Dear Reader,

On behalf of all of the writers and editors, I would like to thank you for taking the time to read the second edition of the Stanford Undergraduate Economics Journal. All of the writers spent a lot of time on their work and the editors spent a lot of time making changes and offering me feedback on submitted work.

Like the first edition, you will read a wide range of work. When designing the journal, we wanted to appeal both to those with an economics background and to those who haven’t yet had much exposure to economics. I strongly feel that this is reflected in each of the articles we publish.

It has been an incredibly rewarding experience serving as Editor in Chief this year. Next year, I look forward to expanding the journal and making further improvements. Thank you again for taking the time to read this journal. I know you will enjoy it!

Sincerely,

Brandon Camhi’ 16
Editor in Chief
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A warm congratulations to all the editors and writers for their extremely hard work and contribution to the journal. In particular, I extend a huge thank you to Brandon Camhi, the Stanford Undergraduate Economics Journal Editor-in-chief for his outstanding leadership that has been key in both the quality of the journal and the speed in which the journal evolved from an idea to a publication. In addition, I would like to express my gratitude to Professor Timothy Bresnahan, faculty liaison of the Stanford Economics Association, Joanne DeMarchena, Economics Undergraduate Student Services Specialist, and members of the Stanford Economics Association for their support and advice in getting the Stanford Undergraduate Economics Journal off the ground.

The Stanford Undergraduate Economics Journal is one of the branches of the Stanford Economics Association (SEA). The SEA at large has the mission of increasing student involvement in economics and organizing events that allow student interest and curiosity in economics to flourish and be satisfied.

We are a very innovative organization in that a lot of our thriving initiatives were launched in the past 2 to 9 months. To that end, we welcome both ideas and individuals for new programs in the future. Currently, our main initiatives include the SEA mentorship program, faculty-student lunches, a weekly economics conversation series, a large competition to be held in the winter of 2014, and of course, the Stanford Undergraduate Economics Journal. In addition, there are several exciting new endeavors that are in the process of getting started. Please contact me if you would like to be involved with the SEA or if you have any suggestions for new initiatives you would like to see.

Best regards,
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*By Nathan Mass*
COIN and Cash: The Use of Economic Aid in Conflict

By Rajiv Suresh

I. Introduction

The shift away from conventional to small-scale warfare has led to a search for effective solutions to such conflicts. One of the more popular tactics that has become relevant in the past century is the “hearts and minds” approach, specifically in counterinsurgency (COIN).1 “Hearts and Minds” counterinsurgency focuses on winning over the local population through aid projects and military security. Recently, there has been a substantial amount of criticism towards such aid projects, especially in Afghanistan and Iraq. As a result, empirical studies have attempted to identify and assess the role of such aid projects in areas affected by insurgencies.

This paper is organized as follows: In Section II, the “hearts and minds” approach is explained. In Sections III and IV, case studies are presented to demonstrate where the “heart and minds” tactic was effectively implemented (Vietnam and Iraq). In Section V, the criticisms of this strategy are outlined. In Section VI, recent findings and empirical studies are discussed. In Section VII, the use of humanitarian aid is discussed. Finally, in Section VIII possible conditions for successful use of the “hearts and minds” theory will be presented with possibilities for further study.

II. Explaining the “Hearts and Minds” approach

The “hearts and minds” approach was first termed by Sir Gerald Templar, who created new educational and employment opportunities for the Malay people during the “Malayan Emergency” (1948-60). With the new economic prosperity, the Chinese in Malaysia terminated their support of the Malayan Communist Party (MCP), and ultimately forced the MCP to negotiations in 1955. The British military placed special emphasis on nation-building through civil projects and other social activities to create a

---

1 The United States Department of Defense defines “Counterinsurgency” as ‘Those military, paramilitary, economic, psychological, and civic actions taken by a government to defeat insurgency.’ – see DoD Dictionary of Military and Associated Terms
relationship with the local population. In 2006, the phrase was used in the United States Marine Counterinsurgency Field Manual and described in full detail. According to the manual, “‘Hearts’ means persuading people that their best interests are served by [counterinsurgency] success. ‘Minds’ means convincing them that the force can protect them and that resisting it is pointless.”

What is the overall role of economic aid within “Hearts and Minds” counterinsurgency? Theoretically, economic aid is used to create trust between locals and the military, leading to enhanced local support for the military through an increase in information and intelligence – this is the “gratitude” mechanism, as Berman et al. call it. Additionally, there is an “opportunity cost” mechanism for the insurgents. To be specific, the aid provided increases the income of the locals, thus increasing the value of not fighting. Since the value of not fighting as an insurgent increases, their opportunity cost of joining the insurgency increases. This also makes it more difficult for insurgencies to recruit new members, so ultimately the economic aid hampers insurgent activity by slowing their growth and shrinking their numbers.

III. Case Study: “Hearts and Minds” in Vietnam

The “hearts and minds” idea has been used in various counterinsurgency efforts, however there is no one set formula – the way the “hearts and minds” idea is implemented depends on the goals and values of the force that is implementing it. One example where this contributed to successful counterinsurgency was in Vietnam.

The conventional warfare tactics of the United States were ineffective in Vietnam against the guerilla tactics of the Vietcong. A large contributing factor to this was the inability of U.S. forces to identify insurgents. In addition, the Viet Cong were particularly effective at recruiting locals to feed information or fight against U.S. troops. While the overall outcome in Vietnam was unsuccessful, many aspects of the counterinsurgency effort were successful in securing villages and localities. In an effort to win the local population over, the U.S. implemented local aid programs consistent with “hearts and minds” counterinsurgency.

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2 Paul Dixon, “‘Hearts and Minds’? British Counterinsurgency from Malaya to Iraq”, The Journal of Strategic Studies, June 2009, p. 359
4 Ibid. p. 368-9
The primary aid program that was used during the counterinsurgency effort in Vietnam was the CORDS (Civil Operations and Rural Development Support) program. Established in 1967, the primary purpose of CORDS was to promote infrastructural, economic, and agricultural development. The program had support from USAID, the DoD, and the Department of State in achieving these goals. CORDS activities were specifically coordinated with military operations, in order to provide an “innovative whole-of-government approach to achieving rural pacification through development activities…”\(^5\) Initially headed by Robert Komer and William E. Colby in 1968, CORDS was essential in pacifying the countryside with the “battle for hearts and minds.” CORDS helped grow the number of advisors that were involved in pacification. In 1966 only 1,000 US advisors were involved in pacification efforts, whereas in 1969, about 7,601 advisors were involved in pacification efforts.\(^6\) In addition, CORDS provided strong economic support to rural areas, as between 1966 and 1970, money spent on economic programs and pacification went from $582 million to $1.5 billion.\(^7\) By 1971, total territorial militia strength was at a level of 500,000, and in 1969 there were 2,243 advisors for the militias. The increase in manpower and financial support allowed for the consistent confrontation of guerrillas. As a result, by early-1970, 93% of South Vietnamese lived in “relatively secure” villages, compared to 20% in 1968.\(^8\) Thus, the combination of economic aid and development with territorial security led to a successful counterinsurgency campaign in Southern Vietnam – though it was, as Komer stated, “too little, too late.”\(^9\)

IV. Case Study: “Sons of Iraq”

The “Sons of Iraq” present a more recent case where a “hearts and minds” strategy was implemented. In 2005, Sunni tribes in the al Anbar province of Iraq began forming their own militias to deal with the growing Al Qaeda Iraq (AQI) presence in the


\(^7\) Ibid.

\(^8\) Ibid. p. 17

area. Sunni tribes also pledged their support to and created alliances with the American military. These militias, because they were properly implemented and managed, contributed to the counterinsurgent success in the al Anbar province. This movement was known as the “Anbar Awakening,” and these militias were called “Awakening Councils” or the “Sons of Iraq”.

The alliances formed between the Sunni tribes and the U.S. Military were not only a product of the indiscriminate violence of AQI, but also a product of U.S. military forces building projects for the Sheikhs in the province using the “model city” approach. This acted as part of the “hearts and minds” approach to winning over the local population. With the alliances that were made, sheikhs began sending volunteers train as police forces at the Ramadi police force. These volunteer forces were particularly effective at hunting down AQI, as they knew where the insurgents worked and lived. General Petraeus, in his Testimony to Congress in April 2008 stated that, “with their assistance and relentless pursuit of Al-Qaeda Iraq, the threat posed by AQI...has been reduced significantly.” The “Sons of Iraq” were typically compensated with contracts from the coalition forces of about $300 (U.S.) a month for their security services. This also drew many to assist coalition forces, as the economic benefits of helping the coalition were greater than the benefits of joining the insurgency, thus these payments acted as an “opportunity cost” mechanism.

Ultimately, the effectiveness of the “Sons of Iraq” can be seen in counterinsurgency operations primarily because of their local knowledge that they were able to use and provide to coalition forces. The “Hearts and Minds” approach allowed coalition forces to win the Sunni peoples’ trust, and precipitated the militias that were so crucial to quelling the threat of AQI in the Anbar province.

V. Issues with Economic Aid in Conflict

While the success of such “hearts and minds” programs are clear in the case of CORDS and the “Sons of Iraq”, it is not always so. Today, there are a lot of questions asked about the effectiveness of such programs in other parts of Iraq and Afghanistan.

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This section discusses the prevalent issues and questions regarding the use of economic aid in conflict.

One of the primary issues is the idea of predation or rent capture – where aid money given to help the population leads to an increase in insurgent activity. This is somewhat counterintuitive – how does an increase in infrastructure or economic opportunity increase the amount of violence in an area, if the function of the aid is supposed to reduce insurgent numbers as an opportunity cost mechanism? There are two things that can occur: insurgents can view the infrastructure projects or economic aid as threats and directly attack them and the people working on them, or the insurgents can try to increase their own income by “shaking down” the projects and aid. This idea of predation has been observed in some instances, specifically in Afghanistan, where insurgents killed aid workers and charged assisted communities a “tax” to allow the projects to continue, thereby increasing their own income with aid money.

But is predation alone enough to discount the use of economic aid in counterinsurgency? This anecdotal evidence, while important, does not give us a significant enough trend to say so. Instead of basing our judgments off of such anecdotes, we can look to large-scale empirical studies that have examined the relationship between economic aid and violent activity.

VI. Recent Empirical Studies

Crost, Felter, Johnston (2012) examined the relationship between economic aid and violent activity in the Philippines. The Philippines’ 4Ps program was an anti-poverty aid program conducted through cash transfers. Crost et al. observe not only that violent incidents decreased in villages that were treated as a part of this program, but also that there was “a spillover effect” to other villages – i.e. villages that are 5 to 10 miles away from a treated village experienced a decrease in violence, even though they themselves

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did not receive any aid.\textsuperscript{15} Thus this empirical study shows that economic aid has a significant upside in areas impacted by insurgencies.\textsuperscript{16}

However, other studies find the opposite and support the idea of predation or rent capture. Berman et al. (2012) use data from the Philippines and examine the relationship between economic development and violent incidents using building permit values as a proxy for wealth and investment. Specifically, they test three hypotheses: a) increases in investment predict reductions in future violence, b) the “opportunity cost” and “gratitude” mechanisms of “hearts and minds” theory of counterinsurgency predict that increased income will reduce violence, and c) increased economic activity, like investment, will be associated with increased violence as a result of extortion. Using this data, Berman et al. find that, whether they use building permits as an investment or income replacement, the only theory that is supported by their data is the predation theory.

How can we observe two different studies in the same country that bring about contrary results? Berman et al. (2012) explain that two concepts differentiate the economic programs analyzed – conditionality and “extortability”. The 4P’s program analyzed in Crost et al. was conditional on the fact that those receiving aid did not interact with the insurgents, while using business permits as a proxy for investments does not have this kind of conditional requirement. This conditional requirement makes predation less likely, as the places the insurgents would likely be are villages where there is no economic aid for them to capture. The idea of “extortability”, introduced in Berman et al., is the idea that the ease with which aid can be extorted varies with the presence of a military force. There is no such military force involved with simply getting building permits, and therefore, the income in the model used in Berman et al. has a greater chance of being extorted than the cash transfers of the 4P’s program used in Crost et al.

\textbf{VII. Humanitarian Aid}

There is an important distinction to be drawn in the type of aid provided. As stated above, Berman et al. discuss the “extortability” of such aid as varying according to whether or not a military force is involved. So does humanitarian aid lead to a result


\textsuperscript{16} As Crost et al. explains, the Philippines have multiple long-running conflicts with insurgency groups such as the New People’s Army, the Moro Islamic Liberation Front, and the Abu Sayaff Group. The paper analyzes incident data from the Armed Forces of the Philippines (AFP).
similar to that found in Berman et al. - extortion and increased violent activity? Nunn and Qian (2012) find that it does for intrastate conflicts (i.e. civil wars), especially in smaller states. Using data on U.S. humanitarian food aid, they find that such aid can actually be detrimental towards the beneficiaries. While their results hold for food aid, they do not explore other forms of aid, or aid from NGO’s. This raises the following questions: will aid have a better impact on conflict if administered by a NGO rather than a governmental ally or military force? If so, can we determine what type of aid will have the lowest “extortability”? Finally, can we consider aid from NGO’s as a substitute from aid from military forces or should this be administered in tandem with aid from military forces?

When answering these questions, it is also important to consider whether aid from an NGO would necessarily contribute to “hearts and minds” counterinsurgency. Yes, NGO aid would serve as a sufficient opportunity cost mechanism for the local population, but would that contribute to the trust that is so critical in “hearts and minds” tactics? As stated earlier, a key aspect of the “hearts and minds” is the idea that such aid and projects would allow the local population to trust the military force, and would lead to the exchange and use of local information in order to create an effective counterinsurgency force. Whether this would hold in a situation where it is not a specific military force or nation administering the aid is unclear. However, there is also the possibility that if it were administered by an NGO there would be a lower chance of extortion, since there are fewer motivating factors for an opposing force. To be specific, when a country or military force administers the aid, the opposing force will be motivated to extort this aid not only because they will gain resources, but also because they hurt their opposition. When an NGO administers the same aid, it can be argued that the “hurt their opposition” motivation disappears. Whether this holds or not is difficult to verify without quantitative and empirical analysis of how violence and insurgent activity change with humanitarian aid from NGO’s.

The type of aid implemented in conflict can also play a role in how effective that aid is in “Hearts and Minds” counterinsurgency. For example, Nunn and Qian find that food aid can cause an increase in violent activity, however Crost et al. find that the cash transfer program in the 4P’s program was in reducing violence. While there were other factors that differentiated the two (humanitarian aid v. governmental aid, location,
military presence, etc.), this is a distinction that could potentially have causal implications on the reduction of violence in an area. Since cash transfers directly impact an individual’s income, it is plausible that they serve as a better opportunity cost mechanism and are, therefore more effective than food aid or other forms of aid in “hearts and minds” counterinsurgency. This is only a hypothesis, however, and there is thus room for empirical analysis and study on the type of aid administered in an area where there is an insurgency.

VIII. Conclusions

Assessing the success of “hearts and minds” counterinsurgency is important in identifying effective measure that can be used in the future. A major tenet of “hearts and minds” counterinsurgency is the use of economic aid as both a “gratitude” and “opportunity cost” mechanism, which makes studying the effectiveness of such aid crucial. Anecdotal evidence gives us half of the picture, but without empirical validation to back up these ideas, it is very hard to implement such tactics with any assurance of success. As discussed above, different empirical studies show different results; however, there has been demonstrated success in aid programs that show both conditionality and a lack of “extortability” as Berman et al. discuss.

This is, of course, not an absolute formula. In discussing humanitarian aid, Nunn and Qian have demonstrated that more humanitarian aid induces extortion, at least when looking at U.S. food aid. Thus, there are questions of whether aid is better administered by NGO’s and whether there is a specific type of aid that is more beneficial to the counterinsurgent force. Qualitatively, it appears that NGO’s might be more effective at administering the aid, as the motivational factors for the insurgents are fewer and, as a result, the amount of extortion might be lower. In addition, we see in the empirical studies discussed that the type of aid administered can be considered another variable that could cause either a reduction or an increase in violence. While qualitative analysis shows that cash transfers may be more effective, there is a need for empirical analysis in different settings to determine the validity of the qualitative analysis.

Ultimately, there is considerable room for further research in this topic. The variables that have an impact on the effectiveness economic aid should be explored, both qualitatively and empirically so that there is the possibility of a comprehensive theory on
how economic aid can be effectively implemented in conflict. Such a theory would be of primary importance in terms of military and defense policy, giving this topic of study significant real world implications.

