence concerning the current war in Iraq is a good illustration of this. Post 9/11, there was a narrow national consensus in how to go about bringing the terrorists to justice. Since then, however, the loss in consensus has forced the government to re-think its war strategy and could yield significant benefits to foreign policy in the long term.

consensus if the competing political camps do not create and maintain dialogues with one another.

Retail Stores

In the 20th century, the increases in technological development and research have touched every aspect of human life. Included with such technological growth is the increase in “Point-of-Sale” (POS) technology. Today, one can go to a grocery store (such as Kroger, Jewel, HEB, Wal-Mart, etc.) to find just about any item needed to survive, from food items, to household cleaning/hygienic supplies, even furniture, movies, books and the like. Specifically in the US, the concept of “specialty stores”[13] is becoming more and more alien. Stores such as Wal-Mart have essentially become large warehouses; wherein one can get almost anything they need at low costs. This is a natural progression for the retail industry, since this drives down the cost of conducting business in almost all aspects. Transportation costs are driven down for both the retailer and the consumer by localizing various necessities into large “distribution centers”, the rental cost of land is driven down by housing everything in one location, rather than various locales. Retailers further experience economies of scale, since they are able to command a higher share of the various retail markets, and in most cases these savings are passed on to consumers. In today’s fast-paced economy, the phrase “time is money” never held so much relevance. Gone are the days when one would have to stop by specialty stores just to create an evening meal. Of course, there are still stores that exist that cater to the rogue consumer by promising better quality over price by specializing, but they have become increasingly rare over time. In regards

[13] A specialty store is a store that specializes in the sale of a single product range. Examples of this include bakeries, grocers, cobblers etc.

to the above-mentioned POS technologies, they have been the driving force behind a large number of consumer retail outlets. POS technologies can be traced to their beginnings (specifically in the retail market) with the advent of two key components, Barcodes and Scanners.

Barcodes (also known as UPC or Universal Product Code for consumer products) are a series of machine-readable lines of black and white, containing binary code, usually translated to a product identification number via an optical scanner. First used in the US in the early 1970's, Barcodes were actually invented in 1949 by a graduate student named Joseph Woodland (Scanlon, 2003). Today, barcodes can be found on virtually all consumer products, and contain key information about the product. Optical scanners are then utilized at the POS in virtually all stores across the US to translate the codes into machine language which is then used by the cash registers to identify the product and the current pricing. This innovation has reduced inventory loss to near negligible levels, further reducing the costs borne by the retailer. As products are shipped to a retailer or a warehouse, they are usually shipped in bulk and carry a barcode identifying the product and the number of units in the shipment (Kincade, 2005). Retailers scan this information, add the products to the existing product inventory, set the current price of the items, and then shelve the products for resale. As consumers enter the establishment and pick out the items they choose to consume, the individual units of the product are scanned into the cash registers, where the pricing information is received and the item is deducted from existing store inventory. Further savings are realized at this point, since the establishment no longer has a need to conduct constant physical inventories (other than beginning and end of year inventories for accounting purposes). This process makes consumer purchasing extremely efficient in terms of both time and costs for both the retailers and consumers.

In regards to inventories, choosing which product to shelve and where, was a process solely dependant on the discretion of the individual retailer or store manager. With the advent of electronic inventory management, retailers were able to determine at a product level, which items were being sold more frequently than others. The next decision in the process for retailers was trying to estimate the demand for new products. This is a difficult decision-making process, since there is limited shelf-space available in the store, and each supplier naturally requesting the lion's share of shelf space in order to boost sales (mostly by targeting the "brand-neutral" consumer[14]). Therefore, the next logical step in tackling this decision was to anticipate consumer demand via market research. In order to collect demographic information, a significant majority of the larger volume retailers began to offer "Discount cards", wherein a customer signs up with the store by sharing their personal information (including social security number, name, age, and contact information) and in return receives a membership card with the store with the promise of special discounts and sale alerts. Next, both regular and member prices are displayed on items throughout the store, with the member card being scanned at the POS. The corporation would then store each member's information along with purchasing habits and frequencies, allowing the overlying corporate entity to know which products to "push" onto consumers in order to maximize sales revenues (McLaughlin, 2003). This is extremely valuable information to the retailers because of the marketing potential. For example, inventory placement is extremely

[14] By being "brand-neutral", a consumer is understood to be marginal, in that (s)he is not loyal to any particular brand of product, and may not even be the demographic that is sought after by the producer.

important in the retail industry especially since the US consumer increasingly values convenience and efficiency due to the rising cost of time.

