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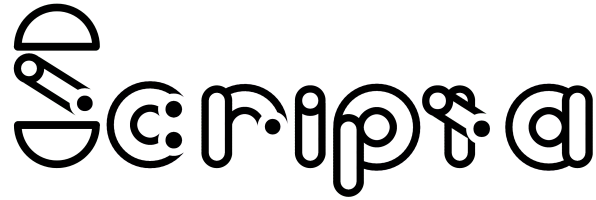
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An Argument Against the Existence of Free Will

Anna-Sophia Mehta*

Abstract

This paper examines the mechanisms of free will by evaluating the components of free will, defining what conditions must be present in order for free will to be actualized, and evaluating if these conditions are capable of existing beyond a vacuum chamber. Surveying the viewpoints of Jean-Paul Sartre, Georg Hegel, and Robert Blatchford comparatively, this article introduces a hypothetical scenario which disproves the existence of absolute free will.

1 Introducing and Defining Free Will

The concept of free will is vast and complex, transcending the current understanding of the universe.. However, there is no free will to be found for us; For true free will to exist, there would have to be only one consciousness at any given time to avoid conflicts of interest, whether physical or abstract. This paper proposes a distinction between the terms ‘free will’ and ‘freedom’. Free will describes a hypothetical scenario in which a single entity controls everything (in which we are all cogs in a machine or pawns on a chessboard), leaving no room for environmental or genetic factors to influence decision-making. In contrast, freedom is a more attainable concept for humans. While we cannot alter our genetic makeup or surroundings, we can make choices within a set of options determined by the inherent randomness of the universe. In distinguishing freedom, it is necessary to identify the levels of freedom that lead up to the idea of

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absolute free will. The first ‘tier’ of freedom, which is also the most encompassing, is societal freedom. It is essential to determine if individuals can engage in basic pursuits without limitations. However, this level of freedom cannot be achieved for every person since complete societal or social freedom would require an impossible abundance of land, money, and resources. Totalitarian desires of one individual may contradict another’s freedom. Nevertheless, moderate levels of freedom on this level can be attained, either through socio-economic status or living in a society that enables such freedoms.

Beyond societal and social freedom lies the concept of freedom of personality, which refers to the ability to express oneself freely. However, achieving complete freedom of personality is impossible. As Jean-Paul Sartre argued in “Existentialism as a Humanism,” our existence precedes our essence. In other words, who we are is determined before we can choose who we want to be. Unlike Sartre’s stance towards free will, in which suggests that we have freedom to be who we want to be and the moral responsibility to own our decisions, our choices are largely influenced by our desires, affinities and our heredity, as argued by Blatchford in “The Delusion of Free Will” [1]. According to Sartre, if we consider ourselves exceptions to our ideal perception of humanity, it weighs on our conscience. For example if we value healthy eating habits as ideal but indulge frequently in junk food, we bear the moral responsibility of acknowledging our distinction. Despite our desire for freedom of personality, we are still subject to external social structures that precede it, even if these social structures only have the significance we grant to them. Is it thus possible for the human mind to even grant itself freedom? It continuously seems to impose limits on its perceptions of itself and the environment around it.

Following social and personality freedom lies the concept of freedom between choices. However, the existence of a society in of itself limits one’s options to exist within it or to abandon it. It is impossible to achieve universal free will between choices because true free will would imply an infinite range of options or no selection at all. This boundary is inherent in the concept of free will, and it means that we will never be able to achieve true free will. The final tier of freedom is the freedom to exist. Although we cannot choose to come into existence (both in regards to the existence of a metaphorical ‘soul’ or consciousness that predates the coagulation of our atoms and cells), we can choose to end our consciousness as we know it. This May be the only true form of free will one can experience. It is important to recognize that we can still be free people even if we have no free will. The debate about the existence

of free will is The debate over free will is often linked to moral considerations, as we may feel that lacking free will implies being enslaved or restricted. This is the conclusion we reach when considering the vacuum left by the absence of free will. In reality, our existence is shaped by the random chaos of the universe, which imposes limits on our choices and actions. Nonetheless this does not mean that we are necessarily confined. We choose between multitudes of limited options, actualizing choices we have already made subconsciously, but maybe this is the limit of our capacity. Slavery bears the notion of unhappiness, but if we can be happy people, then maybe we simply exist amongst the context of a meaninglessly predetermined and chaotic universe.

2 On Existentialism

Jean-Paul Sartre, a leading figure in the existentialism and free will debate, posits that we are ultimately responsible for our actions and determining our own values and purpose.. What we aim to be is what we consider the ideal form of humanity. There is no predetermined human nature or moral foundation laid out for us by a higher power. We cannot determine our ‘essence,’ the stuff that composes our soul, but it is up to us to determine our value and purpose—this, to Satre, is free will. So, how can one explain the formation of our ideal identities?It is largely a product of our heredity and environmental context, which both influence our cognition and stem from random chance. This means that our choices to become moral, kind, or wealthy humans are not necessarily a result of free will, but rather a result of the freedom provided by society, which enables the freedom of personality, which in turn enables the freedom of choice (as previously defined). Sartre distinguishes humans from utilitarian tools by highlighting the importance of purpose. Knives, for instance, are created by humans to cut things, and their value and purpose are derived from their function. In contrast, humans are not born with a predetermined purpose; they must create their own purpose and meaning. While a child may have been brought into the world to fulfill a parent’s desire, the child itself has no inherent purpose. Rather, it is up to the individual to assign meaning and value to their own existence. Drawing from Georg Hegel’s Master/Slave Dialectic, [2] it is evident that the slave exists to the master only to serve as a slave. It is an act of reclamation to consider oneself above utilitarian purposes assigned to oneself. We can choose to reject this utilitarian view and instead

recognize that everything is inherently invaluable unless we assign meaning to it. There is no difference in value between a human considered a slave by some and a master by others; all humans are inherently purposeless and invaluable, just like a knife. This does not render them useless or wasted existences; they have the freedom to exist in any way they can. Although there is no common human condition, collective consciousness, or inherent meaning, we are still the product of our heredity and environment. Nature abhors a vacuum, and even seemingly random decisions are ultimately a result of the true randomness of the universe. For example, our preference for eggs over toast for breakfast may be a culmination of genetic and environmental factors with random origins. The only "true" force that assigns value to anything is chaos and probability.