The Economics of Degree Inflation

By Justine Moore ‘16

As the percentage of the population that has attained a bachelor’s degree increases, the value of a college degree continues to decline -- a phenomenon known as degree inflation. Though degree inflation motivates more young people to attend college to compete in the job market, it harms many older members of the workforce who face changing standards for employment and no longer have the credentials required for even low-paying jobs.

In 1940, less than five percent of the U.S. population held a bachelor’s degree (Census Atlas of the United States), a number that rose to almost 25 percent by 2000, and exceeded 30 percent in 2011 (Bernstein). Statistics from Burning Glass, a company that examines advertisements for jobs around the country, reveal that the percentage of employers seeking employees with a bachelor’s degree has increased dramatically from 2007 to 2012.

The increase was noted for many professions, ranging from dental laboratory technicians, for which 12 percent of advertisements requested candidates with a bachelor’s degree in 2007 compared to 33 percent in 2012, and photographers, where the percentage increased from 25 to 34 between 2007 and 2012, according to statistics reported by Catherine Rampbell of The New York Times.

Rampbell acknowledges that although some of these jobs need workers today to be more skilled than the workers of 2007 because of developments in the industry, many “[requiring] the same old duties and skills” despite having increased their expectations for their employees’ educational backgrounds.

According to Rampbell, there is a surplus of labor because the supply of people seeking employment exceeds the demand of employers for employees, and employers know that they can “afford to be picky” when making hiring decisions. This can manifest
itself in the form of employers automatically weeding out job applicants who have not attained a bachelor’s degree, as many employers “assume that people who don’t go to college in this day and age must be inferior candidates” (Rampbell).

In a February 2013 article titled “It Takes a B.A. to Find a Job as a File Clerk,” Rampbell dove deeper into the issue of degree inflation through a profile of Busch, Slipakoff & Schuh, a law firm in Atlanta with 45 employees. The firm has a policy of not hiring anyone without a bachelor’s degree, even for lower-level jobs that “do not require college skills;” (Rampbell) the firm’s receptionists, file clerks, and document runners all graduated from college. According to Rampbell, the firm justifies this decision by arguing that although graduates will likely not use the skills learned in college at their lower-level jobs, they may be “more career-oriented” if they attended college.

In an article for Bloomberg Businessweek, Sheelah Kolhatkar posited that the phenomenon of degree inflation has a particularly dramatic effect on middle-aged women working in secretarial or administrative jobs, who are suddenly facing increased competition from young college graduates.

Kolhatkar cites the fact that 96 percent of administrative workers and secretaries are women, and quotes several women who were laid off during the economic recession and are “suddenly encountering obstacles to finding a job” due to the fact that they lack college degrees.

“Some of them are in their 40s, they’ve raised families. They started out of high school and have built up to the higher $90,000-a-year range. And now they’re being told they need to have a bachelor’s degree,” said Kerri Crump, who was previously an executive assistant and is currently searching for a job (Kolhatkar).

Degree inflation may even be harming the young, educated workers who are replacing the middle-aged women without degrees, as they are forced to accept low-paying jobs while struggling to pay off their college loans. According to USA Today, the cost of college tuition has increased 7.1 percent since 1980, while average inflation during this time period was 3.3 percent. The average undergraduate now pays $17,633 per year for tuition, room and board, compared to $7,341 (in today’s dollars) in 1980 (Serrano).
As a college education becomes increasingly more expensive, students are struggling to finance their education. According to NPR, approximately two-thirds of students who receive bachelor’s degrees take out loans to pay for their education. The average graduating senior has approximately $25,000 in loan debt, which is becoming more and more difficult to pay off (What’s Driving College Costs Higher?).

While students are amassing more in loan debt, the worth of a degree is declining. Many young graduates are accepting low-skilled jobs with equivalent salaries, and do not make enough money to pay off their loan debts.

However, this proves to be a catch-22 situation, as these workers often would not be eligible for even low-paying jobs without college diplomas. According to Rampbell, the unemployment rate for workers with only a high school education is 8.1 percent, compared to 3.7 percent for those with a bachelor’s degree.

Although economists around the world have suggested a variety of solutions for degree inflation, including prohibiting employers from discriminating against applicants without bachelor’s degrees for jobs that do not require a college education, none of these simple solutions will fully tackle all of the complex issues involved. For example, a ban on discrimination against those without bachelor’s degrees would be extremely difficult to enforce and raise a whole new set of questions. How would this ban be enforced? What is the threshold for work that requires a college education? This ban would create immense inefficiencies and incur high costs. There is no easy way to address this issue.

As tuition increases and degree value declines, policymakers must develop a method to control degree inflation. However, increased regulation could potentially backfire. Firms may exploit loopholes in any new regulations to only hire people who have degrees beyond the bachelor level to maximize productivity given the higher costs. Increased business requirements would also cause firms to hire fewer workers, thus exacerbating unemployment facing many new graduates.

Degree inflation is a major problem facing many college graduates. It is clear that new and innovative solutions are necessary to curb degree inflation and maintain the benefits of higher education.
Works Cited


Long Tails and Superstars: The Impact of Collaborative Filtering across Online Platforms

By Henry Zhu Tang '14

ABSTRACT
Collaborative filtering (CF) is an ongoing development in the algorithms used for online recommendation systems that have become both a complement to and substitute for traditional search on online marketplaces. Most existing literature on the CF algorithm is understandably from an information systems standpoint, so this paper seeks to look at the economics behind this technological shift. It will examine namely how the distributions of online marketplaces have shifted and whether this shift favors niche products or large brand-name products. Are some marketplaces intrinsically more suited for collaborative filtering? What are the differences between an online mega-retailer such as Amazon and a subscription movie platform such as Netflix? After analyzing the Long Tail and Superstar effects in these marketplaces, the paper discusses broader implications for merchants, consumers, the platforms, and society as a whole.

I. Introduction

Collaborative filtering (CF) as an algorithm has been used to filter through large data sets since the early 1990s, but did not take off until within this past decade, due to the exponential growth of the Internet and data sets becoming increasingly more massive. Used for automated recommendations, CF "exploits similarities between the tastes of different users to recommend or advise against items. It relies on the fact that people's tastes are not randomly distributed" ("Strategy for Information Markets"). The algorithm treats two users as similar if they rated the same items similarly; two items are considered similar if they have received similar ratings from users who have rated both. The basic idea is to make a recommendation from the items liked by a user’s similar users. As one would expect, collaborative filtering has become a useful tool to target-advertise items to
customers (i.e. find items that a consumer is likely to like, yet was unlikely to find on his/her own because of the large selection).

We should note that there are actually two types of collaborative filtering to consider. Active (or explicit) collaborative filtering is essentially “word-of-mouth in the age of the information marketplace” (“Strategy for Information Markets”). Users are asked to actively participate in this kind of filtering by giving ratings or reviews, either with their accounts or anonymously. However, there can be a first-mover bias, in which the first person(s) to rank a product can skew the rest of the raters towards the first review(s). There may also be a “lone-mover” bias, in which a large majority of rankings are at extreme ends of the spectrum – either those very upset with the product or those actually associated with it. Passive collaborative filtering, on the other hand, requires no participation on the part of the consumer. Instead, information is collected on users as they navigate the site, and items are recommended to them by processing this information.

Many websites and applications have adopted some form of collaborative filtering in their recommendation systems, to be discussed throughout the rest of this paper. Section 2 will introduce a basic real-life application of CF, and its comparison with other algorithms. Section 3 will elaborate on how the improvements in recommendations can lead to two opposing effects: the Long Tail (rise of niche markets) and the Superstars ("winner-take-all"). Sections 4, 5, and 6 will then discuss specific applications of CF, compare its impact on two different platforms (Netflix and Amazon), and analyze the underlying significance of the Long Tail and Superstar effects. Finally, Section 7 will wrap up the paper with a summary of the different findings and final thoughts about how different players will be affected by CF in the future.

II. Collaborative Filtering and other algorithms

Before we dive into deeper applications of collaborative filtering in different marketplaces, we will first demonstrate how this new algorithm is a decided improvement upon other algorithms. A team of engineers and researchers at the Palo Alto Research Center designed and implemented a recommender system (codenamed Magitti)
that considered a user's contextual data and their tastes in order to recommend certain leisure activities. Magitti first inferred which general category the user is most likely to be interested in (e.g. "eat", "shop", "read"), and then ranked the items in the chosen category by computing each item's utility to the user. In short, Magitti used six different models (including collaborative filtering), and the group then conducted a qualitative evaluation in which users assessed the usefulness and serendipity of recommendations obtained from these models. For their experiment, they recruited 16 random participants and asked them to rate a list of local restaurants they had already visited. The participants were then presented with five different lists of new restaurants (each list sorted in decreasing order of utility, though the participants were not made aware of this), and asked how interested they would be in dining at each restaurant. Each restaurant also included past user ratings and comments, and participants were asked to what degree the existing ratings and comments affected their decision. The results ultimately showed that collaborative filtering dominated in giving the most "useful" recommendations (see Figure 1).

Figure 1. The left table shows the average usefulness score for each algorithm. The right table shows average usefulness scores, excluding already visited locations. CF is clearly dominant in either case. (Ducheneaut et al.)

<table>
<thead>
<tr>
<th>Algorithms</th>
<th>N ratings</th>
<th>Average</th>
<th>Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>CF</td>
<td>110</td>
<td>0.75</td>
<td>0.13</td>
</tr>
<tr>
<td>Prefs</td>
<td>220</td>
<td>0.54</td>
<td>0.15</td>
</tr>
<tr>
<td>Distance</td>
<td>200</td>
<td>0.43</td>
<td>0.15</td>
</tr>
<tr>
<td>All Equal</td>
<td>180</td>
<td>0.56</td>
<td>0.14</td>
</tr>
<tr>
<td>Custom Weights</td>
<td>210</td>
<td>0.56</td>
<td>0.14</td>
</tr>
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<table>
<thead>
<tr>
<th>Algorithms</th>
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<tr>
<td>CF</td>
<td>46</td>
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<tr>
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</tr>
<tr>
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<td>0.37</td>
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<tr>
<td>All Equal</td>
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<td>0.48</td>
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<tr>
<td>Custom Weights</td>
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<td>0.45</td>
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The Palo Alto researchers also saw that the participants found user comments more influential than ratings. Interestingly, when the participants were asked about the serendipity or "novelty factor" of the recommendations, the CF algorithm yielded the smallest number of novel items, suggesting it doe not do such a great job of introducing
users to unfamiliar products, as one might expect it should. We will keep this in mind for the rest of the paper.

### III. Long Tail and Superstar Effects

With CF playing a larger role in online markets, it is increasingly important to consider both Long Tail and Superstar effects and how CF has changed or shifted the sales distribution.

![Sales vs. Rank Graphs](image)

**Figure 2.** In case I, 100 products are available and the top 50% of products account for 75% of total sales (a variation on the Pareto principle). In case II, we add a "longer tail" of 100 niche products with minimal sales, so now 200 products are available and the top 50% of products account for 95% of total sales. (Brynjolfsson et al.)

Online recommendations can serve as an extension of the feedback effect/loop\(^\text{17}\), which can easily breed "superstars" (products that dominate sales within marketplaces). The Long Tail consists of niche items that, though overshadowed by Superstars such as blockbuster movies or best-seller books, have demand from consumer groups outside of the mainstream. It's also likely that the marginal benefit of visible popularity information (the number of page views, visitors, clicks, etc.) is higher for niche products, which can contribute to a more prominent long tail.

With the continued growth of the Internet, it has become easier for retailers to profit by selling items too obscure for brick-and-mortar stores to carry, whose (physical) storage costs are often prohibitive. Jeff Bezos, founder and CEO of Amazon, observed that "there were more than three million book titles in print worldwide, whereas the largest physical

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\(^{17}\) Certain recommendations lead to higher sales for the recommended items, which in turn causes them to be recommended more.
superstores carry only about 175,000 titles" (Brynjolfsson et al.). Thus, he chose to focus on books when he first started Amazon, which has become known for supply chain strategies such as drop-shipping\(^{18}\) that capitalize on demand for the Long Tail, as well as being behind the surging popularity of electronic books. Online retailers can therefore take advantage of the near-zero marginal costs in listing items as part of their inventory/selection, so that supply can and will always meet demand. For Amazon, even delivery fees (for items such as eBooks) can be virtually zero.

There are two separate effects that can sustain either the Long Tail or the Superstars. There could be a "birds of a feather" (homophily) effect: As more people find niche items, they are more likely to show up in recommendation lists - other consumers would be drawn to them because they see that consumers similar to themselves have also used the items. Meanwhile, there is still a sense that the "rich get richer", if we assume that megahits continue to dominate search results and consumer demand. As Fleder and Hosanagar discuss, collaborative filters also have difficulty recommending products with

\(^{18}\) Retailer does not keep goods in stock, but instead transfers customer orders and shipment details to a manufacturer or wholesaler. (Wikipedia)
limited historical data, even if they would actually be great matches. This will further reduce sales/product diversity.

Oestreich-Singer and Sundararajan decide to calculate a Gini coefficient to measure the distributional inequality of revenues across categories, where 0 corresponds to perfect equality (all items in a category have the same revenue) and 1 corresponds to perfect inequality (one item has all the revenue while all other items have zero revenue). They find that based on a comparative analysis across over 200 categories of books on Amazon, more influential/effective recommendation networks are associated with a flatter revenue distribution (i.e. the relative revenue contribution of niche products increases). So, if the revenue fraction of the bottom 20% of products is about 2% for a category with a Gini coefficient of 0.8, it can increase to 4% when the Gini coefficient decreases to 0.6.

![Figure 4](image)

**Figure 4.** For the top 20% (or 50%) of titles, an increase in the Gini coefficient increases the share of total revenues it has in the market. For the bottom 20% of titles though, increasing the Gini coefficient decreases the shares of revenues that these titles have. (Oestreich-Singer and Sundararajan)

They also find that categories with higher average demand are apparently less likely to have evenly distributed revenue, though a lot of this could be owed to the fact that the categories have higher demand due to the pull of a select few "mega-hits." The Long Tail and Superstar effects are important to pay attention to not only within the book marketplaces, but across all sorts of arenas that collaborative filtering has expanded to.

**IV. Uses and Applications of Collaborative Filtering**
Collaborative filtering has been applied across music (e.g. iTunes, Pandora, Last.fm, Spotify), movies (Netflix), retail (Amazon, eBay), and social media (Reddit, Quora), just to name a few categories. In fact, it has recently even moved into the food arena. Ness, a startup focused (for now) on matching consumers with restaurants, has been able to differentiate itself from a company like Yelp by using collaborative filtering in its recommendation system. It uses machine learning techniques (including CF) to calculate a Likeness Score for any restaurant based on a user’s own ratings and his/her similarity to users who have been to the restaurant, among other factors. Ness will be looking to extend its offering to other lifestyle categories, including music, shopping, nightlife, and entertainment, all within the same app (which may very well challenge and even push out Yelp of the market).

We can argue that "early adopters" of collaborative filtering will have the decided advantage in platform wars; two "early adopter" platforms of particular interest are Amazon and Netflix, which have two of the most well-known and advanced recommendation systems that implement collaborative filtering. The two use a similar item-to-item CF algorithm from a technical standpoint, so we will control for this and concentrate instead on the different distributions of each marketplace because of the product offerings themselves.

V. Comparative Study of Amazon and Netflix

As described in an industry report by Amazon, the company's "algorithm's online computation scales independently of the number of customers and numbers of items in the product catalog" (Linden et al.). Rather than matching a user to similar customers, as
traditional CF algorithms do, the item-to-item algorithm matches each of the user's purchased or rated items to similar items (building a table of correlated items), then combines those items into a real-time recommendation list ranked in order of best match. Thus, the algorithm (for Amazon or Netflix) is dependent only on how many items/titles in the user's history, a significant runtime improvement over going through a platform's entire library or set of users.

Knowing that their algorithms are technically similar, we consider different incentive structures for each platform that can cause the algorithms to be implemented differently.