Inventory placement (or Store Space Management) is a strategy employed by almost all stores from gas stations to Wal-Mart. It is a decision-making process outlining the geographic location of inventory within a store with the intent of optimizing sales. For example, walking into a gas station one would tend to see small items such as chewing gum and candy bars up front by the checkout counter. There are two reasons for this, one that they are low cost items that most customers would like to purchase, but will not actively search for, throughout the store, and secondly, because of the high markup on these items but low actual revenues, storeowners would want to aggressively overturn this inventory ("More Challenges…" 2006). To illustrate the importance of inventory displays and the like, I will provide a personal example. In the winter of 1998, I worked as a cashier at a local convenience store in Pensacola, FL for 3 months. During my time there, I became store manager, and a significant part of my responsibility was to deal with the various vendors that supplied the store. Among the suppliers were representatives of the Coca-Cola and PepsiCo corporations. Since the two corporations were the major suppliers of soft drinks at the time (and indeed, today) there was constant pressure from the two to carry their products as close to the front of the store as possible. In order to entice the storeowner, both representatives would offer various incentives for us to carry their inventories. The representative from Coca-Cola (Coke being the more popular drink in that area) would offer greater discounts, especially if we agreed to carry a greater share of their merchandise in the store.[15] The representative from PepsiCo offered to set up a soda fountain machine and provide

[15] A greater share of merchandise here relates to us not necessarily purchasing more units of Coca-Cola products, but purchasing more units relative to PepsiCo's products.

us with smaller refrigerators to keep at the front of the store, under the condition that the refrigerator would be stocked with only PepsiCo's products. The storeowner decided to strike a deal with both vendors; however, the Coca-Cola representative rescinded his offer upon seeing the resulting PepsiCo refrigerator and soda fountain. The results of the product displays were that PepsiCo product sales at the store increased while the sales of Coca-Cola products stabilized. Since the resale price level of both products were the same, it would be reasonable to infer that the geographic location of the product within the store had an impact on sales. The sales for Coca-Cola products did not decline for exactly the same reason; their location had not changed. Products placed closer to the POS have a tendency to sell faster than comparable products further away. What is important to note here is that since Coca-Cola had an edge over PepsiCo in the local market, the discounts provided by the former were no match for the latter. From this example, we can infer that the corporation with the smaller share of the market lobbied aggressively in order to gain market share, whereas the firm with the larger share was willing to take a potential reduction in its market share in order to keep its profits high. This is reminiscent of Schumpeter's "Creative Destruction" model where the smaller companies constantly overtake their larger competitors in the purely competitive market (Schumpeter, 1950). Schumpeter focuses on entrepreneurship, new technology and production methods that revolutionize industries and cause smaller (newer) firms to take over the larger (established) firms. I argue, however, that the same model can apply to competitive marketing techniques within the larger (established) firms in the battle to obtain greater market share. Hence, for Coca-Cola versus PepsiCo, the larger market share of Coca-Cola caused the aggressive marketing technique used by PepsiCo, until the point where the market share loss is significant enough for Coca-Cola to introduce similar techniques and thus eventually undercut its profits[16] to gain back the lost market share and so forth.

The Coke versus Pepsi example above is surely good news for the consumer, with competitive corporations driving down prices to capture a larger share of the market. However, looking at this issue a bit deeper, there are certain problems that arise for consumers. Assume for a moment that the average consumer is less sensitive to both the brand of the product and the price as compared to the consumers' own efficiency and time.[17] Therefore, it would be reasonable to suggest that this particular consumer will reach for the first brand of product (s)he comes across. This is exactly where the large capital corporations can boost sales. Firms with greater access to capital can influence storeowners in providing greater shelf space to their products, and constantly can afford to run promotions attracting the lion's share of brand-neutral consumers. In the Pepsi versus Coke example, PepsiCo was able to successfully increase sales because they have the resources to provide discounts and promotions. This is one reason for why no other competitor has been able to break the Cola duopoly. Another pattern that can be noticed with retail stores is that due to the increase in inventory management technology (as outlined earlier) high sales of a particular product would automatically illicit storeowners to dedicate larger shelf space to said product even without the option of discounts and incentives ("More Challenges," 2006). Strong sales for Tide detergents would prompt retail stores to place larger orders (via product demand forecasts based on historical inventory information) with the suppliers of Tide.

[16] Coca-Cola would undercut its profits by offering deeper discounts to the retailer in exchange for larger inventory real estate and a better location of its product.

[17] Intuitively, this means that the consumer values his time at a higher degree than the price difference among comparable products. Almost all convenience store sales are explained by this phenomenon, in that there is both the availability of cheaper prices at other outlets, and the consumer has the necessary information, but still chooses items at a higher price for the sake of efficiency.