3 On Determinism

In contrast to Sartre's existentialist perspective, there are two opposing views: determinism and fatalism. Determinism holds that our future is determined by past actions, while fatalism suggests that our fate is preordained. The idea of a predetermined path implies that there is a meaning behind all of the predetermined characteristics of existence, but this may not necessarily be the case. Both determinism and fatalism have been associated with negative and nihilistic views in philosophy, but it's worth noting that they have the potential to be positive as well, so we'll refrain from criticizing them in this regard. While determinism and fatalism do not assign a deeper meaning to predetermined actions and events, it is important to note that our prior actions are predetermined by context. Thus, these actions are not choices that we have any say in, beyond the illusion of choice that we grant ourselves, which challenges determinism's claim that our fates are determined by our prior actions. This grants a certain plausibility to fatalism, except fatalism attributes the responsibility of determining context to some sort of irreverent and irrefutable destiny established long before events occur. In reality, these events have no great meaning or predetermined occurrence. The only predetermined aspect of them is that it is determined that these events will somehow occur, either in their occurrence or in their absence, and even that is random.

Drawing from Robert Blatchford's "The Delusion of Free Will," one can observe a more fatalistic perspective; which asserts that events are influenced by external factors, but are not necessarily predetermined or predictable. The

concept often implies that destiny has a fixed and meaningful nature, however, this is not necessarily the case. Our destinies are shaped by random events and lack inherent meaning. The only meaning within our existence is the meaning we choose to attribute based on values developed through our heredity and environment. Destiny occurs and plays out as events happen randomly. The past is the only objectively determined aspect of existence, yet it can still be interpreted subjectively. The notion of determinism disregards the possibility of freedom by making absolute claims, “the sky isn’t blue at all because at night it turns black,” or “leaves are not green because they turn brown eventually.” Determinism does not permit the existence of fleeting states of happenings or context-dependent existences or compromises. In Determinism, absolute free will does not exist, however, this does not negate the existence of partial freedom within certain contexts.

4 On Compatibilism

Compatibilists argue that even if our fate is predetermined, we still possess free will in the sense that we can make choices between available options. However, the question arises: what influences our choices? Our desires, wants, and needs are all shaped by our environment and heredity, and therefore, our choices are not truly free. The so-called ‘free will’ discussed in compatibilism refers to the freedom of choice within the constraints of our predetermined circumstances. In contrast, true free will would not require making choices that limit or close off options. Instead, all of our desires and needs would be readily available to us, and we would have an infinite range of options to choose from, without any external factors influencing our decisions.

5 Hypothetical Cases and the Oxymoronic Nature of Free Will

Several philosophical problems and paradoxes have been discussed in the context of arguing against the plausibility of free will. One of the most famous of these is the Omnipotence Paradox which asks whether an all-powerful God can create a boulder so heavy that even He cannot lift it. Similarly, in the case of free will, can one create a scenario that contradicts the universal nature of one’s all-powerful free will? It seems that free will can only exist in a complete vacuum with no

external influences or constraints. A scenario that highlights the limitations of free will is that of a hypothetical utopia: let the constraints of this scenario be the constraints of reality as we know it. Imagine you are a researcher studying animal behavior and you create a "perfect" environment for a population of chickens. The warehouse is equipped with everything the chickens could want: food, water, stimulation, resting places, and more. Inevitably, there will not be enough room forever. Even if the chickens' utopia keeps expanding and expanding, there are limits to this. As the population grows, the resources become limited leading to competition and unrest among the chickens. Despite their previous experience of living in an environment that closely resembled the idea of free will, they are now constrained by their circumstances. This scenario illustrates how the illusion of free will is limited by external factors, even in a seemingly perfect world.

Let's consider a scenario where you, as a researcher, remove some chickens from the population for slaughter without the others knowing. The remaining chickens may continue to live in their utopian environment, but is it possible to achieve universal happiness for a population with free will without compromising the freedom of a few? If the researcher didn't impede on the freedom of the select few chickens taken out to slaughter, would the entire population still even have any free will at all due to their inability to achieve happiness? Can complete happiness be achieved with free will? Would people be willing to deal with the suffering of others for the sake of their happiness? If so, can it truly be considered free will? From this, we can conclude that free will can only exist in a vacuum with a single sentient identity..

The existence of free will is incompatible with multiple independent bodies. Consider the Omnipotence Paradox, which can be restated as a physical question: can an unstoppable force move an immovable object? The magnitude of their forces is relative to the observer's point of view, and from different perspectives, both the force and the object are equally powerful. If both of these entities possess absolute free will in their actions, then they cannot coexist due to their contradictory nature.

6 Real-World Discussions on Free Will

I had a discussion with three of my peers, Michael, Alex, and Chance regarding the existence of free will. Each of them offered a unique perspective with varying degrees of complexity. Michael argued that the existence of free will depends on how one defines it. According to Sartre, if you do not consider one's 'essence' in your definition of free will, then you do possess free will. On the other hand, if you subscribe to Blatchford's belief that existence is uncontrollable on a subatomic level, then you do not possess free will. We did not delve into the question of whether one has free will in choosing how to define free will. Alex took the position that free will does not exist due to the multitude of conflicting desires and influences that affect our decisions. On the other hand, Chance argued that free will is an illusion because our choices are determined by factors such as the environment and heredity. He presented a scenario that we took into consideration. He speculated that if he were a god, he could grant himself the option of having free will or not. He explained "I could eliminate the portion of my godly brain that granted me foresight and the knowledge of my ability to control everything and put that power in another equally powerful 'body' of myself which I could turn on and off at my own will." I challenged his assertion that his proposal would constitute true surrender of free will, arguing that what makes us acutely aware of the potential negative consequences of our actions and the randomness of chance is precisely the fact that we cannot simply switch off or control the universe's unpredictability. For example, if we get into a car accident, we cannot rewind time or manipulate the laws of physics to our advantage. Additionally, even if he programmed his other self to only remind him of his power in dire circumstances, this would still be a predetermined action, and thus not a true relinquishment of free will.