Netflix has transitioned to a prepaid subscription service from a pay-per-use pricing model, which has changed both its content acquisition costs and consumer preferences. It has encountered further trouble with licensing, leading to a fairly limited selection and very broad genres for its titles. As a result, matches can often feel more "out there" or nonsensical to the user. This is a problem that a music platform such as iTunes has been able to avoid, due to a much wider library and very specific niches within the music industry nowadays (e.g. independent artists of all sorts have become increasingly mainstream within the populace, due to lower search and promotion costs). Also, rather than having everyone drawn towards the latest blockbusters (which tends to be the trend), Netflix wants to steer users towards older, less known movies that are less expensive in terms of acquisition costs. Its recommendation system is likely geared to favoring niche titles in some way, so that Netflix can induce demand for the older and lesser known movies it's already paid for. Movies are experience goods and cultural products though, so it is hard for less popular titles from a different time period to suddenly catch on or have the same appeal today. Meanwhile, Amazon, as an aggregate retailer, is perfectly happy with having consumers all buy the same item in any category, and when it ranks items in a recommendation list, the consumer will likely only need the "best" recommended item (on Netflix, users likely go through multiple titles in a list, starting with the best).

The user feedback is also different on both platforms. Netflix uses an explicit ratings system, "encouraging [and constantly reminding] its users to rate the movies that they have watched both outside and within Netflix to improve its recommendations for them,
so users have direct incentives to provide truthful and complete ratings" (Tan and Netessine). Netflix also uses pure ratings data rather than review data, where giving a rating is much less costly to a user than writing a review. Thus, Amazon reviews (which are seen as completely optional and less intrusive) must be less frequent. However, each review may have much more of a marginal impact on consumers' decisions that a rating (from 1 to 5 stars) would have, and Amazon may be faced with more of the "lone-mover" bias that was previously discussed. Amazon, while it does ask users to review items, relies more on passive CF by collecting information on user activity as soon as they enter the site.

By seeing user purchase and rating activity, it has been able to establish a Long Tail that serves as a core component of its business. Getting back to Oestreicher-Singer and Sundararajan, the two discovered that books on Amazon have a flatter revenue distribution (a decrease in the Gini coefficient) thanks to more influential recommendation networks. Recommendations within categories have a higher impact on flattening revenue (as traffic stays largely within the category) than do recommendations across categories (since they are more likely to terminate at the more popular product choices and not get to the Long Tail)
Figure 6. Example of passive collaborative filtering. Amazon collects info on all users as they navigate the site. Upon entering the site, users see a graphic of “recently viewed products” and underneath this, a widget displaying other products the user might be interested in, based on this history. Amazon will also show what “Customers who bought items [you did] also bought”, encouraging users to consider purchasing products they otherwise would not have searched. (Linden et al.)

Meanwhile, Tan and Netessine examine the Long Tail effect on Netflix and find that the demand for hits rises while the demand for niches falls, in relative terms. One explanation is that new movie titles appear much faster than consumers discover them: "Consumers over time indeed watch more niche movies in absolute terms, but the rate at which [they] shift demand from the hits to the niches is considerably less than the growth rate of product variety." From the experiment they run, while the average popularity ranking of movies rated by consumers goes down sevenfold (indicating the presence of more obscure movies), after normalizing products ratings by dividing by current product variety and then redefining a measure of popularity, they discover that consumers watch the hits more and more over time. The average consumer watched, on average, movies in the 11th percentile of product variety at the start of Tan and Netessine's study, while the average consumer watched movies in the 5th percentile at the end of the study. This shows that new titles are appearing more quickly than people can (or want to) discover them, so the question is now whether Netflix should continue acquiring or recommending these relatively unknown titles.

It is interesting to remember that Netflix, a platform that wants consumers to embrace niche titles, is having trouble doing so, while Amazon, a platform that would be fine with all of its consumers choosing the "greatest hits" and "best-sellers", succeeds because of its sales diversity. Next we will further discuss the broader implications behind the Long Tail and Superstar effects.

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19 The total number of different movies rated in a time period
VI. Analysis of Findings (Implications)

What do the Long Tail and Superstar effects mean from a macro perspective? There are a number of different externalities that can result, including information externalities (knowing how others acted under similar circumstances saves me the effort of evaluating the options myself), coercive externalities (heightened peer pressure to do as others do), and probably most importantly, market externalities. Market externalities occur when a particular option is chosen by more and more people, and becomes more valuable to all who chose it as a result. This can make it difficult for new collaborative filtering sites to challenge an established site such as Amazon, which already has a critical mass of users, inventory, and preference data. This suggests that current online retailers are safeguarded from the downfall that traditional brick-and-mortar stores fell victim to (notable examples are Blockbuster and Borders, which were slow to adapt in the information age against Netflix and Amazon). Not only do online retailers have more cost-effective operations and supply-chain methods, but they can maintain their market share through the large number of partnerships they already have with third-party merchants/sellers that a "new entrant" platform simply would not have yet.

Even if a Long Tail does continue to develop, there does not seem to be an end to the greatest hits anytime soon. Producers may decide to decrease the number of "superstars" but increase the marketing budget for those which remain, leading to increased sales concentration and "Super Superstars." Tan and Netessine found, using their Netflix data, that the demand for the top 0.1% of movies increases five times as fast the demand for the top 10%, indicating that demand for the "hits of the hits" still is very strong. The fact that consumers gravitate away from obscure titles (which lie in metaphorical dust on the online shelves) to the newest popular releases is further evidence. Thus, the (studios behind the) Tom Cruises and (the publishers for the) James Pattersons of the world can still rest easy.

And once again, we return to the question of inequality. In terms of social welfare implications, consumer surplus gains and producer surplus gains may not be evenly distributed across different types of consumers and firms. To be discussed as a
concluding thought, even if everyone is "benefiting", society could still be negatively affected and operating at a suboptimal point.

**VII. Concluding Remarks**

We have seen that collaborative filtering is indeed a very powerful algorithm that is changing the way we, as consumers, shop, listen to music, watch videos, eat, search for information, etc.

It has the potential to enhance consumer utility, by presenting alternatives that more closely match individual preferences. However, increased choice ("overchoice") may also create an overload, leading to poorer choices. We also must be careful about defining hits and niches now in the Internet era, as opposed to a brick-and-mortar world (where product variety was relatively stable and hits/niches could be defined in absolute terms). In the Internet era, as product variety is skyrocketing, the customer base may be expanding across the distribution, but some products may be left unnoticed. On the merchant/seller side, a downside of increased product variety is that a greater number of products will naturally take longer now to be discovered by consumers after making it onto the marketplace. For future consideration, it would be interesting to forecast the time for products in the Long Tail to accumulate demand (i.e. the average time between entering the market and the first sale, and then between successive sales). It may sooner or later become undesirable for the platforms to list the new titles/items, or for the merchants to sell their niche products on the platforms.

Hotelling's law\(^{20}\), as well as the fact that consumers find utility in discussing the experience of reading popular books or seeing popular movies with each other, could place a limit or upper bound on the degree of diversity consumers would ever prefer. Platforms have changed their pricing too in response to demand for the big hits. One notable example is Apple, which continues to charge $0.99 for many of its songs, but now sells new hit songs for $1.29 while older, more obscure songs can actually be found for $0.69.

\(^{20}\) Essentially, minimum product differentiation is good, in the perspective of producers.
An online platform such as Netflix may also be inhibited, not by an ineffective algorithm, but by the intrinsic nature of its product. Netflix actually carried out a $1 million contest to see if any team of engineers could design a collaborative filtering algorithm more accurate than the one it currently was implementing. While there was a winner, Netflix eventually decided to pass on it, indicating the added costs of implementation outweighed any incremental revenues. We could infer, therefore, that the algorithm was not the root of the problem, but rather the movie industry itself and consumers' fixation on the newest, trending blockbusters.

Marketing and news have also become more targeted, thanks to CF. However, we are led to wonder whether selective consumption of products and information would lead to either a "global village of well-informed citizens, or to fractured communications between balkanized groups of consumers" (Brynjolfsson et al.), especially if the Long Tail effect increases. As it becomes easier for consumers to filter content based on their own tastes, interests, viewpoints, etc., it is very possible that citizens who are fed an exclusive diet of news catered to them would be less able to understand and debate with individuals holding alternative viewpoints. This is a strange outcome in which individuals could all report higher satisfaction, yet most would agree that there is a negative impact on society as a whole (if ignorance ≠ bliss).

Lastly, it may be time to distinguish between a "greatest hits" and a "winner-take-all" effect. The "superstars of the superstars" could become even more popular, but it is hard to imagine that a true "winner-take-all" mentality can still apply when barriers to entry online are increasingly difficult to establish/hold (for merchants, anyway. It remains to be seen whether mega platforms such as Amazon or eBay can remain the go-to marketplaces for popular and/or niche products).

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The Economic Consequences of China’s One Child Policy

By Sam Hansen

Abstract

In the aftermath of the Mao-era, China enacted the one-child policy to curb its staggering population growth and mitigate the associated consequences of poverty, resource-depletion, pollution, and urban sprawl. Though it dramatically reduced China’s fertility rate, the policy had many unforeseen consequences such as a gender gap of 30 million more men than women, forced abortions, and increased crime rates (Brooks 1). While the one-child policy was justifiable in 1979, its continuation will increase China’s elderly dependency ratio in the future and stifle innovation in the workforce. Ultimately, such factors will reduce China’s global competitive edge and suppress its future economic growth. Therefore, China must gradually loosen the one-child policy while balancing the risks of excessive population expansion.

The One Child Policy: Why does it exist, and how does it work?

When Chairman Mao Zedong came to power in 1949, he launched a national campaign to expand the Chinese population under the slogan, “The more people, the stronger we are” (Potts 361). Mao believed that a large population would lead to more production and a stronger military (Hays 1). In turn, the communist government banned contraceptives and promoted fertility through widespread propaganda (Fitzpatrick 1). Despite Mao’s conviction that “Even if China’s population multiplied many times, she [was] fully capable of finding a solution” (Ibid.), the country faced widespread food shortages and an unsustainable fertility rate of 5.8 children per woman by 1962 (Schure 1). By the end of Chairman Mao’s rule, the population had more than doubled (Hays 1).

Mao’s successor, Deng Xiaoping, sought to mitigate China’s population explosion as part of his “Reform and Opening” initiative by creating the one-child policy in 1979. The policy operates on a simple principle: If a family has more than one child, the husband and wife must each pay a “social maintenance fee” – which
varies depending on the region. For instance, a couple in Shanghai could expect to pay RMB 110,000 ($17,300) for another child, which is triple the city’s average yearly income (“The Brutal Truth” 1). The social maintenance fee is often lower in poorer provinces, but still exceeds the annual incomes of average residents (Hays 1).

For families who cannot afford the fine, the second child is denied a household-registration document known as a *Hukou* – which is used to obtain education, employment, and other basic needs (Congressional-Executive Commission on China 1). In this way, families who violate the one-child policy face a choice between paying a crippling fine and rearing a child without social benefits. However, since the policy was enacted, the national government has made exceptions for the following groups of people (“Rethinking China’s One-Child Policy” 1):

- Couples in rural areas whose first child is a girl
- Urban couples who both come from single-child families
- Ethnic minorities

In addition to these general exemptions, individual provinces allow a wide range of exceptions to the policy. For instance, Shanghai exempts couples in which one spouse has worked in the fishing industry for over five years (“The Brutal Truth” 1). In Sichuan province, where the devastating 2008 earthquake occurred, families who lost their children are allowed to have a second child (Hays 1). Additionally, because the requirements and enforcement of the policy vary from province to province, personal connections and bribery often serve as loopholes to the policy as well (“The Brutal Truth” 1).

**The Increasing Elderly Dependency Ratio: Why is it Happening?**

China’s increasing Elderly Dependency Ratio (EDR) is driven by its shrinking workforce and rising number of elderly dependents. A country’s EDR is determined by the following formula: 

\[ EDR = \frac{Population_{65+}}{Population_{15-64}} \times 100 \]

which approximates the ratio of retirees to workers (Chiu 25).

As depicted in the population pyramids in Figure 1, the number of Chinese people over 65 is projected to double between 1990-2050 (Ibid.). The population
pyramids for 1990 and 2000 represent large young populations who supported small old populations. However, the pyramids between 2025-2050 are “top-heavy” with elderly dependents, indicating that older populations will outnumber younger ones. In turn, the proportion of old to young people is expected to quadruple China’s EDR by 2050 ("China’s Achilles Heel" 1). This demographic shift will occur if China’s fertility rate remains so low that it cannot keep pace with elderly population growth. Figure 2 represents the growing number of elderly dependents within China’s population, which is based on current projections of fertility rates, mortality rates, and life expectancy in China (Chiu 18).

However, as life expectancy in China increases in the future, the retirement age could rise as well. For instance, if the retirement age rises to 70 years of age, seniors will remain in the workforce longer. Under this scenario, the EDR formula should be recalibrated to include the population of people over age 70 divided by the population between ages 15-69: \[ ED R = \frac{\text{Population}_{70+}}{\text{Population}_{15-69}} \times 100. \] On one hand, allowing seniors to retire later would create a larger workforce and reduce the number of elderly dependents. On the other hand, seniors who remain in their jobs longer will create a bottleneck to employment for young laborers seeking to enter the workforce.

Additionally, increased life expectancy is not necessarily correlated with increased productivity. As people age, impaired cognitive functions and various health ailments can hinder the ability of workers to be productive. In this way, the demographic changes depicted in Figures 1 and 2 indicate that China’s large elderly population will pose economic risks even with increased life expectancy.

*Figure 1: Population Pyramids for China: 1990, 2000, 2025 and 2050*
China's changing age distribution in Figure 2 is the direct consequence of restricted fertility under the one-child policy. China's fertility rate in 2010 was 1.56 live births per woman – which is significantly less than the 2.0 “replacement rate” needed to maintain a fixed population level (“China’s Achilles Heel” 1). Ultimately, China's fertility rate will shrink the size of upcoming generations. In this way, the one-child policy is a double-edged sword; it creates an overabundance of old people and reduces the supply of young workers.

The Consequences of an Elderly Population
China’s burgeoning elderly population will put an economic burden on the labor force, strain China’s federal budget, and slow its economic growth. Figure 3 compares the declining ratio of workers to pensioners with the rising number of pensioners in China (Chiu 29). Although the timeline in the figure ends in 1993, the ratio of workers to pensioners has continued to decrease, and China has expanded its pension program to include 150 million rural retirees, who receive monthly pensions of RMB 55 ($8.80) (Ibid.)

Figure 3: Ratio of Workers to Pensioners in China, 1978–1993

Source: Chiu 29

Figure 3 suggests that workers will be forced to sacrifice more time and money to support the elderly because fewer working-age people are required to care for more retirees. In the absence of a comprehensive social security system, each only child is responsible for themselves, their two parents, and their four grandparents – a trend of filial piety known as the “4-2-1 phenomenon” (“China’s Achilles Heel” 1). While some social safety nets exist, only 365 million people out of 1.3 billion have formal pensions (Ibid.) In turn, most families – especially those in rural areas – largely rely on their children to take care of them in old age. Such responsibilities detract from worker productivity because of the extra time and money they must spend caring for their elders. However, because many workers are unable or unwilling to do so, the Chinese government has recently stepped in to meet the needs of the growing retiree population by spending larger portions of the national budget on healthcare, pensions, and other benefits (Hamlin 1).

While such investments may relieve workers of their familial duties, they will
come at the expense of higher taxes and reduced investment-led growth. A report by the Brookings-Tsinghua Center for Public Policy found that failure to reform the one-child policy could cut China’s growth by 50% due to rising social benefit liabilities and decreasing labor productivity (Ibid.). Unless reforms to the policy are made, the shrinking workforce, depicted in Figure 4, will slow future GDP growth.

*Figure 4: Average Annual Growth Rate of the Working Population, 1980-2040*

Additionally, with fewer workers contributing to social security funds, China will face large unfunded pension liabilities. Currently, China’s unfunded pension liability stands at 150% of GDP, which is expected to increase in the future (“China’s Achilles Heel” 1). In this way, China’s expanding elderly population will place immense burdens on workers, the government, and the national economy.

**Stifled Innovation in the Workforce**

In coming decades, China’s workforce will not only become smaller, but also less innovative. Two main factors will stifle innovation: China’s memorization-based education system under the *Gao Kao* – the national college entrance exam – and the tendency of the elderly to become less creative as they age.

**The Gao Kao**

At the end of high school in China, students must take a college entrance exam known as the *Gao Kao* – or the “Big test.” The 9-hour exam is only offered once a year, and is the sole determinant of college placement. High scorers are placed into elite universities and have little trouble securing successful jobs, while low scorers often face dismal employment prospects (Sudworth 1). The studying process, which
often begins years before the test, mostly involves rote memorization, repetition, and fact cramming (Ibid.). In turn, few opportunities exist inside or outside the classroom that foster critical thinking, creative problem solving, and individual expression. For many students, the Gao Kao is their sole chance to ascend the social ladder, so creativity and innovation – which are not tested on the exam – are afterthoughts for both students and teachers. For instance, according to a recent study on innovation in the Chinese classroom, “Teachers are encouraged to promote creativity in the classroom, yet many studies indicate that they do not like creative students” (Kwang and Smith 308). In this way, the memorization-based education system is a bottleneck for upcoming generations of innovators.

