Looking For Motivation: What Motivates Players of MMORPGs to Participate in their Respective Virtual Economies?

Gabriel D. Roller

Lewis and Clark High School

Introduction

Economics are a staple of society in the modern age. With the rise of information technology in modern life, new forms of labor, communication, and wealth accruement have emerged in the last four decades. Of particular interest are the new platforms of economic activity to be found within the genre of games known as the MMORPG.

MMORPGs: A Brief Overview

Massively Multiplayer Online Role Playing Games (MMORPGs) are a genre of digital game inspired by the tabletop role playing game Dungeons and Dragons (Radoff, 2010). They allow players to create a personal avatars with unique names, clothing, and attributes. Beginning with text based Multi-User Dungeons (MUDs), MMORPGs evolved to better support larger player-bases and provide more immersive worlds, with successive titles building on the ideas of their predecessors. This process finally bore fruit when Meridian 59 was released in 1996 and kicked off the rise in the number and quality of MMORPGs seen today (Castronova, 2001).

Multiple authors have struggled with the issue of defining what exactly constitutes a virtual world - a more versatile way of referring to an MMORPG. Though specifics might conflict depending on which particular example of virtual world researchers choose to examine, most agree that virtual worlds are persistent online games that allow thousands of players to interact in a digital space concurrently (Brandstetter, 2009; Castronova, 2001). Using their avatars, players have a medium through which they can interact with objects, players, and computer-controlled NPCs (Non-Player Characters), as well as (in most games) engage in combat and/or complete tasks. Some have contested whether or not virtual worlds actually represent a truly ‘virtual’ space - one untouchable by real-world elements - but questions such as

these are beyond the scope of this paper (Chambers, 2011). Drawing from the foundational research on virtual worlds by Castronova (2001) as well as work by Brandstetter (2009), virtual worlds, for the purpose of this research, must include elements of:

- Interactivity: players must be able to interact with the world and each other in real time.
- Persistence: the servers and programs enabling the world's existence must be kept running at all times (excluding requisite maintenance hours), whether or not players are logged in. Actions that players took prior to logging out will persist when they log back in.
- Physicality: players must be able to interact with the world, whether through an avatar or some other medium. The world must have consistent rules or laws that govern what players may or may not do. Players might see specific parts of the world in different ways, but there is an underlying logic as to how the world is constructed.

In addition, for the purpose of this paper, 'virtual' shall refer to worlds and economies existent in online spaces that follow this definition, while 'real' shall refer to the normal physical space thought of as our planet Earth as well as the traditionally accepted economies within it.

Parallels to the Real World

As has been noted by multiple researchers, virtual worlds are not immediately discernible from the real world in terms of how they are constructed and what laws govern players' actions and abilities (Chambers, 2011; Brandstetter, 2009). This is partly by design; virtual worlds intentionally mirror much of what allows the real world to function in order to create the illusion

of reality within a fictional space. Much prior research has focused on how those parallels can allow researchers to draw information on the real world, often specifically on human behavior and psychology, but also including governmental and economic policy, from these virtual spaces. Castronova et al. (2009) studied whether "aggregate economic behavior maps from real to virtual" using principles of macroeconomics in the MMORPG EverQuest II . Their research found that the economic behavior - in this case the law of demand - mapped perfectly to the virtual world, but that the behavioral trends of the economy such as GDP behaved in highly unusual ways relative to the real economy.

As an example from Castronova et al.'s study (2009), in a single month inflation rose 50% on some items, causing nominal GDP to fluctuate rapidly in response. The researchers also found that the average GDP was far lower than what Castronova's earlier research suggested, coming in at $14-$16 per capita compared to his earlier estimate of $2000 (Castronova, 2001; Castronova et al., 2009). The reason for this, they claimed, was a result of far more accurate research compared to Castronova's earlier methods (2001) of comparing prices on third party sites such as Ebay to gain a rough estimate of the average GDP of a server, as well as as a result of a difference in the way GDP was treated. Castonova et al.'s study used a strict real-world definition of how GDP is measured; by how much goods are sold for on the final market. This fails to account for a great deal of production and consumption in virtual economies, as most of the goods produced by players are consumed by the producer themselves (Taylor, 2006).