After our discussion on free will, Chance and I continued to discuss happiness. He proposed that happiness can exist strictly by itself, without the need for contrasting periods of non-happiness. He cited the Experience Machine, a thought experiment developed by philosopher Robert Nozick, which involves a sensory deprivation tank that allows the individual to enter an artificial reality of their choosing. [3] Chance argued that with complete control and free will over our surroundings, we could achieve existentially pure happiness within the Experience Machine.

Once again, I countered that happiness cannot be sustained in a permanent state and that it needs to be balanced with sadness to provide a broader per-

spective of life, making happiness more fulfilling and meaningful. The fleeting, spontaneous nature of happiness is what makes it valuable and exciting. The lack of control over when we experience it creates a sense of novelty and surprise. If one could predict all the surprise birthday parties or marriage proposals or gifts or happy accidents in their lives and plan them out on certain intervals, it would not be as fulfilling. ;Thus, the existence of free will undermines the purity of happiness because it is dependent on the random actions of others. He then asked me, "What if you were always happy?" to which I responded, "I'd be bored out of my mind!" Chance refuted, stating, "but you'd be always happy." This brought me back to our earlier discussion on free will. If a claim is absolute and universal, then there is no point in arguing the hypothetical because it cannot be challenged. Claiming that one would always be happy in a hypothetical situation assumes a limited understanding of human emotions. Happiness in human terms is multifaceted; one can experience happiness while still feeling bored or desiring variety. Therefore, stating that one would always be happy in a certain situation is an oversimplification of the complexity of human emotions.

Tangentially, if we consider free will in human terms, it is possible to be a content person with the experience of freedom without having the more absolute control of free will.

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Decoding Asian Stereotypes: Why are Asian-Americans Good at Math?

Isabel Liu*

Abstract

This essay investigates the stereotype that Asians are good at math and the different factors potentially contributing to this prevalent stereotype. The essay explores the standardized test score data to evaluate the validity of the stereotype and dives into contributing factors including work ethics, the influence of family, the desire of immigrant families to succeed, and different educational systems. While this piece doesn't contain an absolute conclusion, it calls for increased awareness of the pressure and impact on the mental health of Asian-American students due to this stereotype.

When I imagine a math genius, admittedly, I see a nerdy Asian boy with thick glasses sitting in the classroom corner, absorbed in a brick of a textbook. However, this connection between math and Asian people raises the question of whether Asians are naturally gifted at math or if there are other factors at play. This stereotype, although seemingly harmless, can actually exacerbate the already mounting pressure on Asian-American students. They are under constant pressure to fulfill a label that society has thoughtlessly assigned to them. Failure to fit into this stereotype can be uncomfortable, and bias can negatively affect college admissions or job applications because of the unconscious assumption of math aptitude. Therefore, it's important to consider whether Asians are truly innately skilled at math or if other factors contribute to this perception.

Assessing math aptitude at a population level is challenging, but standardized tests like the SAT offer a reasonable gauge. The National Center for Education Statistics reports that Asian students score an average of 637 on math

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SAT and 586 on reading, while White students average 553 on math and 562 on reading, Hispanic students average 483 on math and 495 on reading, and Black students average 457 on math and 476 on reading. In the SAT, the highest math and reading score is 800, making a perfect score 1600. The results indicate that Asians outperform other ethnic groups in math, by a significant margin, and are the only group whose math score exceeds their reading score. While these findings support the stereotype, the underlying reasons remain unclear. Is the perception that Asian-Americans excel in math due to their stronger work ethic? The National Center for Education Statistics reports that Asian-American students spend an average of 10.3 hours a week on homework compared to the 6.4 hours spent by both Black and White students. Work ethic is very important in the success of any student, so perhaps higher scores are a reflection of more effort Asian students devote to their work on average. While a plausible reason for Asian students' overall test success, it does not explain why Asian students score higher on math than reading. Other factors, such as differences in educational systems between Asian countries and the United States, may also play a role. For example, in China, the largest Asian country, all students must take a test at the end of middle school to determine what highschool they enter. The Gaokao, taken at the end of high school, determines their future and is the culmination of 12 years of schooling. The Asia Society³ states that "those who don't perform well on this high-stakes exam end up with few options." This pressure results in significantly more studying by Chinese students, who, according to Washington Post⁴, on average, spend 55 hours per week studying, while American students on average study "somewhere around 10-20 hours" per week (High School of America⁵). In the Gaokao, students choose between taking the humanities track or the science track, but all students must take "the three mandatory subjects of Chinese, math, and foreign language." meaning that students are required to excel in math regardless of their chosen track. As a result, when Chinese immigrants come to the United States, they bring their strong math skills and work ethic with them.

Is the reason for Asian-American students' success in math due to their financial resources? Studies show that students from higher-income families tend to perform better on standardized tests due to access to educational resources such as private tutoring and test preparation courses. The average annual income of Asian-American families is 98,174 US Dollars, according to the Economic Policy Institute, which is higher than the next highest income group of White families at 76,057 US Dollars. This could contribute to Asian students' overall academic

success, but it does not explain their exceptional performance specifically in math.

Immigration is a significant factor in the stereotype that "Asians are better at math." Although most first-generation Asian-Americans may not receive the same level of education as their parents, they are still heavily influenced by their immigrant parents' skill sets and work ethic. Many start their children's math education in early ages, teach them more advanced concepts, and pass down traditional teaching methods. Additionally, most Asian immigrants come to America seeking opportunities and success, and financial security is a common concern. Pursuing a stable and well-paying career, such as in STEM, is often seen as the best solution to financial insecurity and often doesn't leave room for these immigrants to pursue a wide range of passion projects. STEM jobs have an average annual mean wage of 100,900 US Dollars compared to 55,260 US Dollars for other careers(CBNC7) This may explain why first-generation Asian parents place a strong emphasis on math and science education for their children over reading and language, as they worry about their children's future well-being.