**Young Graduates**

The consequences of hampered innovation extend beyond the high school classroom an into the job market. When students graduate from college, many are now seeking government employment instead of careers in the private sector – where most entrepreneurial ventures, patents, and startups are hatched (“The Golden Rice-Bowl” 1). Over the past ten years, the number of people taking the civil service exam – which determines government employment – has increased twentyfold, indicating dissatisfaction with private sector employment (Ibid.). Although this uptick can be largely attributed to the more comprehensive benefits of a government job, it also reflects worker discouragement from pursuing private sector career paths. As top graduates choose to work for the state, private industry may suffer a brain drain, which has negative implications for the development of new companies and products.

**The Elderly**

As fewer innovators enter the workforce, more of them will leave it as well. Stanford University Professor James Liang, an economist and chairman of Ctrip.com, argues, “In pretty much every country, developing and developed, you see that the older the age of the workforce, the lower the overall entrepreneurship” (Roberts 1). Indeed, as current workers reach old age, they generally become less able to develop new solutions to new problems. According to Professor Liang, this is precisely what happened to Japan’s economy; as “Japan’s workforce aged,
innovation and entrepreneurship suffered and contributed to the country's economic stagnation" (Langfitt 1). Since the number of people over 65 is expected to rise to nearly 25% of the total population by 2050, China will lose large portions of current innovators as they reach retirement (see Figure 5 below).

*Figure 5: Percentage of Older Adults (Age 65+) in China, 1950-2050*

![Graph showing percentage of older adults in China, 1950-2050](image)

*Source: Kaneda 1*

The Chinese government has taken some steps to promote indigenous creativity by promoting “cost innovation” – which involves developing cheaper versions of preexisting technologies and products (Johnson and Weiss 66). However, it has failed to tackle the underlying causes of restricted creativity such as education reform and strengthening intellectual property laws. For instance, in 2006, Chinese citizens accounted for only 40% of the invention patents granted in China; the rest were given to foreigners (Ibid.). This patent gap is largely because China’s manufacturing economy is based more on imitation than innovation ("Imitate or Die" 1).

**Conclusion**

Without reform to the one-child policy, China’s Elderly Dependency Ratio will rise to an unsustainable level, and its workforce will likely become less innovative. If China relaxes the policy by allowing more exceptions or reducing penalties, it can restore its fertility rate to a level necessary to begin rebalancing the growing divide between young and old. In turn, more working-age adults will be able to care for the vast elderly population by sharing the financial cost of increased taxes, as well as the productivity cost of time spent caring for elderly relatives.

Figure 6 – which is based on United Nations population projections in China – shows the anticipated effect of allowing a two-child policy on China’s Elderly
Dependency Ratio. Because such a policy would add to China’s working population, it would decrease the country’s EDR and mitigate the associated consequences of an elderly population (Chiu 46).

Figure 6: Elderly Dependency Ratios in China, 1990-2050

This policy recommendation has received increasing support from many prominent Chinese demographers. Wang Feng, the director of the Brookings-Tsinghua Center for Public Policy in Beijing said in July, "The phasing out of the policy should have begun at least 10 years ago” (Langfitt 1). Similarly, Gu Baochang, a leading demographer at Renmin University of China, petitioned top Chinese leaders to end the policy, saying, “It is time to think about removing this policy decided 30 years ago—China’s situation has changed so much” (Ibid.). Given the projected growth of the elderly population, China currently has a small window of opportunity to add an influx of young workers. In order to remain competitive in the global economy, China should begin to loosen the policy to avoid dire economic consequences.
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The Game Theory Behind Acing an Exam

By Anne Evered '15

Last December, students at Johns Hopkins University took advantage of their computer science professor’s grading policies to essentially “game” the system and receive full marks on an exam without ever filling out a single answer.

Professor Fröhlich, who teaches courses in computer science, grades the exams for his classes on a curved scale with the highest grade of the class counted as a 100% and the rest of the scores scaled accordingly. This system leaves open a loophole: if all students get 0’s, then a 0 is the highest score, so all students would receive a 100%. This year, students in three of Fröhlich’s classes took advantage of this loophole and set up a boycott of the test, the catch being that the plan would only work if everyone stuck to it.

What happened on the day of the test is an all but miraculous show of collaboration. As Professor Fröhlich recounts, “The students refused to come into the room and take the exam, so we sat there for a while: me on the inside, they on
the outside...After about 20-30 minutes I would give up.... Then we all left.” Some of the students stuck around, though, to ensure that everyone held to the agreement. Ultimately, the boycott held. No one took the test; all students received A’s.

According to economists, the achievement of this agreement is somewhat unexpected. Examination of how this situation worked in game theory terms reveals why.

At the start of the test, each student has two “moves.” He or she can either show up for the test or not show up for the test. There are thus at least two Nash equilibria for this game (i.e. situations where neither player has incentive to change his or her strategy). Equilibrium 1 occurs when no one takes the test; equilibrium 2, when everyone takes the test.

Below is the payoff matrix if this were a two-person game:

<table>
<thead>
<tr>
<th></th>
<th>Take Test</th>
<th>Don’t Take Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Take Test</td>
<td>(Above 0%, above 0%)</td>
<td>(100%, 0%)</td>
</tr>
<tr>
<td>- assuming both students get at least one answer correct</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Don’t Take Test</td>
<td>(0%, 100%)</td>
<td>(100%, 100%)</td>
</tr>
</tbody>
</table>

As becomes apparent and as writer for the New York Times Economix blog, Catherine Rampell, suggests, which equilibrium the students end up choosing depends on what students anticipate their fellow students will do. If all the students think that every single one of their peers will honor the boycott, they will not go to the test, resulting in Equilibrium 1. On the contrary, if the students think that even one person will break the agreement and take the test, it will be to each individual student’s advantage to also take the exam and so everyone will take the exam (Equilibrium 2).
Thus, as Catherine Rampell writes, “The problem is that Nash equilibrium theory alone doesn’t tell us what the students are more likely to do.” Economists hold that the Equilibrium 1, the one that resulted this month with everyone boycotting the exam, is unlikely because of the “trembling hand perfect equilibrium” phenomenon, a concept credited to Nobel Memorial Prize winner Reinhard Selten.

Let’s explore this notion. Consider what happens if the hand of one of the players in the game (i.e. one of the students) “trembles” and he or she chooses a different strategy. In the case of Equilibrium 2, if this happens and one of the students does not take the test, all the other students will continue on the same strategy. However, in the case of Equilibrium 1, if a student “trembles” and switches strategies and takes the test (against the boycott) the result would be disastrous for the other students, or at least for their grades.

Therefore, economists would likely say that since students know there is some possibility that other students will not hold to the boycott they have incentive not to boycott the test. As Catherine Rampell explains, “If someone makes a mistake under equilibrium #1—in which no one takes the test—and takes the test even though he doesn’t believe others will (and knowing that it won’t improve his grade), then that equilibrium unravels and everyone decides to take the test after all.”

So how did the students achieve the boycott? Andrew Kelly, a student in Fröhlich’s Introduction to Programming class and one of the boycott’s organizers, is quoted in an article by Inside Higher Ed as explaining the logic that led to students’ participation in this coordinated effort: “Handing out 0’s to your classmates will not improve your performance in this course....if you can walk in with 100 percent confidence of answering every question correctly, then your payoff would be the same for either decision. Just consider the impact on your other exam performances if you studied for [the final] at the level required to guarantee yourself 100. Otherwise, it’s best to work with your colleagues to ensure a 100 for all and a very pleasant start to the holidays.”
An article in the Johns Hopkins newsletter also suggested that the boycott is a testament to the strong critical thinking skills taught by the Computer Science department.

As one might imagine, though, Professor Fröhlich, after honoring his original policy, amended his grading procedures for future classes soon after his students’ boycott. It now includes the clarification that if every student gets 0 points, everyone gets 0%. Moreover, as he told Inside Higher Ed, “I also added a clause stating that I reserve the right to give everybody 0 percent if I get the impression that the students are trying to ‘game’ the system again.”

Works Cited

Beating the Medicare: How a Developing Nation Manages to Provide a Free-For-All Health Care System

By Jirapat Taechajongjintana’ 16

“Everyone has the right to life, liberty and security of person,” states Article 3 of the Universal Declaration of Human Rights (UNHR). Many nations have developed universal healthcare programs in the spirit of Article 3. In many high-income nations such as Sweden and Norway, universal health coverage systems have been successful; among the low-income and developing countries, where financial and political structures pose a challenge against health care reforms, Thailand has been
a forerunner in implementing universal health coverage. After four decades of health infrastructure development, Thailand finally achieved universal health coverage in 2002, providing access to over 47 million people (75% of the population).

Against the speculations and critiques of some external experts who believed the universal health coverage would not be financially viable, Thailand’s universal health coverage has continued to improve throughout the past decade, persisting through financial crises and political transitions. Today, it is praised by UN Secretary General as the model of public health policy that can be implemented in low-income and developing nations ("UN Secretary General").

This paper is an analysis of how Thailand’s universal health coverage has developed during the past decade as well as the effects of this public policy on personal finance. The paper will focus on four main issues: [1] The background and past health care policies in Thailand, [2] An overview of Universal Coverage Scheme (UCS) policy and its implementation, [3] Effects of the UCS on personal finances, and [4] The future challenges of the UCS policy.

**PAST HEALTH CARE POLICIES**

Prior to the development of the Universal Coverage Scheme (UCS) in 2002, Thailand already had 25 years of experience in pre-payment health financing systems. Figure 1 shows various public health care systems that have been introduced since 1970 (inflation adjusted numbers are shown in bold), while Figure 2 displays the coverage of each type of health insurance from 1991 to 2003:
Figure 7: Thailand’s Past Health Care Coverage Against GNI per Capita, 1970-2012

Source: GNI per capita from World Bank at http://data.worldbank.org/indicator/NY.GNP.PCAP.CD/countries

Figure 8: Coverage of Health Insurance, 1991-2003

These various governmental health care schemes can be categorized into three main sectors by population/income level coverage as follows:

1. Poor/Near-Poor Sector—The Medical Welfare Scheme and Voluntary Health Card Scheme: Both schemes provide coverage for the poor, the elderly, the disabled and children under the age of 12. However, approximately 30% of Thailand’s population (18 million people), especially those in the lower socioeconomic groups and immigrant workers, still had no access to health insurance or free public medical care (see Figure 1). This 30%, which were “left out” of the public health care systems, were the driving force behind the health care reform in 2002, which resulted in Universal Coverage Scheme.

2. Civil Servant Sector—The Civil Servant Medical Benefit Scheme (CSMBS): Developed to provide free medical service to government employees and dependents (parents, spouse, and up to two children aged below 20), the scheme provides coverage for only 9% of the population. The CSMBS is non-contributory (government employees do not have to contribute to the scheme) and is funded by general tax.

3. Private Sector—Social Security Scheme (SSS): This public health care scheme provides coverage for people in private sector (16% of population) and is financed through payroll tax and tri-partite funded equally by employees, employers and the government at the rate of 1.5% of the salary. This particular scheme does not rely as heavily on government budget as other schemes (Thailand’s Universal Health Care Scheme 51).

The medical reform in 2002 resulted in a dramatic change to the public health care system in Thailand. The government still retained CSMBS and SSS as two chief health insurance systems for the civil servants and private employees, respectively. However, realizing that the Medical Welfare Scheme and Voluntary Health Card Scheme had not been efficient in providing complete coverage for the low-income population (in Figure 1, 30% of the population was left out of the system), the government decided to reform these two systems into a single Universal Coverage Scheme (UCS). Figure 2 illustrates that after the introduction of
UCS in 2002, it has provided the biggest share of health coverage at over 75% of the Thai population (see Figure 2).

Over the past decade (2002-2012), the UCS has undergone multiple transitions through the passage of political movements in Thailand. The first Universal Health Coverage Scheme was launched by Thai Rak Thai (TRT) Party in 2001 with the slogan “30 baht (US$ .70) treats all diseases.” The campaign quickly captures the public attention: a 30 baht co-payment (US$ .70) was highly affordable by most low-income people. It became one of the most successful public policies in the Thai political history (Bali).

After the coup in 2006, the transition to post-coup government and later the Democrat Party’s government (also a fierce opponent of TRT party) resulted in a significant change to the health care system. Instead of continuing with the “30 baht treats all diseases” campaign, the new Democrat government repackaged the service into a free-for-all health care system under the generic name “Universal Coverage Scheme”. This scheme has been in use to this day.

**UNIVERSAL COVERAGE SCHEME (UCS): POLICY OVERVIEW**

Since its inception in 2002, UCS has provided comprehensive health coverage for over 47 million Thais who are not covered by any other public health care systems including CSMBS and SSS. Figure 3 provides a concise summary of Thailand’s pluralistic health care systems, including each system’s population coverage, range of service, and method of finance.

The chief goal of UCS is “to insure that all citizens shall have access to necessary health care service, which constitutes basic human rights. Such service shall not be considered governmental aid” (Thailand’s Universal Coverage Scheme 37). The strategic objectives of the UCS are as follows:

- To focus on health promotion, preventive medicine, and curative care
- To emphasize primary health care and integrated services
- To promote proper referrals of patients
- To ensure that government subsidies will directly benefit the poor. At the same time, all citizens are protected against financial risk when receiving medical care (Thailand’s Universal Health Care Scheme 37).

Figure 9: Characteristic of Different Public Health Care Schemes

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Public Employees (CMOMS as a prototype)</th>
<th>Private Employees</th>
<th>The rest of Thai (UCS)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>II. SSS</td>
<td>III. WCS</td>
<td></td>
</tr>
<tr>
<td>Annual physical check-up</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Prevention, Health promotion</td>
<td>No</td>
<td>Health education, immunisation</td>
<td>Yes</td>
</tr>
<tr>
<td>Services not covered</td>
<td>Special nurse</td>
<td>Private bed, special nurse</td>
<td></td>
</tr>
<tr>
<td>Source of funds</td>
<td>General tax</td>
<td>Tri-parters 1.5% of payroll each, (reduce to 1% since 1959)</td>
<td>Employer, 0.2-2% of payroll with experience rating</td>
</tr>
<tr>
<td>Financing body</td>
<td>Comptroller General Department, MoF</td>
<td>SSO</td>
<td>NI-SC</td>
</tr>
<tr>
<td>Payment mechanism</td>
<td>Fee for service for OP DRG for IP (July 2007)</td>
<td>Capitation</td>
<td>Fee for service</td>
</tr>
<tr>
<td>Copayment</td>
<td>Yes: IP at private hospitals</td>
<td>Maternity, emergency services</td>
<td>Yes if beyond the ceiling of 30,000-200,000 Baht (depend on severity of patient)</td>
</tr>
<tr>
<td>Expenditure per capita 2006 (Baht)</td>
<td>8,785</td>
<td>1,738</td>
<td>211</td>
</tr>
<tr>
<td>Per capita tax subsidy 2002 (Baht)</td>
<td>8,785 plus administrative cost</td>
<td>579 plus administrative cost</td>
<td>1,659 plus administrative cost</td>
</tr>
</tbody>
</table>


In order to achieve all these objectives, the UCS is designed to exhibit three crucial features that are fundamental to the success of the scheme:

- The scheme is tax-financed and free for all citizens (the initial 30 baht co-payment was abolished in 2006)
- A fixed annual budget with per-head capitation
- A comprehensive benefits package with an emphasis on primary care (Thailand’s Universal Health Care Scheme 38)
Since these three features are the keys to the UCS’ success both as a public policy and a showcase of fiscal management, this paper will give a critical analysis into these features. This analysis will focus on how the UCS is financed and how the policy is implemented.

