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THE POTENTIAL EFFECTS OF MINIMUM WAGE CHANGES ON NAVAL ACCESSIONS

March 2017

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**THE POTENTIAL EFFECTS OF MINIMUM WAGE CHANGES ON NAVAL
ACCESSIONS**

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Submitted in partial fulfillment of the requirements for the degree of

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from the

**NAVAL POSTGRADUATE SCHOOL
March 2017**

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ABSTRACT

In 2014 and 2015, U.S. policymakers debated the potential economic impacts of raising the federal minimum wage to \$15 an hour. Proponents for an increase in the minimum wage argue that it will help the economy since more people will have the ability to purchase more goods. Opponents believe that an increase in the minimum wage will reduce the number of jobs and increase the price of goods. This MBA report demonstrates that raising the minimum wage could have a positive effect on the military's ability to recruit personnel because an increased minimum wage will increase the number of prospective recruits. This report examines how the minimum wage originated from the Federal Labor Standards Act of 1938 and morphed into what it is today. Then it examines how a price floor affects the market's demand for labor and utilizes the two-sector and search models to demonstrate how the minimum wage market correlates to military ascensions. Finally, the report examines studies that show the different effects raising the minimum wage can have on the labor pool and how this can impact military personnel acquisitions.

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LIST OF ACRONYMS AND ABBREVIATIONS

BAH	Basic Allowance for Housing
BAS	Basic Allowance for Subsistence
DOL	Department of Labor
FLSA	Federal Labor Standards Act
FTE	Full-Time Equivalent
NIRA	National Industrial Recovery Act
PCA	Public Contracts Act
RMC	Regular Military Compensation

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I. INTRODUCTION

A. MINIMUM WAGE DEBATE

Minimum wage has become a heavily debated topic of discussion amongst policy makers over the last couple of years. Both sides of the debate have tried to elicit support for their arguments and galvanize the supporting populations to their sides. Many feel that the minimum wage needs to increase to \$15 per hour in order to support capitalism as a whole (Hanauer, 2013). Businesses need consumers to have money for their business to survive, but also need to remain solvent with all costs considered.

The increasing wage inequality is one of the many drivers for the call to increase minimum wage. The largest share of economic gains over the last thirty-five years has gone towards corporations and the top 1 percent (Gould, 2016). Minimum wage workers' compensation has remained relatively stagnant over the last thirty years (DeSilver, 2015), which is one of the reasons income inequality continues to grow. These factors reduce the buying power of the common consumer and reduce companies' ability to find customers. An example would be that a mattress manufacturing company would find it easier to sell one mattress to 100 different customers vice 100 mattresses to one customer since most people only require one mattress. Raising the minimum wage would increase the number of people who could buy a mattress, which could mean more mattress manufacturers entering the market or established firms growing their business. The result would be more jobs created since demand for goods could increase to support the new economic power the minimum wage workers gain with their ability to buy new products.

Others believe that an increase in minimum wage would hurt employees and employers. A Congressional Budget Office report estimated that the proposed increase to \$10.10 per hour in 2014 would shrink employment by 500,000 jobs (Huppke, 2014). Employers would need to increase consumer prices or reduce their workforce to offset the new labor costs. Increased product costs and layoffs are two of the biggest concerns for those against the increase in minimum wage especially with newer technologies being developed that make it easier for companies to automate. The move to automation is

readily seen in any store that has self-checkout or self-ordering kiosks. Many proponents of increasing the minimum wage also point out that increasing the minimum wage affects job growth, thus reducing the number of people that can enter the job market (Huppke, 2014). People cannot develop the necessary job-related skills required for better jobs if they cannot enter the job market.

B. WHAT IS THE MINIMUM WAGE?

Minimum wage, as defined by the Merriam-Webster dictionary (n.d.), is “the lowest wage paid or permitted to be paid; *specifically*: a wage fixed by legal authority or by contract as the least that may be paid either to employed persons generally or to a particular category of employed persons.” This level of wage is established by the Federal Labor Standards Act (FLSA). The FLSA establishes overtime pay and child labor laws that affect employees in the private sector and those in at every level of the government. The current minimum wage of \$7.25 per hour was set July 24, 2009 for all covered nonexempt workers (United States Department of Labor, n.d.b). The FLSA also sets guidelines for overtime pay, which is set at one and one-half times the regular rate of pay for any hours over the 40-hour workweek (United States Department of Labor, n.d.b). Congressional legislative processes set the minimum wage and governments use the minimum wage for a variety of regulatory purposes that include setting a wage at which their citizens can have the basic necessities of life, regulating industry, decreasing wage disparities among different groups, and moderating income inequality among citizens.