Other behavior in virtual worlds parallels the real world; Bloomfield et al. (2011) noted and studied the existence and implications of Second Life's short lived stock markets, and several researchers have also noted how different MMORPGs have had player-run banking

systems emerge, often to disastrous results . Second Life's Ginko Bank failure led to a new policy from the developer Linden Labs wherein only those with a regulated bank in the real world can operate a bank within Second Life. In EVE Online, wherein CCP Games has adopted a largely laissez faire, hands-off policy toward their economies, one player-run bank created a financial crisis after the bank's top executive ran off with 10% of the bank's total deposits (Chambers, 2011). Second Life's own bank crash was caused by Linden Lab's decision to ban gambling in the game, which shows how policy changes can have massive effects on the virtual economy similar to what was seen during Prohibition in the US. EVE's embezzlement scandal also shows that corruption and manipulation of the system is just as present in MMORPGs as in the real world.

Virtual Economies

Virtual economies are becoming an increasingly nebulous concept as researchers and policy makers examine them in greater detail. Chambers examined in depth the possible legal status of virtual economies to advocate for the stance that the virtual world is hardly virtual at all, but is merely a continuum of the real world that ought to be subject to many of its laws and regulations (Chambers, 2011). Castronova et al. (2015) has looked at the power that developers have over their games, wielding near god-like influence over their virtual economies as a result of being able to set policy within the game as its creator . What powers truly have jurisdiction over virtual worlds remains in question, though in practice developers retain full control over their platforms while governments in the real world have maintained a hands-off policy. As a result of this questionable status, a definition of virtual economies is difficult to ascertain. As it

remains within the bounds of virtual worlds, this paper shall use Lehtiniemi's definition: virtual economies refer to the internal economic system of a virtual world (Lehtiniemi, 2008).

Real Money Trade

Real money trade (RMT) links the real economy to the virtual (Brandstetter, 2009; Castronova, 2001; Heeks, 2010; Huhh, 2008). Through practices such as gold farming, selling avatars, and currency exchanges, players are able to form rough exchanges between virtual wealth and real world wealth. The industry created by the exchange of virtual goods is growing rapidly and is highly lucrative worldwide, with Asian markets making up the lion's share of consumption of virtual goods (Lehtiniemi, 2008). Gold farming, as one of the more well-known forms of RMT in the typical MMORPG, is characterized by employment of unskilled workers in the practice of 'farming' (gathering/creating) in-game currency. The typical gold farmer is a male Chinese player working in 'gaming workshops' for long hours for low wages (Dibbell, 2007). Multiple researchers have noticed the dominance of Asian producers on the gold farming market (Heeks, 2010; Dibbell, 2007). Just as globalization has led to other industries moving their production overseas, so too has gold farming been outsourced to the comparatively cheap labor forces in China and Vietnam (Heeks, 2010). Despite its growing success internationally, gold farming and similar practices in the realm of RMT are almost universally banned by developers, with the exception of in-game exchanges facilitated by the developers themselves. Examples of this include World of Warcraft's WoW tokens, which can be exchanged for currency in-game, but are bought with real money. This process is however unilateral; players cannot exchange these tokens for real currency. Nevertheless RMT is an important facet of

virtual economies, forming the backbone of much of the current research on the subject as a result of its proximity to real world affairs.

Player Motivations

In previous research by Nicholas Yee (2006), he concluded that players tend to play MMORPGs according to specific motivating factors including those pertaining to achievement, sociality, and immersion . This model for understanding the underlying motivations of players is vital for understanding the psychology of players in MMORPG gaming, as it presents a very different picture from the underlying motivations of the real world. Players within MMORPGs do not have to worry about multiple factors that would normally dominate life in the real world, such as ensuring their avatar consumes enough sustenance or stays hydrated to remain alive, sleeping out in the cold, or about randomly coming down with a debilitating illness. Instead players are free to explore and interact with the virtual world to their heart's content, constrained only by their skill and resources. This is in stark contrast to the real world, where one must provide for one's own basic needs in order to survive.