**Tax-financed Scheme and Free-for-all Service:** The UCS employs general income tax as the main source of financing for two chief reasons: *First, tax-financing is the most pragmatic source of revenue for the UCS.* Given Thailand’s relatively high personal income tax rate (37% for the richest tier) and 30% of the income for corporate tax ("Personal Income Tax"), the revenue from income tax allows the government to fund the UCS without having to seek loans or charge fees for health care packages. In 2011, for instance, the government collected over US$50 billion in income tax revenue ("Tax Collected Fiscal Year"), while the UCS expense was approximately US$ 4 billion. Although one can argue that the US$50 billion revenue from income tax was also used to finance other governmental spending, it is clear that the government can financially support the UCS without having to increase fiscal deficits. Figure 4 takes a comprehensive look into Thai government spending for 2013. While the total governmental budget includes revenue from sources other than general tax (e.g. loans, tariffs), spending on public health accounts for 10.6% of the total budget, roughly the same ratio as the UCS expenditure (~US$ 4 million) is to the total general tax revenue (~US$ 50 billion).
Second, financing UCS with taxes is an effective means of income distribution. This is due to the fact that Thailand’s income tax system is highly progressive—the richest 10% pay 37% of their income, while the poorest 10% are tax-exempted. Although some economists argue that the rich should pay their own health care service and that public health care should only focus on the poor, this “targeting ideology” (Thailand’s Universal Health Care Scheme 38) was rejected. In the past, such targeting methods as the Medical Welfare Scheme and the Voluntary Health Card Scheme have failed to provide complete coverage for the poor, leaving 30% of the population uninsured. Moreover, such methodology is in direct violation of the Thai Constitution, which dictates that all citizens, not some, are entitled to affordable health care (Constitution).

Fixed Annual Budget with Per-Head Capitation: Although there is a sufficient budget from general tax to finance the UCS, the magnitude of this scheme poses an issue of financial regulations for the Budget Bureau. Initially, budgets for past public health care systems were allocated based on an individual program basis.
(there were thousands of programs across the country), resulting in special pledging and corruption in the budget approval process. For instance, a politician in a certain location might use his influence to get an excessive amount of health care budget for his district. The solution to this problem is a radical change in budget allocation method from program-based budget allocation to per-head capitation.

This new budget allocation system, first implemented by the UCS, calculates the annual budget by multiplying capitation rate (per-head expense) with the total number of UCS members in that budget year. This system allows for greater transparency and efficiency, since the capitation rate is calculated by taking into account utilization, unit cost, and annual fiscal capacities. Figure 5 shows the rising annual UCS budget from 2002-2011. Although the total number of UCS members remains unchanged at about 47 million people, the UCS budget rose from 1202.4 baht (US$ 35.40) per head in 2002 to 2693.5 baht (US$78.80) due to increasing labor costs and increasing medical expenses. Figure 5 shows the UCS capital budget at both current price (row 3) and inflation adjusted at 2007 price (row 4).

**Figure 5: UCS capitation Budget, 2002-2011**

<table>
<thead>
<tr>
<th>Year</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inpatient</td>
<td>47.8%</td>
<td>47.8%</td>
<td>37.6%</td>
<td>38.8%</td>
<td>38.7%</td>
<td>33.1%</td>
<td>27.4%</td>
<td>31.9%</td>
<td>34.7%</td>
<td>35.8%</td>
</tr>
<tr>
<td>Outpatient</td>
<td>25.1%</td>
<td>25.1%</td>
<td>38.1%</td>
<td>39.8%</td>
<td>36.5%</td>
<td>42.3%</td>
<td>49.6%</td>
<td>45.6%</td>
<td>44.0%</td>
<td>41.9%</td>
</tr>
</tbody>
</table>

Capitation, baht per capita, at current price

- Outpatient: 1,201.4, 1,201.4, 1,308.7, 1,396.4, 1,718.0, 1,983.4, 2,194.3, 2,298.0, 2,497.2, 2,693.5
- Inpatient: 1,406.8, 1,380.9, 1,463.9, 1,495.1, 1,756.6, 1,983.4, 2,081.9, 2,199.0, 2,312.2, 2,404.9

Capitation, baht per capita, at inflation adjusted at 2007 price

- Outpatient: 1,406.8, 1,380.9, 1,463.9, 1,495.1, 1,756.6, 1,983.4, 2,081.9, 2,199.0, 2,312.2, 2,404.9
- Inpatient: 1,406.8, 1,380.9, 1,463.9, 1,495.1, 1,756.6, 1,983.4, 2,081.9, 2,199.0, 2,312.2, 2,404.9

Source: NHSO, various years

**Comprehensive Benefits Package With An Emphasis On Primary Care:**

The UCS follows the comprehensive benefits model of the past health care systems (e.g. Medical Welfare Scheme and Social Security Scheme) by providing a
A comprehensive range of essential health service, covering [1] outpatients, [2] inpatients, [3] accident and emergency services, [4] dental and other high-cost care, [5] medicine supply cost, as well as other medical costs.\footnote{Figure 4 provides an overview of the UCS medical expense. Complete medical expense table can be found on \textit{Assessment of Thailand's Universal Coverage Scheme} report, 42.} Moreover, UCS also introduced clinic-based preventive and health-promotion services, which were unprecedented in past health care systems. Such preventive medicine is financed separately with 2% of “sin taxes” collected from alcohol and tobacco producers, generating annual revenue of over 3 billion baht (US$100 million) for preventive medical service. Initially, only 11% or US$ 462 million of the total UCS annual budget (US$ 4.2 billion) went into preventive and health promotion service. Therefore, the additional US$ 100 million provides a one-fifth increase in the budget for preventive medicine.

**EFFECTS OF THE UNIVERSAL COVERAGE SCHEME (UCS) ON PERSONAL FINANCE**

A good public policy must be able to improve the personal finance of the general public. In the case of UCS, this policy has saved approximately 290,000 households from health impoverishment (see Figure 6) and reduced the average number of overspending on medical expenditure by nearly threefold (see Figure 7).

In order to provide a clear measuring stick for the effects of the UCS of personal finance, this paper will focus on three chief assessments:

1. Catastrophic Expenditure Rate
2. Impoverished Household Rate
3. Demographic Distribution of Medical Well Being
Catastrophic Expenditure Rate: Catastrophic Health Expenditure is defined as a “household expense on health care that exceeds 10% of the total household expense” (Thailand’s Universal Health Care Scheme 79). This measurement shows the direct effect of the UCS policy on personal finance in relation to medical expenses. It is evident from Figure 6 that the implementation of UCS in 2002 resulted in a dramatic drop in the catastrophic expenditure rate for people from all income levels. In 2002, the number decreased from 7.1% in 2000 to 3.4% for the poorest members of the UCS (Quintile 1), and from 7.1% to 5.0% for the richest members (Quintile 5). Overall, the catastrophic expenditure rate of all quintiles decreases by over 30%, down from 6% in 1996 to about 3.2% in 2009. The figure is most impressive in the first quintile, which oversees a twofold decrease in catastrophic expenditure rate from 6.1% in 1996 to 2.9% in 2009.

Impoverished Household Rate: This measurement illustrates the indirect benefit of the UCS on the overall financial condition of each household. Unlike the
catastrophic expenditure rate, which indicates the financial status of each household in relation to medical expenses, the impoverished household rate simply records the change in the number of impoverished households in each year. Figure 7 offers a clear illustration of the UCS’ impact on the personal finance of different employment sectors. The impact is especially pronounced for the informal/economically inactive sector\textsuperscript{22} that used to have no public health insurance.

\textbf{Figure 7: Impoverished Household in Various Employment Sectors, 1996-2002}


\textsuperscript{22} The informal/economically inactive sector includes [1] illegal immigrant workers who are initially not covered by any form of insurance, [2] Economically inactive unemployed who are not active in labor market. These people comprise the members of Medical Welfare Scheme, Voluntary Health Card Scheme, and the uninsured.
Figure 7 indicates that the informal/economically inactive sector greatly benefits from the introduction of UCS in 2002. Prior to having UCS, the number of impoverished households in this sector was at a record high at 179,200 households in 2002. After the UCS went into action, the number dropped significantly to 86,000 households. The dotted red line represents counterfactual scenario under which the UCS was not put in place. The solid red line represents actual data. Hence, the blue area is roughly the number of households saved from impoverishment by UCS (291,790 households in total). This graph is significantly important, since it implies that the UCS does not only reduce the medical expense of each household but also improves the financial well being of the general public.

**Demographic Distribution of Medical Well Being:** Another important characteristic of functioning public policies is that it benefits the general public, not only a limited sector of the population. While the UCS has been especially advantageous to the poor, its financial benefits also span the broad spectrum of the entire society, both in term of income levels (Figure 6) and occupations (Figure 7). However, the most challenging task for any universal health care system is to be truly universal—providing medical outreaches to every part of the country. Thanks to nearly four decades of health infrastructure development such as provincial hospitals and rural medical stations, the UCS is as effective in mitigating health impoverishment in subnational level as it is in national level. Figure 8 visualizes the dramatically improved distribution of health quality after the UCS was implemented in 2002.

**Figure 8: Health Impoverishment Map from 1996, 2002, 2008, respectively**

The shaded areas represent the number of impoverished households.

Sources: *Assessment of Thailand’s Universal Coverage*
(the darkest shade is 3.1+ per 100 households, the lightest shade is 0-0.5 per 100 households). Apparently, the number of impoverished households has increased considerably in various large provinces from 1996 to 2002. But after the introduction of UCS in 2002, the number of provinces with a high ratio of impoverished households decreased significantly. As of 2008, only one province had more than 3.1 impoverished households per 100 households. This series of maps shows the effectiveness of the UCS in addressing health impoverishment on the subnational scale, which is still a huge problem in many developing nations where medical outreaches to rural areas are severely limited.

THE CHALLENGE OF TOMORROW

Thailand’s Universal Coverage Scheme (UCS) may represent an ideal blueprint of a practical and effective public policy. However, it is far from perfect—as with any public policy, the UCS still needs to stand against the test of time. Over the next decades, the UCS will be faced with two colossal challenges: the financial sustainability and the aging Thai population.
Although the UCS has been remarkable in its fiscal management effort, as described earlier in this paper, Figure 9 clearly illustrates the increasing cost of operating the UCS during the next decade. Currently, the UCS expense accounts for roughly over 1% of the GDP. Over the next decade, however, the UCS expense is projected to account for nearly 2% of the GDP. While the expense projections of other public health care systems such as the Social Security Scheme (SSS) and the Civil Servant Medical Benefit Scheme (CSMBS) are relatively constant over the next 10 years, the ever-increasing expense of the UCS is challenging policymakers about the financial sustainability of the program.

Another significant challenge of the UCS as well as many other universal health care systems such as the United States’ Medicare is the aging population. By 2050, near 30% of the Thai population will be 60 years old or older, compared with the current figure of less than 10% (See Figure 10). As more Thais turn grey and ailing, the UCS will be faced with its biggest stress test yet–how to efficiently provide complete health-care coverage for over 22 million people without exhausting the scheme’s financial sources and medical facilities.

For the past decade, Thailand’s Universal Coverage Scheme (UCS) has been a marvel of a successful public policy and financial management. It has proven to the world that universal health care is not exclusive to only the wealthy and developed countries; with sound public policies and good budget management, any nation can achieve universal health care. The new decade, however, presents new challenges for Thailand’s Universal Coverage Scheme. From increasing health care costs to aging and ailing population, the question of “sustainability” will be the biggest piece
of the puzzle for the UCS in years to come. The UCS has demonstrated great success over the past ten years; now is the time to move on and tackle the problems ahead.

**Works Cited**


The Economics of Dropping Out

By Olivia Moore ‘16

Besides their incredible success, some of the most famous names in the technology world today—Mark Zuckerberg, Bill Gates, Steve Jobs, and Richard Branson—have one thing in common: none of them finished college.

Though dropping out of school is traditionally stigmatized, the unique culture of Silicon Valley seems to inspire the opposite reaction. In an article in The New York Times titled “Drop Out, Start Up,” Claire Miller noted that in Silicon Valley, “being a dropout is a badge of honor” (Miller). Stanford has its own list of notable dropouts, including Aaron Swartz, a programmer who helped develop RSS and Reddit, and Sergey Brin and Larry Page, who dropped out of the computer science Ph.D. program to found Google.

The dropout culture has been institutionalized by the Thiel Fellowship, a program founded by entrepreneur Peter Thiel, a Stanford alumnus, that awards students $100,000 if they agree to drop out of college for two years and pursue a project of interest. Thiel has publicly stated his doubts about the value of a college education, and the Thiel Fellowship website emphasizes that fellows gain “guidance and business connections that can’t be replicated in any classroom” (Thiel Fellowship).

When considering whether or not to drop out, many students consider not only the costs of college that are explicit and easy to measure, but also those that are less obvious. The concept of opportunity cost becomes crucial in most decisions to drop out, as students measure the value of the other things they could be doing with the time and resources that they devote to college.

In “Microeconomics: A Contemporary Introduction,” William McEachern explains that college students must take into account the opportunity cost of the income they could have earned while working full-time instead of attending college, as well as the cost of what else could have been bought with the money that was used to pay for tuition and supplies (McEachern).

McEachern also mentions that a quality of life aspect can be factored into the opportunity cost, as some students “find college difficult, often boring, and in most ways more unpleasant than a full-time job” (McEachern). Students who drop out, therefore,
may argue that the cost of the sacrificed opportunities that are impossible to pursue while in college are greater than benefits gained by staying in school.

Opportunity cost is not the same for each student, but “depends on your alternatives” (McEachern)—which can help explain why some students find that dropping out makes economic sense, while others commit themselves to finishing college even if they find it unpleasant. A student who already has the skills and potential to create a multi-million dollar company, for example, might find college a more costly investment than a student with few practical skills who is still unsure of what he or she wants to do in life.

Lenient university policies have also encouraged the trend of students dropping out. For example, Stanford’s policy allows students to take a leave of absence for a maximum of one year at a time, with an allowed cumulative leave of absence of two years. This policy reassures students considering programs like the Thiel Fellowship that even if their startups fail, they will be able to return to school and get their degrees.

The opportunity cost of pursuing other options is therefore reduced, as students don’t have to fully forego a college education by taking a leave of absence to start a business. In some cases, students who return to school are better off for having taken a leave of absence, as they return with experience and connections in an industry, and are often more committed to their academics because they have no illusions about the millions of dollars they could be earning by starting their own company.

However, many argue that since opportunity cost is not a definite number, students can easily overestimate the value of their potential, and make hasty and uninformed decisions to drop out of college. Some students believe that by attending college, they are sacrificing the opportunity to earn millions of dollars by starting their own business, when in reality they would likely not achieve that level of success.

In his article in *The Atlantic*, Robert Zimmer, the president of the University of Chicago, argues that “the against-all-odds story of the college dropout is not the story we should be selling our young people” (Zimmer). He explains that the majority of college students who drop out to start a business do not achieve the fame or fortune that seems to be promised to those courageous enough to drop out, and makes the case that a college education is much more valuable than some students think. According to Zimmer, college
“arms a person with the suite of skills necessary to capitalize on a great idea,” rather than acting as an “obstacle to entrepreneurial success” (Zimmer).

As Zimmer explains, another factor of consideration is the unique opportunities that many colleges provide to help their students succeed as entrepreneurs. Students are often offered assistance from professors or other student entrepreneurs through on-campus groups or organizations, and are also able to take advantage of their university’s network, resources, and support system to develop ideas and form connections that will remain valuable long after they graduate.

College students should carefully evaluate and seriously consider all of the costs, both explicit and implicit, of dropping out of college to start a business. While incredible success stories like Larry Page and Mark Zuckerberg make dropping out seem like an extremely attractive option, the reality is that many dropouts would be better off staying in school and getting their degrees.

Works Cited
Which political system maximizes utility – a democracy or an autocracy?

By Ganesh Raj Gumargaru

Abstract

There is a growing debate in the 21st century as to whether democracies outperform certain autocracies in increasing a citizen’s utility. While it is known that the worst autocracies are far worse for a citizen’s utility than the worst democracies (genocide and famine compared to slow decisions and a lack of progress), the comparison between autocracies with benevolent leaders and democracies with a similar income level is questioned. This paper studies the way autocracies and democracies pursue economic growth and the availability of necessities, in addition to analyzing the associated costs and benefits that arise from the method of decision making. It concludes that there are several variables that affect whether an autocracy increases utility more than a democracy or vice versa with a country’s income level, prosperity, information symmetry and population’s education level amongst the most crucial.

Introduction

Conventional economics assumes that people are rational agents that act to maximize utility. Given certain assumptions such as information symmetry, and the absence of emotional biases, the concept of maximizing utility is true. This paper looks at various factors that affect the utility of an individual to study what kind of government can best maximize utility.

Economic growth is often central to utility as it affects an individual’s wealth and the ability to buy goods and services in a country. For that reason, the paper starts with an analysis of economic growth of democracies such as the United States and India as well as autocracies such as the former Soviet Union, China, Singapore, Niger, and Uganda.