The immigration effect may have been amplified by government policies. Despite having many resources and smart students, the United States needs more workers in the STEM workforce. According to the 2012 PISA (Programme for International Student Assessment),⁸ the United States ranked 38th in math and 28th in science out of 65 countries, while Asian countries claimed six spots in the top ten with China and Singapore taking first and second. This does not imply that America lacks talent in the STEM industry, but rather there is simply not enough supply to fill the demand in America alone. Consequently, America turned to importing STEM talents from around the world and prioritized US visas to foreign workers highly-skilled in STEM fields. As a result, many ambitious Asian people with strong math aptitude were let into America. Another contributing factor is career selection. This is not to be confused as Asians going into STEM careers because they are better at math, but rather spending more time on math to accomplish a STEM career. Why STEM careers? The reason for this lies in a few factors, including the lack of non-STEM Asian role models in America. There aren't many well known Asian authors, politicians, or performers in the United States to showcase alternative career paths for the Asian population. While there is no proven reason for this imbalance, it may be the result of Asians being considered 'permanent immigrants'. There is still Asian hate towards Asian families who have lived in America for generations,

which makes it difficult to succeed in certain careers. Asians who work STEM careers also tend to have more stable careers that earn more money. Moreover, STEM careers require more skillsets in math and science, areas more likely to have a correct answer, whereas careers such as being an author can fluctuate in terms of success and income. Given that most Asian Americans are immigrants or children of immigrants, these reasons make STEM careers more attractive to Asian-Americans, leading them to focus more on math and science compared to other subjects. Are Asian-Americans better at math in general? Based on data on test scores in both the SAT and PISA, it would seem that way. However, it is not because of their genetics, but rather their work ethic, their resources and dedication to education, their cultural emphasis on math and science, and their way of dealing with discrimination in their pursuit of the American dream.

I wrote this article about the Asian Stereotype “All Asians are good at math” because I want people to know that Asian students are good at math not because they are Asian, but because of their hard work, their dedication to education, cultural emphasis on math, and their way of surviving in America. This stereotype pressures Asian students to do better than others and gives them a disadvantage in professional, college, and even school applications. I would like people to see that Asians work as hard, or even harder as other students, and don’t have a racial privilege. This issue is important to me because I am an Asian-American, and believe that all students should be able to stand on equal ground in the eyes of other people. Personally, I am not naturally good at math and have experienced moments where the expectation bar seems too high to reach. Growing up, I had to study harder than others to fit in with the stereotype, and it was stressful. Now, I am pretty good at math, but I want other Asian-Americans to be free of that pressure and live more carefree without certain unreasonable expectations weighing upon them.

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The Economics Behind Alzheimer's Diagnosis

Pranavkrishna Suresh*

Abstract

This paper discusses the challenges of diagnosing Alzheimer's disease and the extent of its economic impact on the United States. Current diagnosis methods and their limitations are considered, ultimately leading to Artificial Intelligence (AI) being introduced as an alternative solution to provide practical, affordable, and accurate Alzheimer's diagnosis in a timely manner. AI's advantages such as diagnostic accuracy, lower economic cost, and ease of availability are analyzed to propose the technology as the ideal diagnosis method, especially in areas with limited medical resources.

1 Introduction

Alzheimer's disease, the most common type of dementia, is a progressive brain disorder that causes the severe deterioration of neuron networks in the brain. It affects one-third of seniors, with ethnic minorities being disproportionately impacted, according to the Centers for Disease Control and Prevention.. Over the past decade, the rate of positive diagnoses for the terminal condition has grown exponentially, contrasting the sub-linear growth of the number of diagnoses administered by hospitals. Since there is no definitive cure for the disease, patients rely on expensive drugs that only slightly delay the inevitable process of brain degradation. The vast majority of diagnosed patients are older persons who are unlikely to experience any improvements and live for an average of only five years following diagnosis ("What Is Alzheimer's Disease?"). According to

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Jennifer Barnett and her associates at BMC Neurology, “cost-effective early detection and intervention [in the] early stages” of Alzheimer’s is ideal for reducing the financial burden and maximizing the “benefits of a treatment, [regardless] of treatment efficacy.” However, current diagnostic methods require hospitals to purchase and maintain expensive machines, resulting in limited availability and month-long waitlists for diagnoses (Barnett, Jennifer H, et al). Given the inefficiency of current hospital infrastructure and limited financial resources, it is crucial to consider adopting novel technologies such as Artificial Intelligence must be considered as an alternative solution to provide the prospect of affordable early Alzheimer’s diagnosis for patients across the country.

2 Availability of Hospital Infrastructure

According to research interns Jason Weller and Andrew Budson at the University of Boston Medical School, the availability of expensive technologies such as Magnetic Resonance Imaging (MRI) and Computed Tomography (CT) machines is a significant obstacle in achieving faster and more affordable Alzheimer’s diagnosis. These machines are used to scan the brain for weak neuron networks, but they are only available in premier hospitals that can afford regular maintenance and specially trained doctors to operate them (Weller, Jason, and Andrew Budson). This limited availability of technology disproportionately affects rural patients who often do not have access to these machines, resulting in a much lower testing rate and higher mortality rate for Alzheimer’s compared to urban residents, according to researchers Sarah Cross and Haider Warraich at Duke University and Harvard Medical School. Furthermore, the high cost of diagnosis can act as a deterrent towards getting an early diagnosis before significant symptoms show (Cross, Sarah, and Haider Warraich).

The situation is no better in urban areas where demand for diagnosis far exceeds the limitations of current technology, resulting in patients scheduling appointments months in advance. These technologies are often prioritized for emergency services, marginalizing Alzheimer’s despite the known benefits of early diagnosis. According to researchers Jill Rasmussen and Haya Langerman in a study funded by the National Institutes for Health, this lack of prioritization further worsens the impact of Alzheimer’s. The medical industry’s unwillingness to use economic resources for non-emergency-related diagnoses prevents patients from receiving the intensive care required from the earlier stages of the disease

(Rasmussen, Jill, and Haya Langerman).