Yee's motivations (2006) contrast Landry et al.'s (2016) in that the former is characteristically simplistic, accounting for motivations to engage with MMORPGs alone and rightfully assumes that players who are not motivated to play will not play. Landry et al.'s motivation scale (2016) instead represents the multifaceted motivations for participating in the real world economy specifically, and includes various complex factors which urge people to do so (Landry et al., 2016). Currently, there is no motivation scale for virtual economies to compare to Landry et al.'s (2016), but in this case the difference in underlying motivations is clear: virtual worlds have more focused motivations due to the ability to choose to not play if no such

motivating factor exists. The real world has no such luxury of logging out, and so motivations to participate in the economy are more complex as a result of including the implicit factor of necessity.

Conclusion

MMORPGs are a new platform for economics to take shape. Research over the last two decades has concluded that while virtual economies are similar to real economies and operate by similar laws, key differences exist which include the underlying motivations of online play. Virtual worlds are by nature more limited than the real world, and provide players with the option to simply log out should they not find themselves sufficiently motivated, and no prior research has explored the motivations of participating in virtual economies specifically. This paper will thus address the question of what motivates players to participate in their respective virtual economies.

Methodology

A survey was distributed through several online forum sites designed to cater to players of MMORPGs. The official forums for EVE Online, World of Warcraft, and Guild Wars 2 were used, as well as the subreddits r/Eve, r/woweconomy, r/wow, and r/Guildwars2 once it became apparent that official forums would yield few, if any, respondents. A link to the survey was provided in each thread, as well as a brief description of the research goal and background information on the topic. The researcher replied to any player comments or questions on corresponding threads in accordance with Bergstrom's advice in order to encourage participation, to ensure the survey was as user-friendly as possible, and to maintain the goodwill of the playerbase (Bergstrom, 2017). The survey consisted of two demographics questions (age

and gender identity), one question asking how long players typically participated in their virtual economy, 24 yes/no questions asking whether or not predetermined factors affected their participation in the virtual economy, and an optional free response question asking players to respond with any comments, criticism, insight, or otherwise relevant information for the study. The 24 yes/no questions were generated by the researcher from information gleaned from prior studies on player motivations and motivations to make money, with an emphasis on Yee (2006) and Landry et al.'s (2016) research. Though unevenly distributed, each question fell into five general categories of motivation: wealth, serve and support, enhancement, efficiency, and self worth, and can be found in Appendix A. Once collected, a chi squared test of homogeneity was conducted to determine if there was a difference in the distribution of positive responses to each variable within the survey results. A chi squared test of homogeneity is a statistical test to determine if there is significant evidence that the actual distribution (i.e. the data collected) differs from the expected distribution. The test makes an implicit hypothesis that each variable will have equally distributed positive answers, or in the case of this study, predicts that respondents will indicate that no motivating variable is any more motivating than the next - each will have the same proportional distribution of 'yes' answers. The expected values are calculated by multiplying the row total by the column total, divided by the overall total as required by the chi squared calculation. Each of these calculations results in a component of the chi squared test statistic and are added together to determine the test statistic. Using a chi square table, the test statistic is then used to determine a p-value, or probability value. A p-value less than .05 is considered to be significant, meaning that there is evidence that the actual data differs from the expected.

Results

A total of 278 completed survey responses were collected, in which approximately 228 identified as male, 41 female, 3 other, and 6 preferred not to disclose gender identity. The mean age for this survey was 29.15 years. Four responses to the age question were discarded due to their being improperly entered by the respondents. The chi squared test of homogeneity indicated that it was statistically significant that the factors are not equally distributed. The components of the test statistic seem to indicate that wealth is a higher motivating factor while self-worth a less motivating factor.

Observed Values by Factor - Table A

Variables	# of Questions	'Yes' responses	'No' responses	Total Responses
Wealth	2	443	113	556
Enhancement	4	701	411	1112
Efficiency	5	893	497	1390
Serve & Support	5	637	753	1390
Self Worth	8	683	1541	2224

Table A represents the survey responses organized by their variable, with the variable Self Worth having the most corresponding questions within the survey and wealth having the least.