The combination of larger corporations with large excess capital and strong sales make for significant barriers to entry for any new producer in the market. Couple this with the fact that each existing competitor actively works to create and maintain brand loyalty; consumer choice is shown to be negatively impacted.

<u>Telephone Companies</u>

In December 2005, USA Today published a report regarding the appropriation of consumer phone records by a US governmental agency called the (NSA) National Security Agency (Lichtblau et al., 2006). Although there is some controversy between which telephone companies handed over their calling records data over to the NSA, AT&T has been the only one to confirm that the records were actually given to the NSA as early as 2002. Since then there have been numerous protests over the alleged misuse of private phone records by the US government. AT&T has claimed that the records were given to the agency under a subpoena by the government under the Patriot Act of 2001. Following the September 11^{th} attacks on the World Trade Center in New York in 2001, the Patriot act was established to extend the US governments' power in accessing personal information on all people living within its borders in an effort to curb transnational terrorist threats (Cole, 2006).

The phone companies of the United States carry as much personal information on its customers as financial institutions and other utility companies. Almost every household in the US has some form of home phone service, usually attained from the local telephone companies, the largest of which are AT&T, Verizon Communications, Bellsouth Co., Sprint and Qwest Communications.

These companies own the network infrastructure upon which phone calls are placed. Even in the case of a consumer acquiring traditional telephone service through a competing small telecommunications company, the telecom carrier in question would need to carry its traffic over the large telecommunications network providers. Thus, a customer has the option of signing up in Dallas, TX with a carrier other than AT&T (such as Grande Communications for example), but the network traffic would still be carried over the AT&T network. Hence, Grande Communications is a licensed reseller of the AT&T networks. In this particular scenario, Grande Communications would hold the customer information, but any phone calls made from the customer would show up on the AT&T Telephony network. AT&T itself, in order to provide phone service and conduct billing activities, requires personal consumer information such as name, address, social security number, date of birth, and (in the case of paperless billing) bank account number, among others. Billing has traditionally been conducted under a “pay-as-you-call” system, whereby billing rates are separated into two categories (local and long-distance) and are charged the appropriate rate on a per-minute basis. Over the past four years, stiff competition from the IT industry (particularly from Voice over Internet Protocol technology) has caused the phone companies to switch to monthly flat rates for both local and long distance calling, however call records are still maintained and used for displaying on the customer bill. Additionally, customers can call and request a report of all calls placed and received at their phone number, the date of the call and duration. It was exactly this information that was provided to the NSA in 2002.

It would be rational to draw inferences from call patterns to outline an individual that poses a threat to national security. The reasoning here is that the NSA uses phone record information to trace international calls by individuals, specifically to areas which may be known to have terrorist links and/or sympathies. The fact that AT&T decided to provide the NSA with customer call records displays the power the government yields over regulated industries. The NSA tried to solicit internet search records from an unregulated corporation (Google Inc.) in 2005; however, Google refused to hand over the data ("U.S. demands…" 2006). In addition, AT&T stock actually rose during the timeframe of the customer privacy issue. This would indicate that the average stockholder supports AT&T's decision to hand over customer information to the US government.[18] Under the justification of combating terrorism, specifically post 9/11, the response from American citizenry has been in support of extending the governments power over consumer information, albeit to a waning degree (Cole, 2006). Assuming that the practice of handing over both domestic and international call records to government agencies continue, eventually consumers would seek out alternative communication methods that would not agree to such practices (mainly due to civil rights issues). This would have the effect of spurring on growth and demand in alternative communication methods such as VoIP and cellular technologies that are not as dependant upon regulatory agencies and traditional public policy support. The telecom industry (and specifically, AT&T) has enjoyed considerable support from policymakers, but is now under threat from the information technology sector. In this particular case, consumer choice will tend to benefit over the long run as more communications alternatives are introduced into the market prompting greater levels of competition in the industry.

[18] AT&T stock history and information retrieved from MSN's Money Central on June 15 2006. http://moneycentral.msn.com/detail/stock_quote?Symbol=T

Internet Advertising

In the early to mid 1990's, a new file compression technology for storing audio files was invented, called the MP3 format. This allowed complete audio files to be stored at a fraction of the disk space originally required. Compact disks were already commonplace in the audio industry completely replacing audio on tape. Along with the invention of MP3's came the software used to convert audio tracks from a CD into MP3 format. An MP3 file is approximately nine times smaller than a regular uncompressed track (5 megabytes of storage space per 6-minute audio file). At the same time, due to disk space limitations, storage of audio tracks on computer hard disks in any format other than MP3's was impractical. Growth in telecommunications technologies (specifically faster upload and download speeds available to the average consumer) also increased with the advent of higher bandwidth connections via broadband internet corporations. The simultaneous evolution of these two technologies combined to foster and grow internet digital piracy. The music industry felt the effects of this piracy first, since users were able to freely share MP3's with each other at high speeds. Searching for music on websites however soon became a cumbersome experience since the number of users willing to allocate their bandwidth to the downloading of music diminished, especially since they had no foreseeable benefits to posting their music collection online.