Other factors that affect utility include the availability of necessities, the ability to vote, inequality, social mobility, peacefulness, and culture. Apart from economic growth, this paper will focus on the provision of necessities and take into account the inherent utility from voting, in comparing democratic countries to autocracies.
It is of little question what a society with high utility looks like; no one under the poverty line, high economic growth, low inequality, and the ability to vote (all of these 4 variables co-existing). It is less obvious which variables should be given priority and condition on the fact that it is difficult to provide all 4 variables, which governments are in the best position to maximize utility by making optimum compromises. For that, the paper seeks to ask the following questions:

1) Who has the best knowledge and expertise to economic growth and the availability of necessities - the government or the people?

2) If the government has more knowledge than the people to maximize economic growth, the availability of necessities and to reduce inequality, does the utility from voting exceed the marginal utility gained in other variables such as wealth and necessity provision?

3) In a democracy do people always vote to maximize utility? Are they always acting in their best interests?

4) How do different incentives play out in different political systems that affect the utility of the people?

In answering the 4 questions, the paper will first introduce examples of developing countries that have democracies as well as both successful and unsuccessful autocracies from the point of view of poverty alleviation (intrinsically linked to the availability of necessities). Data shows that democracies tend to be average at poverty alleviation whereas autocracies can have both excellent and terrible results (Varshney 2000). The success of an autocracy lies in the hands of the leader; he or she needs to be both capable and benevolent. Compared to democracies, autocracies are less able to prevent extractive leaders and elite from staying in power.

The paper proceeds to which political system, autocratic or democratic, is more conducive to high economic growth. An explicit comparison is made between countries such as the former Soviet Union, a failed autocratic state from the perspective of economic growth and countries such as Singapore, successful at promoting economic growth. It is clear that it is free market economics that encourages growth rather than democracy inherently.
High economic growth is made possible by good economic policy. The paper proceeds to analyze whether a democracy or autocracy is more likely to take on economic policy that maximizes growth. Comparisons are drawn from present day USA, China, and India to examine decisions on economic policy. It seems to be the case that a country's wealth and prosperity affects the efficiency of a democracy compared to an autocracy in that wealthier countries, a democracy may be better off than an autocracy.

An analysis of necessity availability is then analyzed. Sometimes, it is difficult for democratic leaders to pursue long-term policies over short-term policies due their incentive to stay in power. The cost of slow decisions is weighed against the benefit of having more people make decisions. The conclusion is not clear since it depends on the particular issue being decided.

After analyzing the pursuit of high economic growth and necessity provision, the paper studies the nature of voting. It is evident that voting is not always completely rational. The argument is the extent to which voting on an issue ensures a better decision is made. Behavioral economics suggests that it is not only the voters who are vulnerable to “irrational decisions” but also the leaders. Democracies are most susceptible to “voter irrationality” whereas autocracies are more susceptible to “leader irrationality.”

Prior to conclusion, the paper looks at the inherent benefits of democracies such as giving people a voice and the enforcement of human rights. It compares China and India, two countries that used to have similar economic growth levels but have now diverged.

Methodology

Utility is the ultimate pursuit of countries. All goals such as economic growth, poverty alleviation, higher education, peace, and social mobility are pursued with the interest of increasing utility. While some may argue that some countries have rules that exist for justice reasons, even the existence of justice can be argued to be a form of utility pursuit in that citizens have higher utility from a good system of justice and institutionalizing certain values.
It is impossible to accurately measure the sum of utility of individuals in a country. For that reason, most studies choose to focus on measurable data such as economic growth, GDP per capita, or percentage of people living below the poverty line. That is the biggest downside to using utility maximization as a goal for a country. The benefits of using utility stem from it being the end goal rather than a means to the end.

Economic growth can leave out people lower down the income pyramid who would gain most from the incremental dollar due to diminishing returns to wealth. Utility corrects for this since redistributing a dollar from a wealthy person to a poor person increases total utility, ignoring disincentive effects that may arise as a result. Poverty alleviation can leave out people who are above the poverty line but still may derive high benefits from incremental increases to wealth or education provision.

This paper acknowledges that with an immeasurable factor such as utility, a fixed quantitative conclusion cannot be made. Instead, this paper sheds light on the key factors that affect utility, as outlined in the introduction, that governments can affect via political systems and decisions.

**The gamble of an autocratic regime**

In a study by Ashutosh Varshney, he showed that whilst democracies generally make moderate progress in poverty alleviation, autocratic regimes range from making the worse progress to the best progress in poverty alleviation. The result of his study are summarized in the table below
Poverty alleviation Performance

<table>
<thead>
<tr>
<th></th>
<th>Worst</th>
<th>Moderate</th>
<th>Best</th>
</tr>
</thead>
<tbody>
<tr>
<td>Democratic countries</td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Authoritarian countries</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

(Varshney 2000)

The result can be likened to investments. An autocratic regime represents a venture capital model whereas a democracy can represent a treasury bond market. While some autocratic regime can have terrible effects, some have very good effects. Democracies on the other hand tend to have average returns.

Autocratic regimes such as Singapore and South Korea had high poverty levels in the 1960s but in the early 1990s have had negligible percentage of the population below the poverty line. The worst autocracies such as Uganda and Niger had 69.3% and 61.5% of their population below the poverty line in the early 1990s respectively. Democracies on the other hand have tended to have approximately 30% of their population below the poverty line. (Varshney, 2000)

The reasons in the divergence lie in the freedom appropriated to the leaders in an autocracy. This is neither a purely positive nor purely negative phenomenon. The performance of any country is heavily affected by whether the ruling party is an extractive or benevolent. In a democracy, the leaders are directly accountable to the people through a system of representative democracy or direct democracy, and sometimes a combination of both. In an autocratic regime, the leader in an extractive regime can leave the country in shreds. Research has suggested that dictators are generally extractive when they do not expect to last in power for long and are benevolent when they stay in power for a long time.²³

In an autocracy, it is crucial that the ruling class is both benevolent and capable. Kenneth Tan wrote that “governance in Singapore is precariously build upon faith in good and wise man rather than good and wise institutions”(Tan 2008). Singapore’s rise to prominence is often credited to Lee Kuan Yew and the capability of the politicians at the time. Had Singapore accidentally given power to a leader who was extractive or with less

²³ Class lecture by Professor Greif
capability, they could have been one of the autocracies on the other side of the performance spectrum such as Uganda or Niger.

Autocratic leaders do not have the same constraints as democratic leaders. If they are benevolent and capable, this is good for the country and decisions can be made faster. If they are extractive, greedy, or not capable, this is terrible for the country. Democracies are slower but safer.

**Economic Growth**

In the 20th century during the Cold War, a lot of literature made the claim that a democracy was clearly superior to an autocracy. The evidence was assembled by comparing the Soviet Union and Eastern European countries to the United States and Western European economies. The Soviet Union was an autocratic central planner in contrast to the market based economy of the United States.

Today’s affluent authoritarian regimes are not central planners, they are free market economies. Red tape in Singapore is one of the lowest in the world. Even China is making significant strides and is said to have less red tape compared to the United States for innovative renewable energy companies (Spegele 2011) and hence has a lot of innovation and growth in that sector.

In the Soviet Union, the economic policies led to poor incentives for productivity. The Ratchet effect was among the many effects cited for a poor Soviet economy (Litwack 1993). The Ratchet effect is when the performance bar is raised to due to high performance in the previous time period. This creates a disincentive to work hard especially if exceeding performance targets it not compensated. In Singapore and China, people are compensated for high performance. Free market autocracies of the 21st century cannot be compared to central planners of the 20th century who did not benefit from economic growth that arises from the free market.

Good economic policies are policies that create the right incentives to enhance economic growth. In a democracy, the knowledge of the public is a key factor that affects economic policy. This can either be a strength or a weakness, depending on the situation. Arthur Schlesinger argues that in a democracy, a lot of the voters are ignorant and hence make poor decisions (Schlesinger 1997). Matsusaka disagrees and says that direct
democracies work, citing evidence from the United States and Switzerland (Matsusaka 2005).

Both Schlesinger and Matsusaka believe that communications technology makes direct democracy technically feasible. However, they have opposing views on its impact. For Schlesinger, it is negative since instant responses make people more likely to be swayed and make incorrect decision. For Matsusaka on the other hand, direct democracy is good since in some cases, the people may have more knowledge than experts and leaders.

Matsusaka acknowledges that for some decisions such as details about water and energy policy, the decision is best left to experts. However, for other decisions, experts may not possibly know all the answers; for example, work place safety. In addition, Matsusaka postulates that the law of large numbers means that if each person receives a signal, millions of voters should end up with the correct aggregate choice even if numerous individuals make erroneous decisions (Matsusaka 2005). The problem here is that Matsusaka’s argument only works if the information signals received are random. In some situations, interests groups and media can sway the incorrect decisions to reflect a certain view rather than be completely random.

Red tape increases the time taken for business processes that involve regulations. This means that economic growth is often enhanced by lower amounts of red tape. As mentioned earlier, China is able to make a lot of progress in energy policy that US is unable to do due to less red tape in regulations. China has an ambitious energy consumption cap that it was able to push through (McGlynn 2011). In democracies, red tape is often involved for a policy to go through due to the procedures involved and some decisions requiring a consensus. Autocratic politicians that expect to stay for a long time in power do not need to worry about convincing people to vote for the correct choice or to stay in power by enacting popular policies.

Autocracies enable decisions to be made at a higher speed. Comparisons between China and India are important because in some measures, China is more similar to India than it is to the US. Both China and India have more than 1 billion people, had high economic growth in the early 2000s, and used to have trade restrictions, and had significant numbers of people in poverty. In India, it is difficult for reforms to come
through because politicians disagree and no single party has a clear mandate (S.C 2012). The gridlocks of democracy are preventing some of the decisions to come through. The measures are clear, China has less people in poverty, a higher literacy rates, and lower childhood mortality (Sen 2011).

Despite the clear benefits of a free market economy for economic growth as evidenced by the discussion of the USA, Singapore, China, and the former Soviet Union, sudden transitions from a closed economy to an open economy may be detrimental. Varshney provides data points to show that countries such as Indonesia and Russia that changed policy rapidly pushed more people under the poverty line (Varshney 2000). In contrast, China first experimented using special economic zones (Wong 1987). These special economic zones had more liberal trade regulations than the rest of the country. It was easier for China to pursue that experiment since it was an autocracy. In a democracy, such an experiment would be difficult to implement since it could potentially give certain regions of a country an artificial advantage over the others which voters would perceive as unfair. Democratic leaders cannot make decisions against the people’s will. Gradual liberalization of an economy is a complex phenomenon that may be difficult to explain to the average voter.

A crucial point to note from the discussion is that income and prosperity appear to affect both whether people prefer to have a democracy and whether democracies make better decisions. In the paper by Matsusaka, he uses evidence from the United States and Switzerland to show that direct democracies work. Matsusaka displays data that shows that US states with initiatives spent and taxed less than US states without initiatives and that cantons in Switzerland with direct democracies had higher total factor productivity than cantons in Switzerland without direct democracy (Matsusaka 2005). Although Matsusaka’s point is valid, both the US and Switzerland are affluent countries with long existing democracies, a high proportion of educated citizens, and a population with less information asymmetry. In countries such as India, information does not always reach poor people in rural areas. Five years after the economic reforms in India were initiated,

\[24\] A direct democracy is when individuals vote for laws directly instead of having an elected individual make the decision for them.
32% of the urban votes knew of the reforms but only 12% of the rural electorate had heard of them despite its sizeable effect on the economy (Varshney 2000).

In times of low economic growth and extreme economic hardship, there is an argument that people would rather have a dictatorship that can remove those problems than a democracy that cannot. Schlesinger’s criticism of democracy stems from events that happened in the 20th century. Schlesinger writes that at the start of the 1900s, people believed democracy would survive. However, after the Great Depression, people were impatient with democracy. People in Germany taught that parliaments were “talking houses” (Schlesinger 1997). In a United Nations survey given in 2004, 54.7% of respondents in Latin America said they would prefer an autocracy over a democracy if it would help “resolve” their economic problems (Ross 2006).

The discussion above seems to show us that democracy receives more support and seems to work better when a country is already prosperous. There is no recent record of a democracy lifting a country out of poverty fast. It seems that in prosperous countries, elements of direct democracy can enhance efficiency as evidenced by Matsusaka. Although Matsusaka’s paper is a comparison of representative democracy to direct democracy, his views on benevolent autocracies can be extrapolated in that he would put autocracies and direct democracies on the opposite ends of the spectrum of receiving input from the general public with representative democracies in the middle.

Although people have an inherent preference to voting, they may be willing to sacrifice the right to vote for economic prosperity. Here lies the reasoning behind the Latin Americans preferring an autocracy over a democracy if it could solve their economic problems. Matsusaka does not discuss the utility from voting in his paper and it is apparent that he believes even if the utility from voting is not taken into account, people still have a higher utility from direct democracies over representative democracies due to more effective governance.

**The availability of necessities**

Material wealth has diminishing returns. As mentioned earlier, a measure of the total utility in a country is a good way to make sure the population with the smallest share of the wealth pie is taken care of. In countries stricken with poverty, providing basic necessities to the poor will have a large increase in total utility.
Demand for necessities is price-inelastic. For that reason, the purchase of necessities tends to be income constrained rather than price-constrained. Ross argues that government procedures such as subsidies often results in the middle class benefiting rather than the poor. In a democracy, the government tends to appeal to the median voter (Ross 2006). It is only when necessities are consumed by the poor does utility from the necessities increase. If a subsidy makes a good cheaper for everybody but not cheap enough for the poor, it has no effect on increasing the availability of necessities. Necessities need to be targeted to the poor. According to Ross, this does not always happen.

An additional argument is that the provision of necessities not only provides utility for the poor but it often reduces crime in a country which increases utility for everybody. It is among the reasons that England was the first to adopt a system that cared for the poor in the 16th century. Amartya Sen, in his paper comparing the standard of living of China and India, criticizes using economic growth as the sole measure of well-being. As mentioned earlier, the flaws of solely using economic growth include ignoring the difference in marginal utility of the extra dollar among different members of society and ignoring large utility increases that arise from factors such as increased literacy, absence of famine, and lower mortality. Sen discusses that China and India had comparative economic growth but China had a much better standard of living and ability to provide necessities to its population. Sen mentions Bangladesh as an example of a country with much smaller GNP and growth than India but able to provide a similar level of necessities to its poorest.

<table>
<thead>
<tr>
<th>Measure/Country</th>
<th>China</th>
<th>India</th>
<th>Bangladesh</th>
</tr>
</thead>
<tbody>
<tr>
<td>GNP growth</td>
<td>10%</td>
<td>8%</td>
<td>-</td>
</tr>
<tr>
<td>GNP per capita (PPP adjusted)</td>
<td>-</td>
<td>$1170</td>
<td>$590</td>
</tr>
<tr>
<td>Life expectancy at birth</td>
<td>73.5 years</td>
<td>64.4 years</td>
<td>66.9 years</td>
</tr>
</tbody>
</table>

25 Discussed in lecture
This data is an example of a scenario in which low economic growth may not be the primary limiting factor in increasing utility. Bangladesh is able to alleviate poverty at a similar level to India despite lower GNP per capita.

**Is voting always rational?**

One criticism of both direct democracy, and democracy in general, is that voters do not always vote in a rational utility maximization manner. When behavioral economics is applied to voting, there are numerous factors that affect voters that do not fall under the umbrella of utility maximization.

People often vote based on other factors other than their economic status. In developing counties where the poor account for a significant part of the population, the poor should be able to change economic policy in their favor, in theory. According to Varshney, the poor do not always vote for economic policy that would benefit them since they often vote on non-economic grounds. The issue of economic status is not restricted to the poor though. In the best-seller book, Switch, by Chip and Dan Heath, made reference to the fact that a lot of rich democrats in California vote for tax-cuts whereas middle-class Republicans may vote for a cuts in welfare due to issues of identity that are not grounded in economic benefit (Heath & Heath 2010).

Although it can be argued that voting by economic gain is not the only form of utility maximization behavior, one needs to consider the possibility that hyperbolic discounting may be in play. Hyperbolic discounting is a time inconsistent model of discounting, when an individual places too little value on a future event relative to the present. The very poor in developing countries may fall victim to this since they may not

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26 Data in table compiled from Quality of life in India vs. China by Amartya Sen “-” imply particular pieces of data that were not mentioned in the paper
expect a long life expectancy and may not be used to thinking about the long term due to the uncertainty of their short term survival.