Despite the crucial need for more medical infrastructure to be built across the country. Since 1991, Ph.D. students Ernst and Hay from the University of Southern California have expressed concerns that the federal government is unlikely to invest in building more medical infrastructure across the country due to the high financial costs involved. Hospitals often lack the resources to purchase and manage expensive machines, especially in rural regions where the limited usage of such technology makes it economically unfeasible. While expanding the range of current industry-standard technology is an apparent option, it is not economically viable. Additionally, as more efficient and effective diagnostic procedures become available, investing extensive federal economic stimulus in building new facilities may not be the most efficient use of resources.

3 A Practical Approach: Integration of Artificial Intelligence

Artificial Intelligence (AI) has emerged as a source of hope for the medical industry, offering a novel technology that can replicate complicated procedures such as diagnoses. According to Robert Sparrow and Joshua Hatherley, researchers at Monash University in Australia, the promise of AI lies in its ability to “improve decision making [and] avoid errors such as misdiagnosis and unnecessary procedures,” all of which is made possible by “increased [procedural and economic] efficiency.” Computers leave little room for error as they follow robotic commands, making diagnoses even more credible. The assurance of more accurate diagnoses is likely to encourage patients to get tested for the disease as a precaution. The practicality of AI extends beyond the accuracy of the technology to its economic efficiency, potentially allowing billions of dollars to be saved in the process. Instead of channeling financial resources towards specialized doctors and the maintenance of expensive technology, they could be spared. This claim is supported by extensive research by Shaker El-Sappagh, an assistant professor at Benha University in Egypt, and his associates. Their study utilizes “Convolutional Neural Networks” to analyze MRI scans, replacing an essential job of doctors. This specific AI algorithm can be used in areas with a shortage of trained medical workers as the procedure is fully automated. Moreover, the versatility of AI allows Alzheimer’s diagnosis to be approached from multiple fronts compared to the standardized system that hospitals cur-

rently follow. The Boston University Medical School conducted an extensive study on the efficacy of AI-produced diagnoses, which confirms the accuracy of these algorithms in real-world settings. The study found that "algorithm model[s] performed slightly better than the average neurologist" - doctors who require decades of training and upwards of 200,000 US Dollars in annual salaries ("AI Algorithm"). Cost-effective algorithms have the potential to revolutionize Alzheimer's diagnosis from an economic standpoint. Other AI algorithms utilize different training data sets or input sources that can function without expensive machinery, providing patients with more accessible and affordable diagnostic options for Alzheimer's disease. According to Rebecca Sohn, a journalist with research roots at New York University, Deep Learning algorithms have been developed by several companies and programmers that can "analyze short voice samples for signs of Alzheimer's," offering an alternative to the expensive and time-consuming procedures of standard Alzheimer's diagnoses. Sohn notes that the adaptability of AI offers numerous other pathways of diagnosing the disease, including a "wearable device that analyzes energy levels". Eran Dayan, an associate of Sohn at the University of North Carolina, Chapel Hill, stresses the central goal of such technologies is to "identify patients as early as possible" to maximize their chances of an "effective treatment." By providing more avenues of standard efficacy for Alzheimer's diagnosis, patients are incentivized to seek early diagnosis, which underlines the importance and benefits of early detection.

4 Conclusion

The increasing prevalence of Alzheimer's disease calls for alternative solutions that can speed up its diagnosis within the healthcare system. Artificial Intelligence offers immense potential for becoming the industry standard due to its versatility, economic efficiency, and widespread availability. By relying on AI algorithms and minimal supportive hardware, instead of expensive physical infrastructure hospitals and patients can significantly reduce the cost of diagnosis, making it a more accessible procedure. AI serves as a bridge between current medical infrastructure and a society where everyone is able to receive an early Alzheimer's diagnosis, maximizing their chances of fighting the disease effectively.

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The Expansion of American-Style Democracy: A Historical Analysis

Rohan Movva*

Abstract

Throughout the history of civilization, democracy has played a crucial role in shaping societies, transitioning from monarchy and conquest to democratic rule, self-determination, and peaceful coexistence. As a cornerstone in American life, democracy supports core values such as religious liberty and labor rights, contributing significantly to a safer, more stable, and prosperous global environment. Alexis de Tocqueville's admiration for the individuality of American citizens, despite the past shortcomings of democracy, underscores the importance of democratic values in contemporary society. As authoritarianism threatens the world, the necessity to maintain and promote democratic values and governance becomes increasingly apparent. American-style democracy has become the beacon of hope, prosperity, and civility for emerging democracies as they often look to American democracy as the model for ensuring political freedom, the rule of law, and future individual prosperity. Countries like Estonia, which have successfully fought against authoritarian influence and maintained strong democratic systems, serve as inspirations for others striving for freedom and democratic governance. By embracing a strong sense of identity and unity, these nations demonstrate that achieving prosperity through democracy and capitalism is possible. Fostering economic independence and individualism, democratic nations can ensure long-term stability and prosperity, providing a blueprint for those battling authoritarian rule. By examining these successful democratic nations, we can better understand the benefits of democracy and the potential for future growth and stability worldwide.

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Democracy has played a crucial role in shaping the course of civilization, from the days of monarchy and conquest to the current era of self-determination, peaceful coexistence, and democratic rule. When democracy was first introduced in ancient Greece, there were far more enslaved people than free citizens, making it difficult for anybody to take part. Democracy then mostly disappeared until it reappeared in the late 18th century as “representative democracy” (Capozzi). Since then, it has been widely accepted as the preferred form of government. In modern times democracy is an essential cornerstone in American life, promoting principles like religious freedom and labor rights, and fostering a safer, more stable, and more prosperous global environment that benefits the United States and the rest of the world. (Capozzi).

American-style democracy and capitalism have become the foundation for economic and social prosperity, providing a model for other nations seeking to overcome authoritarian rule. For instance, countries like Vietnam and China have implemented modern-day socialism and communism, respectively, but they still fall short of the economic and social prosperity levels achieved in nations that have embraced American-style democracy and capitalism. Therefore, to what extent can we say that democracy and capitalism are a ticket to prosperity for nations fighting authoritarian rule? The answer is clear: democracy and capitalism provide the foundation for economic growth, individual freedom, and social advancement, and every country seeking to achieve these goals should build its future around these principles.