C. HOW IS THE MINIMUM WAGE APPLIED?

Minimum wage, by law, does not apply to all companies. The FLSA and its provisions detail the requirements for minimum wage applicability. For example, laypersons that work at institutions run by their parent church or institution are not considered employees, and thus the FLSA would not apply. However, if a person solely relies on tips as a measure of compensation, he or she would still be considered an employee of the establishment where they provide a service (United States Department of Labor, 1993). Another distinction of employment applies to inmates. If an inmate is

working as part of his or her sentence, he or she is not employed or considered an employee. If that same inmate is contracted out by the prison to a private company or individual, the inmate is considered an employee, regardless of where the work is conducted (United States Department of Labor, 1993).

D. EFFECTS OF THE MINIMUM WAGE

The minimum wage's effects on employment cannot be viewed in a sterile environment. A minimum wage is only one part of a complex set of variables that determines employment and wages in local labor markets. Wages help equate the supply of labor in each market with the firms in the market setting demand for particular labor. In the case of minimum wage, the relevant labor market is employing unskilled labor. The market wage is determined when the supply of labor and the demand for that labor are in equilibrium.

Research has shown that estimating the effects of a change in the minimum wage is difficult. The minimum wage generally affects a small slice of the work force, namely younger, unskilled workers with limited work experience. The number of variables that must be considered to create an accurate model combined with the relatively small portion of the workforce affected by the minimum wage present challenges to predictive analysis.

David Card and Alan Krueger released an influential paper regarding the minimum wage increase in 1992 for the state of New Jersey. This paper is widely utilized by proponents of raising the minimum wage because the results of the increased minimum wage had very little impact on the employment rate for the fast-food industry (Card & Krueger, 1994). The paper utilized a phone survey to poll 473 combined stores of Burger King, KFC, Wendy's, and Roy Rogers in New Jersey and Pennsylvania (Card & Krueger, 1994). The stores in Pennsylvania were utilized to form a baseline since Pennsylvania was not increasing the states minimum wage.

One of the key counterarguments to the Card and Krueger study came from David Neumark and William Wascher in 2006. The two looked at the financial records for the same companies as the Card and Krueger study. They did this to reduce the ambiguity

that arose from the phone survey questions. Neumark and Wascher found that the employment numbers did in fact go down, which contrasts with what Card and Krueger discovered (Neumark & Wascher, 2006).

E. HOW THIS AFFECTS THE NAVY

This paper evaluates how an increase in the minimum wage will impact active duty Navy accessions. Based on our reading of the existing literature, we also hypothesize possible second- and third-order effects an increase in the federal minimum wage will have on junior level naval accessions. The Navy can be compared to firms in the open market in that it requires a constant influx of workers and talent to continue to meet its goals and objectives as an organization. This includes the incorporation of relatively unskilled workers at the very junior levels, the same type of talent for which firms in the minimum wage market compete. This project focuses on the possible effects on a particular firm, the Navy, and its potential responses to a federally mandated minimum wage of \$15 per hour. Several models have been proposed to help codify the variables into an easily understandable concept and demonstrate that Navy pay, along with the tangible and non-tangible offsets of naval service, are enough to overcome a federally mandated \$15-per-hour minimum wage.

II. THE ESTABLISHMENT OF THE MINIMUM WAGE

The Fair Labor Standards Act of 1938 established the minimum wage when President Franklin D. Roosevelt signed the act into law June 25, 1938. The act banned child labor, set a 25-cent minimum hourly wage, and set a maximum allowable work week of 44 hours (Fair Labor Standards Act, 1938). The minimum wage has been increased 29 times since its initial inception with the last increase implemented on July 24, 2009 to \$7.25 for all covered, nonexempt workers (Wage and Hour Division, n.d.).

A. PRESIDENT ROOSEVELT AND THE NIRA

The Supreme Court was initially the biggest obstacle to wage-hour and child labor laws. In *Adkins v. Children's Hospital* in 1923, the Court voided the District of Columbia law that set minimum wages for women. President Roosevelt and his advisers developed the National Industrial Recovery Act (NIRA) in 1933 as part of the "New Deal." The "New Deal" was in response to the Great Depression and was a series of laws and executive orders that tried to provide relief for the unemployed and poor along with reforming the financial system to prevent a repeat depression (Grossman, n.d.). President Roosevelt stated, "History will probably record the National Industrial Recovery Act as the most important and far-reaching legislation ever enacted by the American Congress" (Grossman, n.d.). The first part of the Act was the President's Reemployment Agreement that raised wages along with creating employment opportunities (Grossman, n.d.).

