

Thesis Project Portfolio

Title of Technical Report

(Technical Report)

Title of STS Research Paper

The Case For Capitalism

An Undergraduate Thesis

Presented to the Faculty of the School of Engineering and Applied Science

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Bachelor of Science, School of Engineering

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Abstract

Technical Report Title

The Case for Capitalism

Development of Novel Ultrasound Probe-Body Interface

Abstract

This technical project is about designing a Novel Ultrasound Body Interface. Our advisor Dr. Morikawa found that when he performed ultrasounds the interface commonly used, ultrasound gel, to produce a clear image was messy and time consuming. He wanted me and my partner, Thomas Dugan, to make a replacement interface that eliminated these problems.

In our efforts to make a replacement interface, my partner and I first did research to understand how an ultrasound works and what is needed in an interface between the patient and the ultrasound probe. We learned about acoustic impedance and found the values that ultrasound gel and soft flesh have. We also looked at what previous Capstone teams have done to see if we could use it as a starting point or as something to avoid. After our research we decided to see if there was a material that has already been made that matches the acoustic impedance of soft tissue.

After much research we found two silicones that we believed could match the acoustic impedance of soft tissue. We ordered samples of the material and then performed various tests to make a prototype that can produce a clear and concise image that matches what is normally made when ultrasound gel is used.

After multiple tests with our prototypes we made a breakthrough. The two silicones that we have could indeed be used to make a clear and concise ultrasound image. The catch was that it required the use of the ultrasound gel we were trying to replace. We realized that our prototypes were too rigid to block out the air between the ultrasound machine and the patient. Which resulted in artifacts that ruined the image. We then focused on future directions the project can go and how future teams could use our data to make a working prototype.

The Capstone paper is my final defense of Capitalism. I feel the need to defend Capitalism from the growing social belief among my teachers and peers that Communism is somehow better than Capitalism. A belief that I saw after many debates both inside and outside of the classroom defending Capitalism. I want to finalize my arguments and address the critiques that my opponents have with Capitalism. As well as to point out the dangers of my opponent's solution to the flaws of Capitalism by replacing it with Communism.

I start with defining Capitalism and Communism. What each system believes and what values each aspires to. It was easier to do for Capitalism than Communism due to the many different forms of Communism in the world. A summary was made on Communism's core principles however. Values like a strong centralized government with complete control over businesses so they can set the prices and wages in the economy. Contrasting with Capitalist policies that protects private ownership and has a more laissez faire approach to running the economy. I did find that they offer the same promise although through conflicting means. The promise of economic prosperity one through private ownership and the other through collective ownership.

After defining these two systems a further examination is made to critique their beliefs and core principles to see if they actually promote prosperity as they both claim. Contrasting the two and showing that Capitalism gives people a way to succeed through intellectual property and private ownership. Communism on the other hand promotes stagnation by removing private ownership and paying workers the same wage regardless of effort or occupation. I also go in depth analyzing why the centralized control and enforcement of Communism always lead to corruption and exploitation of citizens while those in charge reap all of the benefits. I show this by examining all of the past and current Communist regimes and document the abuses of their

own people. I then go on to address several common arguments against Capitalism and show the laws that fix these problems and how certain socialist policies exacerbate them.

I also propose several policies to fix the current social belief that Capitalism is evil. To remind everyone of the one hundred million people that died over the history of Communist regimes. As well as the success of Capitalism and how it works in America with citizens and immigrants making themselves rich in America and how the “American Dream” is still alive and well in America today. As America’s current immigration rates show.

I then end with a final comparison between Capitalism and Communism and pose to readers a personal question between these two systems of commerce.