In 1831, Alexis de Tocqueville, a French sociologist and political theorist, visited the United States to study its prisons. During his stay, he gathered a wealth of information on American society, which he later compiled into his book, “Democracy in America.” Even two centuries later, Tocqueville’s book remains a valuable tool for describing the United States to both Americans and non-Americans alike. Tocqueville’s political and social ideal was equality, and he viewed the United States as the most advanced example of equality in action. He recognized and appreciated the individuality of the American people, but he was also wary of the dangers of an atomized society, where “every citizen becomes absorbed into the mass”, losing their individuality in the process. Despite these concerns, Tocqueville’s work continues to be a seminal text in the study of American democracy and society. According to Deborah Schildkraut, a political scientist at Tufts University, “at a minimum American identity consists of two sets of norms. One involves an evolving set of beliefs that anyone can follow. These beliefs harken back to Thomas Jefferson and the ideals outlined in

the Declaration of Independence. ‘We hold these truths to be self-evident, that all men are created equal, that they are endowed by their Creator with certain unalienable rights, that among these are Life, Liberty, and the pursuit of Happiness.’ The other set of norms depends on attributes such as one’s race and religion” (Schildkraut). Alexis de Tocqueville’s observations of American society also support Schildkraut’s analysis. “I must say that I have often seen Americans make great and real sacrifices to the public welfare, and I have noticed a hundred instances in which they hardly ever failed to lend faithful support to one another” (Tocqueville). American identity is closely linked to patriotism, as it reflects the shared values and principles that guide the nation. These values include individualism, which promotes personal success, independence, and the ability to shape one’s own destiny. While some argue that individualism fosters a lack of concern for society’s poorest members, leading to greater economic inequality, others believe that it is essential to promoting personal freedom and autonomy.

In 1831, the United States was not a society built on equality. Indigenous people were treated as though they were an alien race that needed to be exterminated, while slaves were considered property by their owners. Women were denied the right to vote and were subject to the authority of their husbands under the law. Tocqueville remarked that “A woman loses her freedom permanently in the shackles of marriage in America.” (Tocqueville) Only free, white adult men were considered equal in Tocqueville’s America and entitled to full citizenship privileges, rendering the country drastically different from the rest of the world. However, American democracy has made significant progress over the years and is now more inclusive than it has ever been. Women were granted the right to vote in all 50 states with the 19th Amendment in 1920, and African-Americans in the South realized their right to vote under the Fifteenth Amendment with the passage of the Voting Rights Act of 1965. The fact that young people under 21 could be sent to fight and die for their country, despite not being able to vote in most elections prior to the 1970s, was also changed. Today, American-style democracy seems stronger and more vibrant than ever as Americans have fought against Nazism, totalitarianism, and communism, to name a few. In many basic respects, democracy has triumphed in the twentieth century (Allison).

The ongoing global pandemic has threatened democratic processes worldwide, putting democracy itself in critical danger. This is a concern that affects every person as the potential consequences include limitations on freedom and prosperity. Democracy worldwide cannot be overrun; freedom and prosper-

ity will be limited (Allison). In 2020, there were more nations trending towards authoritarianism than those moving towards democracy. The pandemic has sustained a five-year decline in democracy, which is unprecedented since the 1970s. A significant number of democratically elected administrations are resorting to authoritarian tactics, even in well-established democracies. The backsliding in some of the world's most powerful countries, such as Brazil and India, has been particularly concerning (Banerjee).

More democracy and freedom create a vicious loop of enhanced security, stronger economic development, and long-term relationships that benefit the United States (Capozzi). Transparent, efficient, and democratic governments lay the foundations of international stability (Capozzi). It is imperative that America's official investments in fostering democracy and governance overseas be maintained, as international democracy and governance projects have always had bipartisan support due to their benefits and strong representation of American principles dating back to the founding fathers (Norman). However, the support for these initiatives has weakened in the past decade due to the Iraq War (Norman). The recent democratic openings in the Middle East, Africa, and Southeast Asia highlight people-driven initiatives to support civil society and responsible government rather than government-driven initiatives (Banerjee). The Eurasia Group Foundation conducted a study on foreign perceptions of the United States and its political system, revealing that emerging market democracies view the US negatively but believe that American democracy upholds the rule of law better than their own (Gel'man). While most people in authoritarian countries dislike U.S. foreign policy, the vast majority of them want more political freedom in their own nations (Gel'man). The study suggests that an "attraction" approach, rather than "promotion," is the most effective way to spread democratic values globally (Gel'man). US politicians have been more focused on other nations' laws and structures, rather than their political cultures, whereas voters are willing to sacrifice short-term security and stability for the chance to exercise their democratic rights (Gel'man). The US has historically employed military intervention to promote democratic ideals, but this approach has not taken into account the values and interests of the people they aim to influence, as evidenced by the Vietnam War. The US attempted to contain communism in Vietnam and establish a South Vietnam modeled after American democracy, ignoring the Vietnamese people's self-determination, resulting in today's socialist republic of Vietnam rooted in North Vietnam (Rowe).

While the United States may not always live up to the ideals of a perfect

democracy, the idea that a government should be “elected by, and answerable to, the people” remains central to the country’s sense of self (Schildkraut). In a democracy, leaders must act in a way that benefits the majority of people to maintain their support. If they don’t, they’ll be expelled or ousted. People in authoritarian regimes tend to assume leaders must keep just a tiny percentage of their constituents satisfied. As a result, they are less concerned about doing activities that are beneficial to the general population. Their actions benefit their friends at the expense of the wider public, which allows them to remain in power (The rise of authoritarian capitalism in the twenty-first century). This often leads to actions that primarily benefit the ruler’s inner circle, to the detriment of the broader population (The rise of authoritarian capitalism in the twenty-first century). In fact, a study by The American Journal of Economics and Sociology, which analyzed the administrations of 133 nations from 1858 to 2010, found that autocrats were either harmful or insignificant to their countries’ economies (Rowe). Democracy and capitalism are often interconnected. While a democratic government guarantees responsible political institutions and protects fundamental rights, capitalism is viewed as a means of generating wealth necessary to sustain political freedom (Norman). Both systems empower individuals. It is undeniable that capitalism is a significant driver of modern-day prosperity, innovation, and wealth creation (Norman). Competition and the pursuit of capital serve as incentives for companies to improve their efficiency, leading to benefits for both consumers in the form of lower prices and investors in the form of profits (Norman).