Employers signed over 2.3 million agreements, which covered 16.3 million employees; these agreements called for a 35- to 40-hour workweek with a minimum wage of \$12 to \$15 per week (Grossman, n.d.). Also, most of the industries tried not to employ people under the age of 16. This cultural shift in employee rights was also taken to the general public where people could recognize employers that had signed the agreements by the "badge of honor," a blue eagle over the motto "We do our part" (Grossman, n.d.). This could help employers and the government see the direct effects of the legislation. Many other industries were trying to do their part as well with one example being the Cotton Textile Code. The Cotton Textile Code was one of the first

industry-led initiatives to abolish child labor and set a minimum wage (Grossman, n.d.). The minimum wage set a 40-hour workweek with a minimum wage of \$13 per week in the North and \$12 per week in the South (Code of Fair Competition, 1933).

On May 27, 1935, the case of *Schechter Corp. v. United States* was brought before the Supreme Court where the court ruled to revoke the NIRA due to one of the provisions authorizing the President to “approve ‘codes of fair competition’ for the poultry industry and other industries” (Cornell University Law School, n.d.b). These codes of fair competition regulated minimum wage schedules to include wages and maximum working hours (Cornell University Law School, n.d.b).

B. 1936 PRESIDENTIAL RACE

The back and forth debate over minimum wage became a campaign issue in the 1936 Presidential race. The Democratic platform was spoken at length during Roosevelt's many speeches and news conferences. One of his key initiatives was to protect workers through higher labor standards which included new legislation on child labor, minimum wages, and capping the maximum labor hours (Grossman, n.d.). President Roosevelt won the election in a landslide and immediately went to work on legislation for labor and wage laws.

One of the first key steps was on March 29, 1937 when the Supreme Court reversed its course on minimum wage laws with their decision in the case of *West Coast Hotel Company v. Parrish* where they found in favor of Elsie Parrish. This case called into question the legality of the minimum wage laws in the State of Washington. Elsie Parrish claimed that her employer was paying her less than minimum wage, so she sued for back wages (Cornell University Law School Parrish, n.d.c). This was counter to the Court's previous decision in 1936 in the case of *Morehead v. New York ex rel. Tipaldo*, where the court found the New York minimum wage laws unconstitutional. The Supreme court overturned the case that found Joseph Tipaldo had been paying women \$10-a-week vice the state minimum wage of \$14.88. The New York courts forced Tipaldo to pay women the state mandated minimum wage, which he started to do but then forced the

women to pay back the difference in their pay. He was thus jailed under charges of violating the State law of New York (Cornell University Law School, n.d.a).

Secretary Frances Perkins became one of the biggest proponents for labor and wage laws, which was a key reason for her nomination for the Secretary of Labor under President Roosevelt. She accepted the nomination after telling President Roosevelt “that she would accept if she could advocate a law to put a floor under wages and a ceiling over hours of work and to abolish abuses of child labor” (Grossman, n.d.).

The partnership between Roosevelt and Perkins was instrumental in the formation of the Walsh-Healey Public Contracts Act (PCA) in 1936. The Act established guidelines for contracts more than \$10,000 between manufactures and the U.S. government or the District of Columbia. These guidelines dealt with minimum wage, maximum hours, and health and safety standards (United States Department of Labor, n.d.a). This was a vital step in achieving minimum wage legislation, and marked a serious turn in the attitudes of Congress about minimum wage legislation. It would take another two years and numerous pleas to Congress before the Fair Labor Standards Act of 1938 would be signed though. The final bill was passed by the House of Representatives on May 24, 1938 with a 314-to-97 majority, and then went to the Senate. The Senate made over 72 amendments that sought to limit the scope and depth of the bill with the end result being a weakened version of the original (United States Department of Labor, n.d.a). The finished proposal was passed in the House on June 13, 1938 and signed by the President on June 25, 1938. This was the start of the minimum wage. It was designed to help oppressed citizens, mainly women and children, to earn a fair wage, and set to stop child labor, to limit the amount of time people could work, and to provide the backing for women to achieve a fair wage. Figure 1 shows the Federal Minimum Wage from its inception to 2014. The Federal Minimum Wage was last raised on July 24, 2009 to \$7.25. Figure 1 shows that the real minimum wage has been declining since the 1970s and that it is not indexed to inflation. Prices for goods rose dramatically in 1973 due to the oil embargo put in place by OPEC (Hakes, 2008). This is one of the reasons that the nominal minimum wage drops in Figure 1, and why calls to raise the minimum wage started around the 90s and ended with President Clinton calling for an increase of 90 cents in

1995 (McManus, 1995). Figure 1 shows the impact of this change and we can see the actual minimum wage start to level off and actually start to rise.