Expected Values - Table B

Variables	Expected Values	Chi Squared Value
Wealth	279.75	95.27
Enhancement	559.5	35.79
Efficiency	699.38	53.6
Serve and Support	699.38	5.5
Self Worth	1119	169.8

Table B represents the data put through the chi squared test of homogeneity. The row total of table A - equal to the total number of both 'yes' and 'no' responses - was multiplied by the column total - with every 'yes' answer added to create a final value, and the same with the 'no' responses. These values were multiplied by each other and then divided by the total number of responses to get the expected values, seen in column A. Column B represents the final chi squared test statistic after the data has been put through the chi squared equation $\chi 2 = \Sigma \frac{(O-E)2}{E}$ and placed on the chi squared table. Each variable was found to be unevenly distributed, indicating that participation in virtual economies is driven by specific player motivations. In the right-most column, a higher number indicates a more unevenly distributed factor.

Discussion

By determining that the explored variables are likely to be unevenly distributed through the Chi Squared test, this study comes to the basic conclusion that there are distinctive variables that motivate players to participate in virtual economies. This survey paves the way for future researchers to further explore player motivations in virtual economies by establishing some basic

assumptions to work with: that players are motivated by specific factors and that these factors may vary depending on the MMORPG being examined being the most important. This study also tests the efficacy of different recruiting platforms for respondents, going beyond the tried method of direct game-developer aid and reliance on official forums.

Nevertheless despite the inability to determine the extent of all motivations of players, through the Chi Squared test of homogeneity this study can conclude that each of the five variables tested for are motivating factors in virtual economic participation. The chi squared test statistic indicated that wealth was a higher motivating factor than the rest, while self worth was the least motivating factor of the five. This is not to say that self worth was unmotivating; only that of all five it had the least effect on player's decision to interact with their virtual economies. These results may be affected by the distribution in the number of questions assigned per variable; wealth had the least corresponding questions while self worth had the greatest number of corresponding questions. This flaw in the study's methodology may have devalued self worth's role in player motivations while artificially inflating wealth's. Further research should endeavor to ensure each examined variable has an equal number of questions, so as to avoid this problem in the future.

This study is limited by the exploratory nature of its goals: though prior work has been done to flesh out the motivations of players of MMORPGs, none had been conducted which specifically targeted the internal motivations of players and virtual economies until this paper. This paper thus suffered from having little direction to base its assumptions on player motivations. More specifically, the results of the free-response question at the end of the survey received a vastly unexpected response rate of 40% participation (including answers which had to

be excluded due to lack of substance, i.e. “troll” answers). Some answers indicated that the survey was simply flawed in the way that it treated certain MMORPGs such as EVE Online, in that it worked on the assumption that EVE’s market would be similar to other MMORPGs. As stated in the literature review, participation in virtual economies is optional in that players are given a valid option to choose not to participate within them. In EVE, however, many players responded with variations of “economic participation in EVE is mandatory” or “there is no way to play EVE Online save through the economy.” Others simply diverged into directions that the researcher did not anticipate, such as three respondents stating that they found interacting with virtual economies akin to gambling, or three other respondents stating that they found economic participation to be a form of player-versus-player combat fought in the financial sphere through market domination. These responses indicate the necessity of some form of player-reporting within exploratory research into MMORPGs. Nothing in prior literature indicated that PVP or gambling would extend into regular market affairs, and this survey would not have turned out such insights without the free-response question included for players to indicate such.

Another flaw in this research approach to the topic was attempting to present an identical survey to players of multiple different MMORPGs while assuming they had identical, or near-identical economies. While there was plenty of overlap in motivations throughout every MMORPG, many players indicated dissatisfaction with the questions presented to them. EVE players largely indicated that the market was the dominant part of the gameplay experience, while WoW and Guild Wars 2 players never indicated the same. Exact figures for what player played what game are also impossible to discern, as outside of where players voluntarily indicated their preferred game in the free-response question, the survey did not ask what game

players played. The conclusion that is most obvious from this information is that future research into what motivates players in virtual economies should be conducted with individual games in mind, instead of taking a blanket approach to the topic.