Another key phenomenon is availability bias. People are often swayed by opinions that they just heard. That was Schlesinger’s main criticism of direct democracy. In Singapore, Lee Kuan Yew asks people for their opinions but overrules an elected official if he thinks the people made the incorrect decision (Tan 2008). As discussed earlier, only 12% of the rural electorate in India knew about the economic reforms 5 years after they started. It is likely that those who do not know about the economic reforms will vote differently than those who do, on issues of economic policy.

Of course, the same behavioral economic phenomenon that affect the voters can also affect the politicians. This is a crucial criticism of autocracies. Despite individuals deviating from rational behavior, on aggregate society tends to behave rationally. By decreasing the number of people making decisions, erroneous decisions may be more likely. The availability bias for example can cause an autocratic government without input from its people to think that they are making the correct decisions because the standard of living in their immediate social circle is improving.

If a democracy wants to avoid the pitfalls of changes in people’s opinions by false advertising, they need to construct rules that prevent this. In an autocracy, the government does not have to worry about voting fallacies but there is the danger of autocratic leader’s views not being in sync with reality and the rest of the country.

**On political incentives**

An autocracy has the pitfall of increased vulnerability to an extractive or incapable leader ruining the country. However, provided that the ruler is both capable and benevolent, his incentive is to make the economy the best he can make it and maximize utility. If he is confident in staying in power, he does not have to worry about issues such as convincing people or playing politics.

In a democracy, the pitfall comes in the form of prioritizing short term gain over long term gain. Most democracies have regular elections. Since the goal of the ruling party is often to stay in power, they are incentivized to popular short term decisions which may not always be in the best long term interest of the country. Varshney suggests that indirect methods of poverty alleviation often have larger impacts than direct methods
of poverty alleviation. However, since indirect methods are less popular, democracies tend to rely on direct methods leaving autocracies to make higher progress by adopting indirect methods.

In India, subsidies are 1/3 of government spending (S.C. 2012). A lot of important long term policy decisions are pushed to the back of the line since the politicians are desperate to stay in power (S.C.). In China, the government has made a 5 year plan to cap energy consumption at 4 billion tons of coal equivalent till 2015 (McGlynn 2011). The inability of India to take on unpopular decisions that benefit the citizenry in the long run is a weakness of democracy. In France, the government wanted to reduce subsidies on agricultural products coming into the EU but met with high resistance from the farmers. In the US, clean energy policy has a lot of hurdles to. In less affluent countries like India, slow decisions are catastrophic with people left being the poverty line that can be brought above it if the reforms could be sped up.

**Inherent benefits of democracies**

Preceding arguments in the paper seem to advocate autocratic governments for the developing world for the purpose of maximizing utility. However, it must be noted that there are some inherent benefits of democracies. For example, ceteris paribus, people would prefer a democracy over an autocracy because the ability to vote has positive utility. Other rights that come in a democracy such as freedom of speech also provide positive utility.

Sen writes that in contrast to China, India has more free speech and less political executions. The increased freedom increases the utility of the Indians. In China, the number of executions is high and there are human rights violations. In democracies, human rights violations are often not tolerated. Sen adds that famines are extremely unlikely in a democracy. In several Sub-Saharan African countries, autocracies have let preventable famines happen.

In addition, the most terrible atrocities in the world such as the Sudan genocide, the Holocaust, and the Uganda genocide have mainly occurred in autocracies. At the start of the paper, it was suggested that a democracy is like buying a treasury bond where as an autocracy was like investing in a risky start up. Given the destruction that can result from

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27 This is the energy produced from combusting 4 billion tons of coal
dangerous autocratic leaders, it may not be irrational to pick democracy, the less risky path. It is always less risky to rely on strong institutions rather than strong leaders since the former is less mutable than the latter.

**Conclusion**

From the paper, the clearest point is that both democracies and benevolent autocracies have their merits and flaws. It seems that in a prosperous economy, voting can enhance productivity. Given that a democracy hinges on voters making the correct decisions, the effectiveness of a democracy over an autocracy depends on whether the electorate are knowledgeable enough to vote on important issues. Countries with a lower percentage of educated population, a higher rural population, and low literacy rates will tend to have a larger percentage of people who may not vote rationally. These countries also tend to be economically poor. Hence, a benign autocracy may be more productive for these countries.

On the other end of the spectrum, prosperous countries can only make marginal strides in economic growth relative to developing countries due to a pre-existing high total factor productivity factor and GDP. There, issues that require the input of the whole electorate may be more warranted such as discussions on workplace safety or education reform.

In addition, the cost of slow decisions needs to be weighed against the feeling of inclusion. Slow economic reforms in India keep large numbers of people in poverty where as slow energy policy decisions in the US may not be as dire due to pre-existing affluence for most of the nation. The role of uncertainty is also important. Several renewable energy projects in the US under invest due to uncertainty about government policy in the future. For example, a lot of wind projects were completed this year because the firms were not sure if the government would renew the production tax credit that was set to expire at the end of 2012. When leaders cannot make a decision and hardship is present such as in Germany during the Great Depression, it may be important to give emergency power to a small group of people to speed up change. Hitler was voted to power by democratic methods before he made Germany a dictatorship, in part due to the ease in which citizen’s minds can be changed during times of crisis. Had the pre-existing benign government declared emergency rule, the outcome may have been different.
Human rights need to be taken into account as well but a generalization should not be made that autocracies ignore human rights. While it is true that some countries such as China are known for violating human rights, other countries like Singapore are not known for such violations. In addition, it is possible for an autocracy to consult its people and benefit from information that may not be attainable from experts, without committing themselves to the decision of the people. Lee Kuan Yew did this in Singapore (Tan 2008).

In addition, even in democracies, not all issues can be voted on. The United States has constitutional rights to prevent issues such as gender or racial discrimination be voted on so that minorities are protected.

In a democratic country with too much political uncertainty, it may be better to vote for a leader but extend the term so that the leader can focus on long term benefits rather than staying in power.

The solution is complex and the answer not clear. However, given the level of uncertainty involved, it seems evident that democracies should not force autocracies to turn into democracies. The prevailing view of the dangers of autocracies is assembled by focusing on those at the bad end of the economic and human rights violations spectrum. Some autocracies are performing well and should be left that way. In addition, democracies should not worry about pre-existing democracies becoming autocracies.

Works Cited


The Dairy Cliff: The Economic Significance of Permanent Agricultural Law in America
By Rebecca Deubler ‘16

Recent focus on the fiscal cliff has overshadowed a less publicized but highly significant development that will occur on October 1 if Congress fails to act. Specifically, American agricultural policy will return to permanent law when the current, temporary farm bill extension expires. This is expected to increase prices between 40% and 100% for many basic commodities, add billions of dollars to annual food costs for consumers, and require tens of billions of dollars in additional federal expenditure (Leonard). This threat is a result of decades of temporary farm bills, the most recent of which expired on
September 30, 2012 and was renewed by the American Taxpayer Relief Act of 2012 before the farm commodity supports specified by permanent law took hold (Monke 1).

Permanent law is primarily a combination of the Agricultural Adjustment Act of 1938 and the Agricultural Act of 1949. The Agricultural Adjustment Act of 1938 was established during the Great Depression. It consists of mandatory price supports for certain commodities such as corn, cotton, and wheat in order to increase supply and provide financial assistance to farmers. In addition, the act consists of marketing quotas to prevent supply from outweighing demand for specific goods (Womach 9). The Agricultural Act of 1949 extended price supports to milk and other agricultural products (Womach 7). As a result, permanent law is a collection of price and income supports for basic commodities, as well as controls that attempt to balance supply and demand for certain commodities. Specifically, permanent law sets minimum prices based on the cost of inputs, production, and living expenses. The prices that farmers receive are determined by the ratio between costs and revenue from 1910 to 1914, called parity. Parity-linked prices are not adjusted to account for changes in productivity, although real commodity prices are adjusted to reflect this (USDA Economic Research Service viii). The government supports parity-linked prices through nonrecourse loans or directly purchasing goods, which guarantees farmers a buyer without effective restrictions on production for most goods. In contrast, certain goods have acreage allotments and limits on marketing to reduce production (USDA Economic Research Service x).

As a result of nonrecourse government loans based on parity determinations, many farmers have an incentive to maximize production. Farmers put their crops up as collateral and then forfeit them when the loans mature. This allows them to receive 50 to 90 percent of parity, well above current market prices (Monke 11).

The reversion to permanent law will have the greatest impact on dairy production. The U.S. Department of Agriculture (USDA) will be forced to buy dairy products from farmers, which it currently does to raise demand and consequently raise the price that farmers receive. This will not only result in vast, unnecessary government purchasing of milk, but also double market prices, a phenomenon popularly known as the “dairy cliff” (Monke 11). The impact on dairy production is only one example of the inefficiency and high costs that the government and consumers will incur from a return to permanent law.
Furthermore, the reversion to permanent law will cause domestic agricultural production to come under greater government influence. There are numerous potential problems. Firstly, the government will have to rely on command-and-control methods such as acreage allotments to balance the surplus created by price supports. In reality, attempts to manage acreage allotments will likely be ineffective and inefficient because they are complicated by the diversity of rules for different commodities. The system also assumes that the government has the means to project supply and demand and balance them accordingly. Secondly, increase in reliance in government intervention will provide more opportunities for fraud. Thirdly, government purchase of excess supply will not only create a lot of waste, but also be paid for by taxpayers.

Although there is no recent analysis of the possible economic impacts of the reversion to permanent law, a 1985 report by the USDA predicted a $20 billion increase in annual food costs for consumers and a $50 billion increase in government spending within five years following reversion to permanent law. The same report predicted that increase in spending would require the Federal Reserve to either expand the monetary supply or increase borrowing. Expanding the monetary supply would increase inflation rates by 1 to 2 percent annually. Alternatively, increasing borrowing would increase interest rates by the same amount. In either case, growth in real economic activity and employment was expected to decrease by 1% annually within five years (USDA Economic Research Service xi).

Overall, the reversion to permanent law poses serious threats to consumers, taxpayers, government spending, and the economy as a whole. Given the dramatic implications of the reversion, it is highly unlikely that Congress will fail to pass a new farm bill or extend the current one. However, this does not address the fundamental issue. Despite technological developments and other changes in American agriculture, Congress has continued to implement temporary fixes to the agricultural industry without changing the antiquated permanent law since 1949.

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The Entertainment Conundrum

How video content providers and highly demanded products can compete in the future

By Nathan Mass

Econ 153 Professor Timothy Bresnahan

1. Introduction

The entertainment industry and its predominant content providers have found themselves in an unusual predicament. Demand for their product is high but innovations in computing and home viewing technologies threaten to derail long-standing industry practices, revenue models, and the sustainability of the industry itself. Major production studios have been noticeably reactionary in response to innovation and, as a result, find themselves behind the curve in capturing consumer surplus while laying minimal groundwork for future expansion. As theatre going audiences dwindle and free online content becomes widely accessible it is obvious that the industry is in need of a strategic overhaul to handle dynamic technology and changing entertainment consumption habits. This paper will outline the historical trajectory of the entertainment industry and draw on contemporary research to posit a viable business strategy that will keep content providers competitive in the future.

The remainder of this paper is organized in four sections. Section 2 provides contextual analysis of standard revenue models, applicable viewing mediums, demand changes, and the advent of the internet and peer-to-peer file-sharing. In section 3, the current challenges facing content providers will be further explored. Section 4 is dedicated to bridging the missing market phenomenon between providers and consumers with particular focus on new revenue strategies to handle dynamic technological and consumer changes. Section 5 concludes the paper.

2. Historic Context

Digital content providers are no stranger to disruptive technological change and have often found new ways to extract profit with each innovative iteration. The
entertainment business model used to be extraordinarily simple: movie theatres were wholly owned subsidiaries of production studios, giving the studios monopoly power over their content, actors, and all stages of production. This business model was effective during the early to middle part of the 20th century when home viewing technologies were primitive and hardly ubiquitous. However, the advent of personal televisions drastically changed consumer entertainment consumption habits, beginning the gradual attrition of movie-going audiences. “In 1948, 65 percent of the population went a movie house in an average week; in 2008, under 6 percent of the population went to see a movie in an average week.”28 The gradual dwindling of movie-going audiences was stymied by a societal impression that theatres were bastions of the upper class and affluent, while home entertainment was relegated to children and the poor. Nevertheless, that paradigm is the complete opposite of today’s movie-watching population. The largest demographic of today’s theatre-going audiences are comprised of 25-39 year old males watching action movies.29

Technology has always been a significant determinant for the changes in consumer entertainment habits. The ubiquity of personal televisions and expanded content availability de-incentivized live theatres in favor of in-home entertainment. “By 1958, TV had penetrated most American homes, and theatres sold only 2 billion tickets,” 2.6 billion less than ten years prior.30 Realizing that personal television was a lasting trend, studio executives began to license the distribution of copyrighted content to television studios for a handsome fee. Television studios, likewise, would be compensated by advertising on their network. This model worked well for several decades and gave rise to premium channels (e.g. Showtime, STARZ, and HBO) that provided its users with first-run content at an additional fee. This model continued relatively unabated until VHS and DVD technologies allowed consumers even greater flexibility in entertainment consumption during the 1980s-1990s.

The advent of home video devices and media players changed the paradigm for the industry. Large swaths of revenue were being diverted from theatres to personal

entertainment, prompting studios to turn entire libraries of films into DVD and VHS format for personal consumption. This trend spawned an entire industry and revenue source for studios—video rentals. The rental industry allowed consumers easy access to vast collections of films for a temporary basis. Dedicated stores arose and, sensing the economic opportunity, non-specialty retailers began to stock shelves with take-home videos; many creating their own rental systems. Beginning with the rental boom in 1984-1987, the industry plateaued in the late 1990s with Blockbuster as the clear leader with over 35% market share. Nonetheless, the studios’ two-decade long expansion into home entertainment hit a major snag in the 21st century. Increasing numbers of premium channels, coupled with greater offerings by cable providers (e.g. Comcast On Demand) acted as a catalyst in the decade’s transformation of the industry. No longer were consumers required to venture outside the home to acquire entertainment. Instead, entertainment options were readily available on the television. This allowed consumers a viable alternative to brick-and-mortar rental stores and sustained revenues for content providers. As a result, rental leaders Hollywood Video and Blockbuster went bankrupt in 2010 and 2011 respectively. However, a more significant—and threatening—viewing alternative emerged during this time: the internet.

Founded in 1997, Netflix was the first online service to offer DVD delivery by mail and quickly rose to prominence on its hassle-free policies and undeniable convenience. The company underwent rapid expansion and had an initial public offering in 2002. In 2005 the company was shipping a million DVDs out per day and had delivered its one billionth DVD two years later. When DVD sales slowed from a $10 billion per year industry in 2006 to just over $5 billion in 2010, Netflix stock soared from $30/share to ~$300/share during this period. This rapid growth was predominantly due to consumer


substitution away from retailers to Netflix’s streaming video content. Though Netflix was able to capture significant market share with its transition to instantly available content, most studios failed to anticipate the change in consumer habits and began losing money with their Netflix licensing contracts. In 2008, Netflix negotiated a four-year, $100 million licensing deal with Starz to stream their content online. The deal was initially very lucrative for both: Starz was able to add significant money to their bottom line while Netflix could attract more users to its revamped lineup that now included Starz’s new, premium content. However, the deal came under heavy scrutiny as executives at Starz attributed declining revenues to Netflix. “By 2011, it became clear to Starz executives that Netflix’s streaming was competing with its own pay-channel, and, even more importantly, with those of the cable and telecom systems who were Starz’s principal clients.” After repeated negotiations Netflix and Starz failed to reach an agreement to extend the licensing deal, with their partnership terminating in 2012. As of now, Netflix finds itself in the midst of many contract renegotiations with studios experiencing declining profits as a result of their partnership.