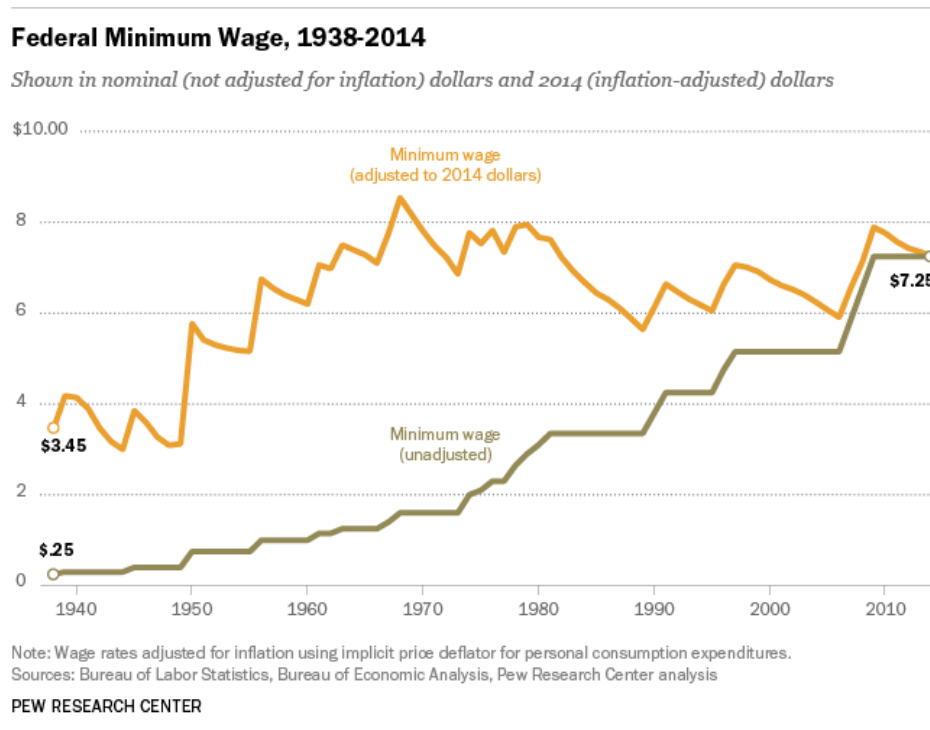


Figure 1. Federal Minimum Wage 1938–2014. Source: DeSilver (2015).

III. MINIMUM WAGE DEBATE

The debate over the minimum wage extends into the political, economic, and moral spheres of discussion, due largely to the conflation between the idea of a minimum wage and the concept of a “living wage.” A living wage is thought to be the lowest wage that should provide an adequate standard of living. Economic theory suggests that raising the minimum wage can have an adverse impact on employment, thus hurting the people that it is supposed to help. Some believe that raising the minimum wage does not hinder the amount of jobs, but can do the exact opposite and promote growth. If the price floor does not bind, then minimum wage laws should have no impact on employment. But if the minimum wage binds, then it would lead to a surplus of labor, i.e., unemployment.

Card and Krueger (1994) wrote an influential study on the impact of minimum wage laws, arguing that minimum wage increases had no impact on the local job market in terms of employment. The two looked at the impact of the local job market for New Jersey and Pennsylvania after New Jersey raised the minimum wage from \$4.25 to \$5.05 (Card & Krueger, 1994). They found “no indication that the rise in the minimum wage reduced employment” (Card & Krueger, 1994, 772). This was contradictory to previous studies conducted by Charles Brown, Curtis Gilroy, and Andrew Kohen in 1982, and economic theory by George J. Stigler in 1946. The prevailing theory at the time given by Stigler was that employment would be cut for perfectly competitive employers if the minimum wage was increased (Stigler, 1946). The Card and Krueger study shot a hole through this theory and made people re-examine minimum wage theory.