This particular chain of events created a market for developers called Peer-To-Peer (P2P) software. P2P allowed users to connect to other users (utilizing the same software) using a particular network where they were able to view and download other users music files in exchange of their own. One of the first software designed to allow this particular kind of file sharing was known as Napster, invented by Shawn Fanning in 1999 (Cave et al., 2004). The software itself did not provide online storage of music files, but rather provided an indexing service, cataloguing the various music files on each connected users' machine, and allowing users to directly download and upload files to their computers (hence the name, P2P). Since the music was copyrighted, record labels soon sued Napster, forcing it to shut down in 2002. Swiftly on its heels came another P2P software known as Kazaa, which was slightly different in that it allowed partial downloads from multiple sources connected to the network in order to optimize download speed. Both Napster and Kazaa software was available free to download for the public. The benefits for the creators of the software were accrued via advertising revenue. What the average user did not know (at the time) was that the Napster and Kazaa software packages came bundled with various kinds of "spyware" software. The installation of these software packages was not illegal per se, because the user license agreement for utilizing file sharing packages disclosed the information regarding the spyware software, but the average user tends not to read the long legal statements.

Spyware is a form of online technology that records the keystrokes of the computer to generate a listing of websites and searches that a user may conduct online. The software then transmits this data to the underlying software company (Gibson, 2005). In some cases, personal information such as credit cards and bank account numbers had been proliferated. The more common versions of spyware (such as the one produced by Claria Corporation in Redwood, CA) simply track surfing habits and upload those back to the advertising agency. The software also causes "pop-up" advertisements to appear on the infected computer while the user is browsing the internet. Pop-up advertisements appear when a user opens any webpage via an internet browser;

a second internet browser window appears with advertising targeted specifically to the user (based on the internet browsing gathered earlier). In the case of the Claria Corporation, different corporations subscribing to Claria's advertising network pay subscription fees to Claria. They would then give Napster (or any other software package bundling their software with Claria's) a certain percentage of revenues. Often corporations and websites are willing to advertise on the spyware network because of the highly targeted advertising. For illustrative purposes assume a particular user is an avid moviegoer. (S)he would perhaps decide to purchase movie tickets online, or visit movie enthusiast websites. Claria corp. would record this internet browsing along with the computer name (or Internet Protocol address) and then display advertising for all movie enthusiast websites (that subscribe to Claria's services) on this individual's computer. In extreme cases, the email addresses of users are recorded and subsequently sold to other marketing companies as possible "sales leads".

On the level of individual consumers, spyware is perhaps the best example of targeted marketing existing today. The data used to identify individual interests is primary data, thus the content provided to the individual provides the highest chances of response. Advertising companies utilizing spyware technology have suffered a decline with the advent of various popup-blocking programs, and anti-virus software specifically designed to identify and eliminate spyware programs (the "Ad-Aware" program is one example). Advertisers have suffered a decline in usage because of the covert methods used to gather the data on the user. Mainstream online search tool providers like Google Inc. have utilized this form of advertising, but in a significantly different way. When an individual searches the web for a key phrase, Google provides advertiser links on the right hand side of the webpage relating to the keyword (Fine, 2006). This is a form of targeted advertising, in that Google has captured the interest of the user, but the advertising presented is in a non-intrusive fashion. A cursory glance at the stock price for Google indicates the overwhelming acceptance of users to this form of advertising, where both content and the advertisement are presented simultaneously. The implications on consumer choice for both spyware and online-targeted advertising are complex. On the one hand, advertising online is considerably cheaper for corporations, and the volume of advertisements handled by online content providers is unmatched by any of the other forms of mass media. On the other hand, however, societal fragmentation is positively impacted since advertisements are generated based on the individual consumer interests. Societal fragmentation, in this case would mean the range of interests of a given population diversify even further in that the population would acquire and maintain a growing number of interests over time. This is seen as a positive change in any economy, allowing for emerging businesses and industries to fulfill the increased interests of the population.