However, socialists argue that wealth concentration in the hands of a few capitalists results in a society with a significant number of impoverished individuals while a few wealthy individuals take advantage of them (Goldsmith). Socialists believe that greed is the driving force behind capitalism’s destruction. In contrast, capitalists believe that by placing money in the hands of hardworking and intelligent people, they will be incentivized to create newer and better products and services, with the promise of financial reward (Goldsmith). Capitalists believe in the “trickle-down” theory of wealth, while socialists believe in the “trickle-up” theory of poverty (Norman). Despite its flaws, capitalism is the most effective economic system in reducing the wealth gap and transforming the impoverished into productive members of society, both domestically and internationally (Goldsmith). Capitalism rewards excellence and encourages innovation, while socialism tends to reward mediocrity.

However, there are valid reasons to question whether democracy can main-

tain long-term economic success. The share of Western democracies in the global economy has declined to less than a third as of 2019 (Goldsmith), suggesting that American-style liberal democracy no longer dominates the world stage nearly three decades after the end of the Cold War. China's political harmful or insignificant to their countries' economies (Rowe).

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of happiness, while the United States and 19 other democratic nations rank in the top (The World Happiness Report). Furthermore, The Annual Review of Political Science, which is a peer-reviewed academic journal dating back to 1998, found that 95 percent of the Vietnamese population favors a free market economy, making Vietnam the most pro-capitalist nation in the world even though the current system is based on socialism (Norman). Democratic nations tend to promote individualism and provide greater opportunities for individual prosperity compared to non-democratic nations. As a result, countries like Vietnam may desire an American-style system that prioritizes individual success and leads to greater economic growth. Economic independence is a fundamental principle of individualism in the free market (Goldsmith). Capitalist or classical liberal societies are distinguished by economic freedom, which empowers individuals to make their own economic choices. Democracy and individualism are inherently linked, and no other political ideology or society can fully embrace them (Potter). Individualists must be free to think and act on their ideas and pursue their own happiness (Potter). Every person has the right to freedom, and democracy remains the most effective means of ensuring long-term stability and prosperity (Potter).

Many people living under autocratic regimes in countries like Venezuela, Algeria, and Hong Kong aspire to achieve a democratic system similar to that of the United States. The Estonians provide an inspiring example of a small country near Russia that has fought to maintain its independence and democracy against Russian influence for centuries. Despite the odds, the Estonian people have consistently come together to resist Russian and Soviet rule and to shape their government and way of life. Today, they continue to confront Russian influence, but they remain strong, happy, independent, and resilient with a vibrant democracy. Through this struggle, they have forged an Estonian identity similar to the American identity, demonstrating that democratic values and the pursuit of individual freedom and happiness are universal aspirations. The Estonian identity is deeply rooted in their culture, which is celebrated annually at the Estonian song and dance festival. Tens of thousands of Estonians come together to sing and dance, cherishing their freedom and their unique cultural heritage. They view this festival as a symbol of hope and unity, where they can collectively showcase their pride and resilience. The festival represents a powerful example of how a nation can create a sense of identity through their culture and traditions.

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The Significance of Business Models to Investors

Yihe Angela Li*

Abstract

The success and failure of a business hinge on its business model, which combines internal and external factors to create value, deliver value, and capture value for stakeholders. Business models comprise the core logic and operation mechanism of a company that determine its competitiveness and long-term profitability. Investors can evaluate a company's financial performance by analyzing its gross profit, net income, cash flow, and return on equity. Companies with a high transfer cost, a large customer base, high consumption frequency, and strong competition threshold are more likely to succeed in the long run. MIT Sloan Management Review identifies five business models that investors prefer, namely creators, manufacturers, distributors, landlords, and brokers. A successful prototype serves as a template for future businesses, but blindly copying a model will not work, as different business models attract various customers based on their needs.

1 Introduction

Why do some businesses thrive under high competitive pressures and attract a vast number of investors? Investors need a business model to understand a company's competitive edge and gain better insight into its operations. By extensively researching the different types of businesses and how well they performed, I recognized that the stock market consistently values specific business models more highly than others. It mainly consists of four types: creators,

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distributors, landlords, and brokers. Of course, besides putting them into categories, we also have to focus on factors such as a business's ROE (Return on Equity), which is a crucial indicator of how efficiently a company can generate profit. By listing these indicators, we can better understand what companies investors prefer and how they view these data frames.

The purpose of this article is to demonstrate why it is essential to analyze what business model a company runs on. This article aims to give insight to future investors on which companies they should consider when evaluating their stocks. It studies the different types of models and differentiates between the various factors. This article consists of four sections. The first section provides a basic definition of a business model. The second section focuses on how business models are necessary for investors when deciding which companies they should invest in. The third section analyzes how to evaluate a successful business model. The fourth section provides crucial information on the types of models proven to be highly valued by investors.

2 What is a Business Model?

According to management guru Peter Drucker, "a business model is supposed to answer who your customer is, what value you can create/add for the customer and how you can do that at reasonable costs." Indeed, the competition between today's corporations is not the competition between products but between business models. The business model is the critical point related to the life and death of the enterprise, the success or failure of the rise and fall. If an enterprise wants to be successful, it must start by formulating a successful business model. This is true for mature companies, new companies, and even more for companies in the development stage. Business models are the key to winning the business competition and the essence of business.

In spite of its increasing popularity and frequent appearances, the term "business model" has yet to be uniquely defined. However, based on extensive research, a business model essentially combines internal and external elements to enable the enterprise to operate in a manner that maximizes value for all stakeholders. It must achieve its sustainable profit goals by forming a complete, high-efficiency, and unique operating system with core competitiveness, to create value, deliver value, and capture value. [2]

The three core components of a business model are three interlocking closed

loops. All three are indispensable. Without one, a complete business model cannot be formed.