The prevailing theory before the Card and Krueger study was primarily derived from George Stigler’s paper “The Economics of Minimum Wage Legislation” written in 1946. His paper argues that a higher minimum wage will lead to a reduction in job creation, but that this is not necessarily a bad thing. The higher wage will induce the laborers to work harder because the wage will increase their motivation. Stigler contends that one of the reasons for this is because people currently not employed are willing to work for less and thus job loss becomes a huge motivating tool. He also states that an increase in minimum wage will increase the overall economy because businesses will

invest in technology and innovation to offset the increase labor costs (Stigler, 1946). Charles Brown, Curtis Gilroy and Andrew Kohen released a paper in 1982 that offered more evidence to support the idea that increasing minimum wages decreases the number of jobs available. Their study concluded that a 10 percent increase to the minimum wage resulted in teenage (16–19 years old) employment reducing by 1 to 3 percent. They also showed that young adults (20–24 years old) employment rates were not impacted as significantly as the teenagers. They stated that this could be because the increased minimum wage shielded them from the teenagers, but that this was a newer area to study (Brown, Gilroy, & Kohen, 1982).

Card and Krueger decided to utilize the fast-food industry in New Jersey and Pennsylvania for numerous reasons. One of the reasons is because the industry largely employs low-wage workers (Card & Krueger, 1994). The industry must comply with minimum wage laws. These were two of the biggest factors as to why the fast-food industry was chosen, and it would provide a significant data pool for the study. Some other factors were that the fast-food industry is very consistent across brands thus expenses for products would be similar. This would help to alleviate a possible factor that could play into the end results, and would open the survey to more firms. New Jersey and Pennsylvania were chosen because New Jersey was about to enact the new minimum wage laws in a recession and Pennsylvania would be used as a control because of the seasonal work similarities to New Jersey. Also, New Jersey has a small enough economy with strong ties to its neighbors. All the factors were utilized to better identify the causal impact of the minimum wage on the labor market, i.e., employment.

A previous study done by Lawrence F. Katz and Alan B. Krueger in 1992 (Katz & Krueger, 1992) suggested that the fast-food industry, as a whole, had a high response rate to telephone surveys. The past survey had also taught them that McDonalds had a low response rate, so they decided that the companies surveyed would be Burger King, KFC, Wendy's, and Roy Rogers chains (Card & Krueger, 1994). The two initially started calling the companies in late February and early March of 1992 to gain a baseline of the stores. This was months before the minimum wage laws went into effect. They reported a total of 473 stores were solicited for information with 410 of them responding to the

survey. These 410 stores were then contacted in November of 1992 with 371 of them responding. Card and Krueger hired someone to drive to the unresponsive stores to find out if they had closed, so that those results could be accounted for in the final results. Ten of the stores had closed and personal interviews were accomplished for 28 of the non-responsive stores. This meant that Card and Krueger were able to follow 99.8 percent of the stores from the initial interviews, which granted them a larger and possibly more accurate sample.

A Full-Time Equivalent (FTE) number was calculated to provide a standard for the data. The FTE was calculated as the total number of full time employees plus half the number of part-time employees (Card & Krueger, 1994). New Jersey and Pennsylvania saw an average FTE of 20.4 and 23.3, respectively, before the minimum wage was increased. The two states saw an average FTE of 21.0 and 21.2, respectively after the increase in wages (Card & Krueger, 1994). This showed that full-time equivalent employment increased in New Jersey relative to Pennsylvania over the course of the study (Card & Krueger, 1994). This was a highly influential study that shaped the debate on minimum wage in the 1990s.

Higher minimum wages can help poor or low-income families, but one of the potential downsides is that employers will not want to utilize the same low-skill labor usually associated with minimum wage jobs if the wage is raised. Raising the minimum wage reduces the number of jobs available because the employer's costs go up, which in turn raises the cost of the products. The increased cost reduces the demand for the product, which in turn reduces the demand for labor.

David Neumark stated, "Although a minimum wage policy is intended to ensure a minimal standard of living, unintended consequences undermine its effectiveness. Widespread evidence indicates that minimum wage increases are offset by job destruction" (Neumark, 2015). Many contend that the research completed by Card and Krueger was too limited and that Burger King, KFC, Wendy's, and Roy Rogers are not reflective of the full fast-food industry. These companies do not adequately reflect your mom-and-pop or independent stores. This is where Tim Worstall contends that raising the minimum wage will have the biggest impact. The chains are better equipped to incur a

rise in labor prices as they have the ability to distribute the costs more efficiently than the smaller independent stores (Worstell, 2011). Worstell contends that one of the reasons Card and Krueger saw an increase in employment is because the chain restaurants did increase their numbers despite the industry losing numbers. The independent stores had to close because of the increase in labor costs, thus the overall industry saw a drop-in employment, but the chain stores can pick up some of the slack because their labor demand is not as high as the independent stores (Worstell, 2011).