The methods of making profits in today’s entertainment industry are a far cry from the standard revenue models in the 1950s and even as recent as fifteen years ago. The trend away from theatres to VHS/DVDs to online streaming presents a great challenge to an industry that must increasingly diversify its revenue sources. “In 2007, the major studios had combined revenues of $42.3 billion, of which about one-tenth came from American theaters; the rest came from the so-called backend, which includes DVD sales, multi-picture output deals with foreign distributors, pay-TV, and network television licensing.” Nevertheless, the transition to streaming presents perhaps the greatest challenge to content providers ever. As more consumers become comfortable with

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38 Epstein, The Hollywood Economist, 201.
watching content online, so too does their ability to find free content and non-traditional media. Major studios’ near monopoly on content has been decimated by video hosting services including Youtube and Vimeo, with Youtube accounting for over 10% of all internet traffic. File-lockers, free online streaming services, and torrent hosting websites have sprung up in recent years and are evidenced by exponential growth in file-sharing.\textsuperscript{40} Although US piracy rates are low by international standards (~19%), nations without firm copyright restrictions are rapidly increasing illegal file-sharing. According to a recent survey by the Business Software Alliance, 57% of the world’s internet users pirate software, an increase from 42% in 2012.\textsuperscript{41} Illegal peer-to-peer file sharing and streaming pose a tremendous threat to content providers going forward.

3. Contemporary Challenges

The proliferation of technology in consumer entertainment has given production studios an immediate challenge of providing content across a diverse array of devices. Per usual, studios were woefully behind the curve and have only recently begun rolling out clients to serve mobile phones, tablets, and other mediums. For reference, Hulu’s mobile app hit the market in late 2010 while Netflix was only able to do a broad release in mid-2011, one year after the first iPad was released and four years after the first iPhone.\textsuperscript{42} The entertainment options for modern consumers are clear, albeit for the present time: limited access to paid content and an increasing availability of free content. Perhaps even more ominous is the inability of the studios to extract revenue through additional access to consumer devices.

Content providers have thus far proven to be resilient in adapting to technological innovations. With a dependence on television contracts, the industry’s reliance on a

\textsuperscript{40} Nate Hoffelder, “Net piracy puts 1.2m EU jobs in peril, study shows & other nonsense,” The Digital Reader, \url{http://www.the-digital-reader.com/2010/03/18/net-piracy-puts-1-2m-eu-jobs-in-peril-study-shows-other-nonsense/#.UUAHXFcWBek} (March 18, 2010).

\textsuperscript{41} Britney Fitzgerald, “Software piracy: study claims 57percent of the world pirates software,” Huffington Post, \url{http://www.huffingtonpost.com/2012/06/01/software-piracy-study-BSA-N_1563006.html} (June 1, 2012).

unipolar medium to deliver content to consumers may prove to be its most significant hurdle. The slow and inevitable rollout of mobile client applications may yet again fall behind in the curve in its objective to keep consumers contained within a suite of products. Mobile applications from content providers often come free of charge and are seen as complementary add-ons to an existing service of which a consumer is already a member. Though mobile clients’ addition into the line of products offered by content providers will provide a requisite service to consumers, it is unlikely to fully capture the demographic it is designed to appease. The predominant users of mobile devices are increasingly made up of youth, a segment of the population relatively disconnected with television cable contracts. Much of this demographic’s media is consumed online and likely free of charge. The addition of a mobile client for paid content will offer no more of an incentive than paid content on a computer or television.

Furthermore, the proliferation of viewing mediums has proven to have disrupted the antiquated revenue models of content providers. The use of new entertainment mediums is giving rise to a classical economic phenomenon: missing markets. In theory and practice, there exist both producers and consumers who would ideally establish a Pareto-efficient competitive market for the exchange of entertainment goods. However, several studios have thus far proven unable to reach—or even understand—the individual consumer demographics supporting specific content. No greater example exists than with the SyFy channel’s decision to cancel the popular show *Stargate Universe*. This show received widespread popular support along with high fan ratings, a recipe for success in the television industry. Even though the show was quite popular, the demographic watching the show was unusually tech savvy and preferred viewing the program online with minimal live television audiences. As SyFy senior VP Craig Engler said, “SGU [Stargate Universe] was judged solely on its own ratings.” The discrepancy between online viewers and live viewers led executives to believe the program was faltering as evidenced by its low Nielsen ratings. It wasn’t. The low television ratings only reflected


the live audience and did not capture the widespread popularity amongst consumers worldwide; consumers who enjoyed the program with non-traditional devices and methodologies of acquiring the content. The inability of studios to determine their viewing demographics and market accordingly presents a great challenge to their continued viability.

The era of mobile devices and a proliferation of personal computers has spawned enormous competition in delivering content to users and, just as important, an increasing number of players in the creation of content. Many of the firms that initially invested in new consumer clients enjoyed de facto first-mover advantage, reaping economic benefits in form of increased revenues and subscribers. Companies such as Netflix and Amazon have begun funding and creating content for their users. Netflix recently signed on to partially finance the 5th, 6th, and 7th season of popular AMC television drama Mad Men while Amazon is also developing original content.45 Hollywood executives should be terribly frightened by falling behind in both the content delivery mechanism and content creation.

The proverbial elephant in the room for production studios, at least during the last ten years, is the rise of peer-to-peer file-sharing, online streaming, and the distribution of unlicensed entertainment products. Despite invigorated efforts to stunt the rise in illegal downloading, file-sharing rates have continued to rise over the last decade—in some countries exponentially so. And, with the spread of entertainment mediums and computer prowess, there appears no end in sight. Production studios liken file-sharing to theft and argue that it is a direct threat to their continued existence, though continued profits might suggest otherwise. The immediate response of studios to file-sharing was a public relations disaster: selective enforcement of the Digital Millennium Copyright Act (DMCA) often drew headlines as unsuspecting mothers and elderly were hit with multi-million dollar copyright infringement lawsuits. As a result, studios have been slowing their ineffective cat-and-mouse judicial charade in favor of more tempered approach. Studios have been increasing the number of takedown requests to sites hosting illegal content and have even enlisted internet service providers to punish abusers. Several ISPs

have agreed to slow internet service to suspected pirates after repeated warnings against
file-sharing.\textsuperscript{46} Youtube, once a bastion of illegal content, has become more proactive in
removing copyrighted materials and recently streamlined the process with studios for
quicker removal procedures. Despite the ongoing efforts to curb piracy, online file-
sharing does not appear to be slowing. In addition to enforcing copyright restrictions
worldwide, studios should consider targeting the revenues of the websites known to host
pirated material. Many of the sites hosting illegal content are ad supported with an
obvious revenue stream. For the secretive web communities that solely exist to distribute
copyrighted materials, it seems their technological advantage will keep them impervious
to copyright law for the near future; user goodwill does not appear to have an Achilles
heel.

The challenges outlined above present a grave threat to content providers. The
failure to provide viable alternatives to easily accessible free content and a diminishing
understanding of consumer demographics has already created several casualties in
producer profits and consumer entertainment. As it should have been clear with the
advent of the personal entertainment devices, a revenue model based on live television
ratings is inadequate to determine the content of the future. Moreover, the ubiquity of
personal computers is not the only challenge facing content providers. Though consumer
devices are rapidly improving with technology, the demographic makeup of consumers is
rapidly changing along with their consumption habits. For many, the television is no
longer the primary medium of entertainment and companies with access to a user’s
device (Amazon, Netflix) have begun exploiting that advantage in the creation of original
content. It is foreseeable that established studios could be pushed out entirely in the
consumption of entertainment goods by companies with a superior delivery mechanism.

Moreover, consumer demographics are themselves changing. International demand
has begun supplanting domestic revenue with the continued economic rise of Latin and
Asian countries. As ticket sales drop in North America, growth in Latin America and the

\textsuperscript{46} Rob Quinn, “Illegal Downloaders’ Punishment: Slow Internet,” newser,
\url{http://www.newser.com/story/122916/illegal-downloaders-punishment-slow-internet.html} (July 8,
2011).
Asia Pacific region has risen 25% and 21% respectively. Studios now face perhaps their most challenging obstacle ever: providing relevant and accessible content to rapidly changing technology and consumer demographics.

4. A broad plan for the future

The 21st century and its accompanying technological innovations have been far less fortuitous for content providers than anticipated. Traditional sources of revenue including theaters and DVDs continue negative sales trajectories while digital piracy costs the industry billions in lost revenues on an annual basis. Content providers’ ongoing foray into mobile devices has been markedly delayed with minimal results. The industry is in trouble.

Though the current predicament in the entertainment industry is undoubtedly difficult, content providers have several renowned advantages. Firstly, providers have a near monopoly on quality content. That is, high definition products are hard to acquire illegally without significant computer prowess. Online streaming is notably degraded as higher definition content costs more to store and longer to load. Illegal torrenting of high-definition products often takes 4-6 times to download as standard definition given the file sizes for standard images (480 x 640 pixels) vs. high definition (1920 x 1080 pixels). Secondly, there still exist significant information barriers to file-sharing. The process of using torrents or finding websites to stream content exceeds the browsing abilities of significant demographics, notably the elderly. File-sharing is most common amongst youths, students, and low income individuals: all consumers whose marginal willingness to pay is likely below market value and would have been underserved without illegal means. Thirdly, content providers are the only players in the market with the legal backing to distribute their products. Nations with copyright laws and strong civil institutions are inclined to support litigious content providers against internet piracy.


Despite disproportionate and arbitrary litigation. There is no indication that individuals would consume pirated goods if a legal option were both competitive and easily accessible. Finally, content providers have one distinct advantage: they have the content. With no planned reduction in production, it defies economic logic to presume that highly demanded goods cannot be supplied at competitive prices. The rest of the section will outline a broad strategy for content providers to address the missing markets phenomenon and position themselves to handle dynamic technological and consumer variance.

Content providers must endeavor to understand the unique demographics of each program and the various mediums used to view media. As in the case of SyFy’s *Stargate Universe*, failure to comprehend an audience can cost a studio millions of dollars and consumer distaste. Increasingly diverse consumers require additional tailoring of content and accessibility across a range of mobile devices. These firms must roll out mobile clients immediately and have clients prepared in tandem with new devices. A strategic partnership with phone manufacturers to include their mobile client in an initial suite of apps is not to be overlooked. Blockbuster’s dedicated application on Verizon Wireless smartphones greatly helped the company expand into the mobile market and diversify its user base. Nonetheless, appealing to a consumer’s viewing medium is hardly a competitive advantage; it is merely a requisite to staying relevant. Content too must be broadened to include changing consumer demographics.

There exist several opportunities for content providers to capture consumer attention in the near future. Rapid economic growth in the developing world will allow content providers to expand market share abroad. In order to do so, however, content must both appeal to the consumers in each nation and translate accordingly. Whereas many film critics might shrug at the answer, action movies are a proven commodity and perform well in international markets. Action movies captivate an audience with attention-grabbing sequences and special effects. Dialogue and character development, once a desired quality in a Hollywood production, has been relegated to a second-tier status in many upcoming features. Think about it: of the action movies performing well, many featured leading actors with minimal dialogue. Arnold Schwarzenegger’s *Terminator* series was remarkably popular overseas despite his character’s elementary vocabulary. Not surprisingly, *Terminator Salvation* earned more money overseas than
domestically.49

Content creation need not be limited to the action genre. The increasing trend towards short online videos and a generation of shortening attention spans suggests that marketable opportunities exist within this framework. Short content (5-10 minutes) routinely delivered has spiked in popularity, in several instances generating significant revenue for the producers. Web series have grown in popularity as have professional firms serving the same niche. Companies including Funny or Die and CollegeHumor, both providers of short comical material, have joint annual revenues near $50 million and growing.50 Major production studios would be wise to expand economies of scope by diversifying product offerings with short ad-supported content available free to online users.

Finally, growth opportunities still do exist in movie theaters around the globe. While ticket sales have consistently dropped over the last several years, a new trend is emerging that could reinvigorate theater revenues. CJ Group, a South Korean media conglomerate, is hoping to bring four-dimensional theaters to the United States after successful debuts in South Korea, Thailand, and Mexico.51 A 4-D theater does not attempt to challenge any notions of space, instead providing consumers with an immersive movie experience. These theaters are designed to simulate movement, noise, weather, and even scent in tandem with the film. The extra engagement is expected to cost users $8 more on average but radically differentiates the movie-going experience to that of in-home viewing. An extra level of product differentiation is critical to studios combating ever-improving home viewing technologies and just might bring a few more

49 Charlie Anders, “How much money does a movie need to make to be profitable,” io9

50 Michael White, “Ferrell’s funny or die site trades on comic’s a-list reach,” Bloomberg,

51 Tim Newcomb, “4-D movies: Experience for the entire body coming to US theaters,” Time,
people to the theater.

4.1 A new business model

The following is a proposal of business best practices to sustain the industry in face of ever-changing demographics and technological innovations. The broad strategy needed to accomplish this goal is twofold: differentiate entertainment products (i.e. movies, television) and greatly ease the accessibility to new and existing content. Content differentiation will greatly help providers extract consumer surplus during several levels of the entertainment consumption chain. Theater content need be highly interactive and a notably different form than standard 2D televisions. The “theater experience” is one of the last remaining draws to live theaters and its enhancement could reverse the attrition in movie-going audiences. Additionally, licensed content must be immediately accessible across a broad array of devices. The relative scarcity and inconvenience of legal content on tablets presents a growth opportunity for pirated content. A viable and simple delivery mechanism for content should be available for every device.

So, what is that delivery mechanism? A content consortium of major studios that provides users simple and convenient access to the most desired entertainment products in the market. In addition to being available across all mobile platforms, the consortium must have several features that differentiate it from direct competition and illegal piracy. Firstly, all content should be available in the highest quality possible. Next, content must be neatly organized and reliably available—a direct contrast to the Spartan interfaces of many illegal sites that only give a database view of files. Streaming content should be deliberately designed to prevent downloads and proliferation across non-licensed entities. Finally, content providers should seriously consider displaying in-theater films concurrently with a mobile version—either temporarily delayed or for an additional fee. Successful product differentiation will enable content providers to capture consumer surplus of thrill-seeking audiences and of those with a less pressing desire to view the feature. The combination of these options presents serious competition to illegal file-sharing and return significant content control to their originating studios. Now, how does the consortium make money?

Much in the mold of Hulu and Spotify, the consortium described above should be designed around a freemium business model with significant versioning to segment
entertainment consumers. A freemium model allows the free distribution of the content but charges a premium for advanced features, functionality, or virtual goods.\(^52\) Hulu and Spotify have grown remarkably, largely in part to their user-friendly business model. Hulu’s 2012 revenue increased 65% to $695 million while Spotify is expecting to earn revenues of $500 million—twice the previous year’s take.\(^53\)\(^54\) While the majority of content should be readily accessible by basic users, additional features should be available to higher frequency consumers. These features can include a lifting of restrictions on the quantity of features watched (similar to Pandora One) and a reduction—or elimination—of advertisements. Given the high cost of hosting high definition content, a premium membership should make available HD content in 1080p or 720p.

The economic rationale for versioning is quite simple and has had notable success in the selling of information goods. As Berkeley economist Hal Varian notes, “reducing the “quality” of the good by imposing additional restrictions allows the producer to segment the market and induce self-selection so that prices can be based on willingness-to-pay.”\(^55\) As television and music industries profit with the innovative freemium business model, there is no reason every content provider cannot do so.

\(^{52}\) JLM De La Iglesia, JEL Gayo, "Doing business by selling free services". Web 2.0: The Business Model, 2008.


5. Conclusion

The advent of mobile computing and economic development abroad present a significant challenge to an industry that must again adapt to technological innovation and consumer variation. The relative inability of content providers to expand with advancements in personal computing is reflective of the industry’s use of antiquated revenue models and inadequate metrics to determine audience support. Additionally, the proliferation of free content continues to siphon away billions of dollars annually from content providers. The industry is at a crossroads.

The path to prosperity requires a strategic change in marketing, content creation, and outreach to consumers. Mobile computing devices have proven to be a lasting trend and, as such, require mobile clients to reach each consumer—a problem the industry has been very slow to resolve. Economic development abroad has created scalable opportunities to domestic firms but requires specific tailoring of content and new approach to theater entertainment. Highly translatable action films in interactive theaters present content providers with a significant opportunity to achieve product differentiation in entertainment products, allowing repeated capture of consumer surplus at several levels of the consumption chain. Finally, a new delivery mechanism is needed to conveniently present content across an array of mediums. Enter the freemium content consortium.

56 Hal Varian, Versioning Information Goods (March 13, 1997), 4. 17
A consortium of content providers grants these firms a competitive advantage with lower quality pirated and non-traditional content, easing accessibility to millions of potential customers. The freemium model allows entertainment consumers to self-select and, with built-in versioning, positions content providers to capture consumer surplus up to an individual marginal willingness to pay. As of now, online and mobile consumers have been poorly accounted for by content providers, costing studios in profits from piracy and consumer retention. This new business platform, with mobile clients readily available for every device, presents content providers a great opportunity to reduce the deleterious effects of content proliferation and well positions these firms to capture consumption variations in the near future.
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