Another aspect of virtual economies that came up far more frequently than anticipated was the concept of subscription-based tokens (or PLEX, in the case of EVE Online). Thirteen players reported that their primary motivation for participating in their virtual economy was to collect enough currency to purchase game-time, more than 10% of respondents to the free-response question overall. While background research on RMT in MMORPGs did indicate that the interaction between in-game resources and out-game resources was complementary and often synergistic in nature, the literature did not extend that relationship into the motivation sphere. In other words, players seem to be deliberately managing their in-game and out-game resources to work in tandem, whether that is to purchase tokens with real money to convert into virtual gold (acting as a monetary care package to a character) or to use time spent in the virtual world to extend their subscription to relieve them of the need to use real money. In this survey, players did not specifically indicate why they choose to do this; instead, those who mentioned subscription-based tokens or PLEX treated this behavior as its own motivation. Given that the amount of time spent farming gold in the virtual world is likely to exceed the amount of time it would take to make the money to purchase the same subscription normally, this behavior would seem to be irrational, and perhaps deserves its own research.

The demographics of the survey were notable for their seeming disparities in gender: 84% of respondents reported identifying as male, while 15% identified as female, 1% other, and 2% preferred not to say. Because the survey did not ask respondents to identify the MMORPG

they preferred to play, no definitive conclusions can be made about this disparity, but the EVE Online player responses are a likely culprit. While most MMORPGs can be characterized by disparities in the ratios of men to women playing, EVE Online is particularly notorious, possessing a 95% male playerbase. This gender disparity in the game, as well as the player activity in the survey, would seem to indicate that EVE Online's respondents distorted the real ratio of men to women in MMORPGs. In the future, researchers seeking to gain a better understanding of the motivations of all people in MMORPGs, rather than men in MMORPGs, should take care to avoid this problem by tailoring research recruitment approaches to both genders. The reported age of respondents trended toward mid-to-late twenties, tapering off as the ages increased. The most commonly reported age was 27 years old with 23 responses indicating thus. The oldest age reported was 69 years old, and the youngest 11.

As a final finding, this survey owes much of its success to the shift from the official forums of the surveyed MMORPGs to their associated subreddits. In Guild Wars 2, the attempt to attract respondents to the survey was met with a temporary ban from the moderators for 'soliciting' within the forums, while for EVE Online and World of Warcraft both the survey was largely ignored by players. The subreddits proved far more productive, attracting the bulk of respondents for the survey. Prior to the thread's deletion from the forums, the Guild Wars 2 forums saw a fair amount of direct participation, with players asking the researcher questions directly. After the deletion this behavior continued into the subreddits, and in order to maintain an active and enthusiastic environment the researcher engaged players with questions, promptly answering as best as possible.

Further Research

Further research should be conducted into what motivates players to participate in virtual economies. This paper was intended to give future endeavors into the subject a foundation and some basic direction for future researchers to work with. The knowledge that each individual MMORPG seems to have its own accompanying motivations does not mean that a general indicator of what motivates players to participate in virtual economies is impossible to create, but does indicate that in the process of creating such an indicator each MMORPG should be examined separately before the results can be unified in a single work.

References

Bergstrom, K. (2017). An Unwelcome Intrusion? Player Responses to Survey Research Recruitment on the World of Warcraft Forums. *The Journal of the Canadian Game Studies Association, 10*(16), 15-31. Retrieved December 16, 2017.

Bloomfield, R. J., & Cho, Y. J. (2011). Unregulated stock markets in Second Life. *Southern Economic Journal*, *78*(1), 6-29.