Neumark alongside William Wascher is coming to the forefront of this debate. The two wrote a paper in 2006 reviewing the evidence of the new minimum wage research. Neumark and Wascher (2006) re-examined the data from the Card and Krueger study and came to the opposite conclusion. They looked at the financial records of the same companies in the study instead of doing a phone interview. They thought that one of the biggest questions that was asked during the survey—“How many full-time and part-time workers are employed in your restaurant, excluding managers and assistant managers?”—was too ambiguous because the terms could mean something different to different people. Therefore, Neumark and Wascher looked at the financial records to determine whether the minimum wage impacted the employment numbers instead of taking a person’s word. They found that the employment numbers went down in New Jersey instead of up like Card and Krueger had reported. Card and Krueger analyzed the work done by Neumark and Wascher and submitted a reply. Their reanalysis of their own data and the new data by Neumark and Wascher showed that the increased minimum wage did not significantly impact the total employment numbers for the fast food industry in New Jersey (Neumark & Wascher, 2006).

The debate about what minimum wage is and for what it should be used is still going on today. It is utilized in many political platforms and has people on both sides of the fence. Most economists do agree that a rise in the minimum wage reduces the amount of jobs. Whether the loss is significant is still up for debate.

IV. THE ECONOMICS OF THE MINIMUM WAGE

A. MINIMUM WAGE AS A PRICE FLOOR

A minimum wage is, in economic terms, a price floor. A price floor is the lowest mandatory price that can be charged for a product or service. The use of price floors is a policy tool imposed by governments as law to guarantee a minimum price to sellers. In the context of labor markets, the sellers are workers. The effects of a minimum wage can vary depending on the market and other factors within the economy that affect the behavior of firms and workers seeking minimum wage jobs. A price floor, with all other market forces remaining constant, can have no effect on a market if it does not bind, thus creating a surplus supply of a product or service. A binding price floor mandates a price above the equilibrium price in a market. A non-binding price floor, where the price floor is below the market equilibrium, does not impact the market because the market sets the price higher than the price floor and so is not illegal.

1. Minimum Price Floor

The minimum price floor can be above or below the established market price for that product or service. When the floor is below the market price for a product there is no impact on the market price. The price floor does not bind in this situation. If the floor is above the market equilibrium, the demand for the product or service will be lower than at the equilibrium while the supply of the product or service will be higher than at the equilibrium. The difference in quantity demanded and quantity supplied at the price floor above the market equilibrium creates a surplus of that particular product or service. Figure 2 is a graphical representation of a price floor that is set above the market equilibrium, point E, and is binding to the firms that participate in that market. In simple models of labor markets, as graphically expressed in Figure 2, a price floor (i.e., a minimum wage) can lead to excess surplus of labor in the market (i.e., unemployment).

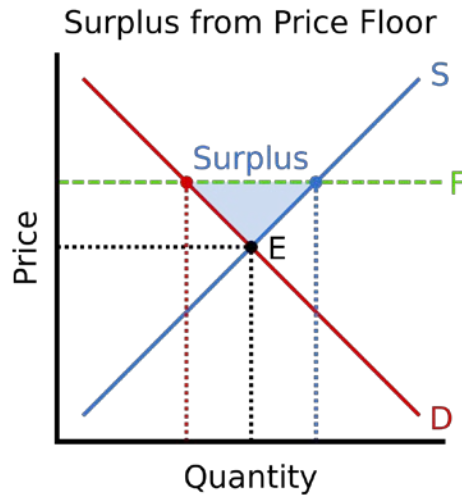


Figure 2. Surplus that Derives from a Price Floor. Source: “Price Floor” (n.d.).

2. Non-binding Price Floor

A price floor that is non-binding is set below the market equilibrium and will not influence the market. Figure 3 is a graphical representation of a price floor that is set below the market equilibrium and is therefore non-binding. The price floor will not affect the actions of firms that participate in the market where the ineffective price floor resides. As a policy tool, governments usually set price floors at the behest of sellers lobbying for higher prices. When the government sets the price floor, it may be binding but if they do not adjust the price for inflation the floor may not bind after a few years.