- 1) Creating value is based on customer needs and providing solutions
- 2) Delivering value is transferring value through resource allocation and activity arrangement
- 3) Capturing value entails continuously receiving profits through a particular profit model.

A mature business model will have certain business elements hidden behind it. Anyone in the process of operation must match these elements to ensure the possibility of the success of the entrepreneurial project, thus forming a mechanism.

It is important to consider how a start-up will fund itself and whether the chosen business model will be acceptable to the investors he/she may be able to engage. [4] Having a detailed business model gives investors an insight into the company's workings and its competitive advantage. Cash generation and future expansion are facilitated by a strong business model.

Why do companies such as Apple and Tesla gain so much fame amongst investors? Is it their financial metrics, products and services, high performance, or good timing? Probably all of these. However, there may be other factors at play that contribute to their success. In a research conducted at the MIT Sloan School of Management, Weill and his colleagues identified certain business models as being considered more valuable than others in the stock market. Specifically, over the past few years, investors have shown a preference for business models built on licensing intellectual property (such as Walt Disney's business model) and a certain kind of highly innovative manufacturing (such as Apple's). [4] If only from the point of view of profit, all the operations and management of the company serve the business model. However, if all actions of a company are aimed at making money, or if it can only build a business model from the perspective of money, it shows that such a company lacks the "pursuit of profit", and will inevitably enter the ceiling of the industry and the dead end of profit. It will not have a long-term investment value.

As Warren Buffett says,

"The key to investing is not assessing how much an industry is going to affect society, or how much it will grow, but rather determining the competitive advantage of any given company and, above all, the durability of that advantage."]Alexander Osterwalder, a Swiss business theorist and consultant, said, "Once

you understand business models you can then start prototyping business models just like you prototype products.” A successful prototype can serve as a stepping stone for future businesses to follow. It’s like a template for success; however, different business models attract various customers based on their needs, making competition fierce within certain types of industries. Thus, blindly copying a model will not work, but what is important is how well the model will be implemented and integrated into a company.

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3 Evaluating successful business models

Investors should find out how a company makes money when evaluating it as a possible investment, which can be done by inspecting its business model.

Despite its importance, a business model may not be able to reveal all the details of a company's prospects. However, the investor who understands the business model can make better sense of the financial data.

A company's gross profit is a factor that analysts and investors consider when evaluating whether or not a business model is successful. It refers to the difference between total revenue and the cost of goods sold (COGS) for a company. [1] Analyzing a company's gross profit compared with its main competitors or with its industry gives insight into how effective and efficient its business model is. However, relying solely on gross profit can be misleading. It is also vital for analysts to see net income or cash flow. The difference between gross profit and operating expenses indicates the real profit generated by the business. [1]

In business models, pricing and cost are the most critical levers. A company can raise prices and discover inventory at lower costs, with both actions increasing its gross profit. When evaluating a business plan, many analysts prioritize gross profit, the primary indicator of a sound business plan. An out-of-control budget could result from a management failure, which can be corrected. In light of this, many analysts believe that companies with the best business models can run themselves. [1]

But of course, a few additional factors will play an essential role in a business's success. A large customer base, high consumption frequency (dependence, addiction, no replacement), and heightened competition threshold (good competition mindset, brand/scale effect) indicate a well-qualified business. The result of an excellent business model must be high ROE (return on equity) plus good free cash flow. The former is a sufficient condition for the latter but not a necessary condition.

4 Business models investors prefer

MIT Sloan Management Review has an interesting breakdown of business models in the article *The Business Models Investors Prefer* [4]:

- 1) Creators that sell ownership of products they have created by transforming or assembling raw materials or components. Ford, 3M, and Intel are examples of this type of company;
- 2) Manufacturers create their products by utilizing raw materials. Automobile manufacturing is another example of this type of business model, which in-

volves assembling prefabricated components. [6] Dell Computers, for example, assembles its computers from parts made by other companies so it would be considered a manufacturer. It is possible for manufacturers to represent their products directly to their customers, or to outsource sales. [7]

3) Distributors such as Walmart or Amazon's retail business, which sell ownership of products they bought but did not substantially modify, except by transporting, repackaging, or marketing;

4) Landlords, which sell only the right to use assets for a specified period of time; Marriott, Hertz, Accenture, and Citigroup are examples of the landlord model. We included in this category companies that employ licenses or subscriptions to sell limited rights to use their intellectual property (IP) assets — companies such as Microsoft and The New York Times;

5) Brokers, which receive a fee for matching buyers and sellers without ever taking ownership or custody of the product; examples include Charles Schwab, eBay, and realtors.

To sum up, the stability of the business model depends on the demand side, not the supply side. As long as the demand side remains stable and minor fluctuations in consumer needs, then the business model will remain. Besides the types of businesses investors prefer found by MIT Sloan, we can also check and make sure the company's ROE is above 20 percent in recent years. This percentage essentially provides investors with an insight into a business's profitability as it calculates how much one can get as a return. The company would also need an excellent record of free cash flow as it's the money a business has left after paying its operating expenses (OpEx) and capital expenditures (CapEx) [8]. More cash would mean a better indication of how well a company can expand and develop; it also means there is enough money to pay off debts, issue dividends, and buy back shares. Lastly and most importantly, the company needs to have a high transfer cost, meaning a high cost for consumers to switch from their products to other products. For example, nowadays more and more people are using Apple products, many even have multiple Apple iOS devices such as MacBooks, iWatches, and AirPods. Since Apple's consumers are so well accustomed to their products, it is unlikely for them to switch to any other operating systems as it comes with a big cost. This makes the company unique, which is also a great factor when deciding to invest in a company.

5 Conclusion

Although investors may value different business models a decade from now due to changes in technology and consumer needs, the concept of a business model remains a crucial tool for analyzing many important strategic decisions. For example, companies can use the framework to help decide when to dispose of one business unit, when to invest in another one and where to look for potential acquisitions. In making these decisions, the key points help to analyze business, not just in the context of a certain type of industry, but also in the context of companies in very different industries that have similar business models. As a result, investors become aware of the company's past and future prospects in a fair and accurate manner.

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