Brandstetter, T. M. (2009). *Hybrid economies: Real-world economic effects of virtual economic systems* (master's thesis). University of Augsburg, Augsburg, Germany

Castronova, E. (2001). Virtual Worlds: A First-Hand Account of Market and Society on the Cyberian Frontier CESifo Working Paper Series No. 618. Available at SSRN: https://ssrn.com/abstract=294828

Castronova, E., Williams, D., Shen, C., Ratan, R., Xiong, L., Huang, Y., & Keegan, B. (2009). As real as real? Macroeconomic behavior in a large-scale virtual world. *New Media & Society,11*(5), 685-707. doi:10.1177/1461444809105346

Castronova, E., Knowles, I., & Ross, T. L. (2015). Policy questions raised by virtual economies. *Telecommunications Policy,39*(9), 787-795. doi:10.1016/j.telpol.2014.12.002

Chambers, C. (2011). How virtual are virtual economies? An exploration into the legal, social and economic nature of virtual world economies. *Computer Law & Security Review,27*(4), 377-384. doi:10.1016/j.clsr.2011.05.007

Dibbel, J. (2007, June 17). The Life of the Chinese Gold Farmer. *The New York Times Magazine*. Retrieved September 26, 2017, from

http://www.nytimes.com/2007/06/17/magazine/17lootfarmers-t.html?ei=5088&en=a6282d1ddf608fc1&ex=1339732800&partner=rssnyt&emc=rss&pagewanted=all

Heeks, R. (2010). Understanding "Gold Farming" and Real-Money Trading as the Intersection of Real and Virtual Economies. *Journal of Virtual Worlds Research, 2*(4), 1-27. Retrieved September 26, 2017.

Huhh, J. (2008). Simple Economics of Real-Money Trading in Online Games. *SSRN Electronic Journal*. doi:10.2139/ssrn.1089307

Jones, C. (2009). The economies of virtual worlds: lessons for the real world.[Online computer games offer more than just entertainment.]. *Policy: A Journal of Public Policy and Ideas*, *25*(2), 27.

Landry, A. T., Kindlein, J., Trépanier, S., Forest, J., Zigarmi, D., Houson, D., & Brodbeck, F. C. (2016). Why individuals want money is what matters: Using self-determination theory to explain the differential relationship between motives for making money and employee psychological health. *Motivation and Emotion, 40*(2), 226-242. doi:10.1007/s11031-015-9532-8

Lehdonvirta, V., & Ernkvist, M. (2011). Knowledge Map of the Virtual Economy. doi:10.1596/27361

Lehtiniemi, T. (2008). *Macroeconomic indicators in a virtual economy*(Unpublished master's thesis). Thesis / Dissertation ETD. Retrieved January 15, 2018, from http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.465.9628&rep=rep1&type=pdf

Radoff, J. (2010, May 24). Radoff.com. Retrieved February 05, 2018, from https://web.archive.org/web/20100527090108/http://radoff.com/blog/2010/05/24/history-social-games/

Taylor, T.L. (2006) Play between Worlds: Exploring Online Game Culture. Cambridge, MA: MIT Press

Yee, N. (2006). The Demographics, Motivations, and Derived Experiences of Users of Massively Multi-User Online Graphical Environments. *Presence: Teleoperators and Virtual Environments,15*(3), 309-329. doi:10.1162/pres.15.3.309

Appendix A

Key: EN = Enhancement, EF = Efficiency, W = Wealth, SW = Self Worth, SS = Serve and Support

EN - Optimizing equipment

EN - Optimizing character appearance

EF - Making money as efficiently as possible

W - Becoming rich

SW - Being the richest possible player

SW - Being the best possible player

SS - You want to feel like you are contributing to the game

SS - You want to feel like you are contributing to a cause

EF - You are unable to acquire certain resources/gear/items without trading

EF - Trading is faster than gathering and/or crafting yourself

EF - Trading is cheaper than gathering and/or crafting yourself

EN - You enjoy farming, gathering, and/or crafting

EF - You don’t have the time to gather or craft for yourself

SW - You want to be the best possible crafter/gatherer

SW - You want others to know you are rich

SW - You want others to see you own the best possible items, gear, etc.

SS - You want to support your guild

SS - You feel like you can better serve your guild through crafting or gathering than through other means

SW - You want to feel good by being the best possible player

SW - You want to feel good by becoming rich

SS - You enjoy helping others

EN - Having more money improves your gameplay experience

W - You like having a lot of money

SW - You feel more confident having more money