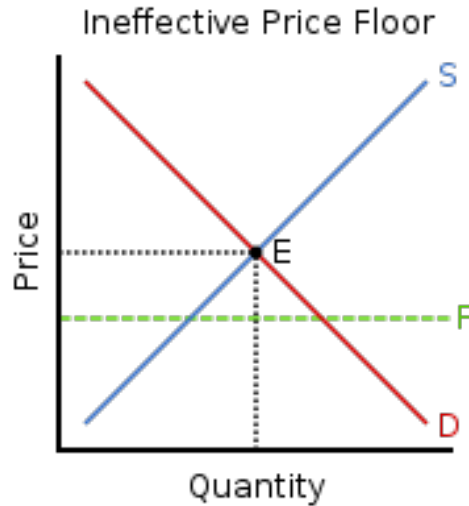


Figure 3. Price Floor below the Market. Source: “Price Floor” (n.d.).

B. TWO-SECTOR MODELS

The effects of a minimum wage can be difficult to quantify because of the myriad factors that drive a market and set the market forces. One such force is the applicability of a minimum wage to a particular firm. For instance, in the United States where the Fair Labor Standards Act is the law of the land, not all firms fall under its jurisdiction. This disparity creates two groups within the economy if all else is held constant. That is, there is a group that must follow the law and another to which the law does not apply. This disparity could be attributed to many factors including size of the firm. If two firms in the same market fall into different sectors of this market, the resultant effects of a minimum wage may be diluted by the non-covered sector. This principle is described in detail by the two sector models created by Charles Brown (Brown, 1999). In a firm that is mandated to use the minimum wage, the supply of labor increases while the demand for labor decreases, creating the surplus graphically depicted in Figure 1. In that same market, the firm that is not under the minimum wage requirement only has the ability to hire those that are not employed by the other firm in the sector and are willing to work for the lower wage. The number of workers employed by the firm that does not have a minimum wage may not equal the surplus but is restricted to the demand required for the labor. As a result, the firm that does not have a minimum wage may not totally offset the

unemployment surplus created by the firm that has to adhere to a minimum wage. This type of model assumes that all workers in the minimum wage market are heterogeneous and that the skills of workers are interchangeable (Brown, 1999). This is an assumption that does not consider the skills of workers that are paid a rate slightly above the minimum wage but whose skills overlap those of the minimum wage market. This overlap drives the inconsistent predictions of this type of model.

C. SEARCH MODELS

Another model for the outcomes of a minimum wage is that of modeling a monopsony in the minimum wage market. This simplifies the demand portion of the market and makes it easier to imagine the effects of a change in minimum wage on the demand for labor at that price. An example would be the demand for unskilled labor in a small town where one major firm, say Walmart, sets the demand. This is also your case in many labor markets because the Navy is a big employer of labor in some markets. This, however, is an incomplete model because in the minimum wage market there is usually more than one firm that drives the demand for labor. The resultant search model relates demand a firm has for labor with the rates of employees quitting and the firm hiring new employees as functions of the wage that firm provides.

In the search model proposed by Card and Krueger (1994), firms must continuously hire new employees as current employees quit. This equilibrium is related to the wage the firm provides. If it wants to retain more employees, Card and Krueger found that the firm must increase its wage. If the market wage in this case is lower than the minimum wage, then the effect on all the covered firms is the same and the effects of the minimum wage are negligible. If an individual firm raises its wages above the minimum wage in order to retain better workers the effect can cause other firms to do the same in order to maintain their workforce. This search model relates the search for employees to the wage provided as an example of how a well-placed minimum wage can affect a market if the supply of labor remains elastic and the demand for that labor is driven by wage increases in individual firms.

D. HOW OFFSETS IMPACT MINIMUM WAGE POLICIES

Modeling the effects of a mandated rise in the minimum wage can be difficult because of the number of factors that drive market wage determinations, the decisions of firms, and the decision of minimum wage workers. One such factor is the decision of firms to offset the higher cost of labor due to a minimum wage increase or other legislation that affects revenue. The previously discussed models do not account for the offsets a firm may use to defray the higher cost of labor. This includes the use of new technology or machines to complete the tasks normally reserved for minimum wage workers. Firms potentially could also hire fewer workers and give them more tasks to complete to offset cost. This means that increasing the minimum wage does not directly correlate to an increase in wages for all minimum wage workers. Some may find themselves unemployed or overworked at a wage that is no longer appealing for the work being done. The effects of offsets are a significant consideration when assessing the viability and potential effects of a minimum wage policy.