Conclusion

One of the most important factors of technological growth is the speed at which data and information is transferred, both for producers and consumers. Time has become an extremely costly commodity, as almost every innovation within the "information" economy has increased the efficiency of individuals. Corporations spend increasing amounts of capital in order to boost worker productivity and increase the efficiency of their activities. Therefore, the pressure upon individuals to allocate their time in a more efficient manner is also increasing. As people spend more and more time in productive activities, the medium of television has reacted accordingly to take advantage of the shortening of time spent by viewers watching their programs of choice. Genre specializing stations have been growing in popularity because viewers now demand less time in seeking out programming suiting their own specific interests. As the fragmentation of television stations increase, viewers can more efficiently allocate their time by switching to channels known to carry programming best suited to the viewers own specific interests. Television stations increasingly have had to compete with the internet in attracting viewers, since the content delivery on the internet is instantaneous (on demand). Retail stores have similarly reacted to the demand for efficiency by placing their products in a manner that would allow consumers to reduce the time spent searching for items within their stores. Retailers also show evidence of reacting to the demands of efficiency on behalf of customers by increasing the range of products sold in their stores. The key idea here is that information regarding the needs of the consumer is readily available to virtually all corporate entities; hence, corporations tend to react to the demands of consumers at an ever-increasing rate. The US government has similarly felt the pressure to accumulate as much information about their citizenry (be it under the guise of terrorism abatement, reacting to needs of citizens, or even to simply get re-elected). The power wielded by the consumer has consequently increased, since consumers can influence changes within the economy at a faster rate.

Consumer choice is a different matter altogether. There is evidence suggesting that the internet and related technologies have enabled greater competition across all aspects of the economy. While the traditional retail industry has the potential to impact the demand of consumers[19], both the television fragmentation and online advertising technologies have the potential to nullify any

[19] The industry (retail in this case) can impact consumer choice negatively (if it so chooses) with little impact to their own revenues

impact the retail industry may wield. Corporations can influence retail stores in creating barriers to entry within their respective markets, but smaller companies can effectively utilize the internet to potentially reduce (and in some cases, eliminate) the barriers. This allows smaller companies to get their message across to consumers at lower costs. Therefore, while corporations are receiving information regarding consumers, the consumers are also receiving a greater amount of information about the corporations.[20] Assuming the trends in advertising and television marketing continue, consumer choice is displaying signs of positive changes thanks to technological growth.

Finally, on the issue of the fragmentation of society, the evidence based on the cases above suggests that society has a trend towards reduction in narrow national consensus, but changes in broad consensus remain ambiguous. The fragmentation of media services such as Television and the Internet display the myriad of interests of the American citizenry. September 11th 2001 had the impact of unifying the American population by identifying a common threat (in this case, terrorism), and the government was quick to take advantage of this by passing the Patriot act. The government exercised the greater powers bestowed by the act the very next year with the NSA's domestic spying campaign with the help of the Telephone industry. Just a few short years afterward however, the narrow consensus of the American public has been lost[21] as evidenced by the pressure to end the Iraqi war mounting and repeated calls for repealing the Patriot act. The instability of narrow consensus has made it even more important for the government to collect as

[20] Corporations are now capable of receiving greater information about their customer base (via sophisticated marketing and computer technology) and thus are able to react quickly to changes in consumer preferences. Through the lower cost of advertising via various methods, corporations are able to get their message out to consumers at a much faster rate as well; hence, the consumers are receiving a greater amount of information about the corporations via the outlined marketing methods.

[21] In this case, the narrow consensus was of fighting terrorism, but the broad consensus of civil rights has caused the citizens to repeal some aspects of the Patriot act that encroach upon human rights.

much information as possible in order to react to issues as quickly as possible. This proves that the US national identity in not under threat as long as broad consensus prevails. Social Security numbers have been the key enabler in allowing the government to track each individual living in the US. I would contest that the lowering of narrow national consensus on issues would lead to better policy outcomes for the people. Furthermore, it restores belief in the political system by allowing citizens to voice their opinions and vent their frustrations.

Technology and society have a cyclical behavior in that both tend to influence each other. For the various industries impacted by technology over the past century, the future does indeed seem brighter. The influence of the individual upon both the economy and the state in addition to consumer choice show signs of increasing with greater amounts of information available to consumers, producers and the state. There is a fine line between how much data both corporations and the government should be allowed to have about individuals without encroaching upon their civil rights. To draw a parallel with the example of spyware technology and Google, both technologies deliver targeted advertising based on user inputs. The key difference is users choose to provide information to Google, whereas spyware operates regardless of user consent. Similarly, citizens must be allowed to choose what information is given to the state. The state acquiring and using citizen information (without the consent of the citizenry) is an unsavory prospect. The end outcome may be the same in both cases, but the means to achieving the outcome makes all the difference in the world.

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