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V. HOW MINIMUM WAGE IMPACTS THE NAVY

There are many models that attempt to structure the economic effects of a mandated minimum wage. The two-sector model and the search model provide simplified methods for qualitatively assessing the effects of a minimum wage change on a minute portion of the labor market. Considering offsets and attempting to predict the reaction of firms to a minimum wage policy that affects their operations is valuable when considering the impact of the minimum wage on the Navy. Understanding what a well-placed minimum wage does to a market is critical in assessing how a minimum wage change could affect the Navy in terms of future recruitment of new sailors, retention of junior sailors, and potential future compensation changes.

The two-sector model considers the entire minimum wage labor market and whether a firm is bound by minimum wage law per Charles Brown. This model is more relevant to how a change in the minimum wage could affect the Navy simply because it provides a view of the minimum wage labor market that more closely represents the reality of where the Navy draws its talent. Because the Navy recruits from all 50 states and all U.S. territories, the search model would not adequately represent the pool of workers. The search model put forth by Card and Krueger (1994) considers the minimum wage issue from the point of view of a monopsony, which does not wholly describe the magnitude of competition the Navy must face to get new recruits.

The search model could be used as a lens for viewing the problem in a small town where job opportunities are limited and the Navy offers the most economic advantage for minimum wage-level workers. These are restrictive criteria for this study and the two-sector model in combination with the consideration of offsets better describes the position, challenges, and benefits the Navy faces in the minimum wage market.

The Navy does not pay Sailors based on an hourly wage, but rather every Sailor from E-1 to O-10 is salaried. The starting basic pay for an E-1, under two years of service, in 2016 is \$1,566.90 a month or \$18,802.80 annually. This is comparable to making \$9.04 per hour before taxes for a 40-hour work week. Advancement to E-2 and

E-3 is time sensitive and is automatic. It takes nine months of service to achieve E-2 and an additional nine months to be promoted to E-3. Some recruits can enlist as an E-2 or E-3 depending on rate selection, college credits, or participation in JROTC (Powers, 2016). The starting basic pay of an E-3, under two years of service, in 2016 is \$1847.10 a month or \$22,165.20 annually. This is comparable to \$10.66 per hour before taxes for a 40-hour work week. Base pay is not the only benefit Navy Sailors enjoy that offers economic value. Free health care, commissary benefits, and non-taxable allowances are three of the biggest benefits that Navy Sailors receive that are not reflected in their basic pay. Therefore, the Regular Military Compensation (RMC) numbers more accurately reflect the total compensation package for military members. The RMC is the total of basic pay, Basic Allowance for Housing (BAH), Basic Allowance for Subsistence (BAS), and the federal income tax advantage given (United States Department of Defense, n.d.). Basic Allowance for Housing and Basic Allowance for Subsistence are non-taxable allowances that provide military members with funds to purchase housing and offset members' meals respectively. The RMC for a single E-3 is calculated to be \$44,941.06 when BAH, BAS, and the tax advantage are considered. This is equivalent to \$21.60 per hour for a 40-hour work week, which is well above the proposed \$15 per hour suggested minimum wage. The calculated RMC would fall under \$15 per hour if the member averages over 57 hours a week. An increase in the minimum wage would only impact Navy pay if the increase surpasses the RMC that was calculated.

VI. FINDINGS AND RECOMMENDATIONS

A. FINDINGS

The preceding chapters discussed minimum wage law and historical changes in the law, the basic economic concepts of price floors, and if the floor binds a firm. They also covered the economic idea structures that attempt to model the role of a minimum wage on an industry's employment behavior, and the applicability of those models to this study. The following discussion presents the argument that a minimum wage of \$15 per hour will bind for many firms in the United States but that it will not adversely affect naval accessions since the RMC is already higher than the proposed minimum wage increase. In fact, a binding minimum price floor could potentially benefit the Navy by creating a surplus of labor in the market. This surplus could be a result of two factors: firms that restructure their workforce to minimize cost by releasing all but the most valued workers, and workers that rejoin the labor market as a reaction to the incentive of a higher minimum wage. As the surplus builds, the Navy can capitalize through its recruitment strategies and take advantage of the new talent that joins the labor market and has the added benefit of having the ability to be more selective.

1. History of Raises

The minimum wage since its inception has been a controversial issue in the United States. The primary goal of policymakers was to allow working-class people a living wage. If the federally mandated minimum wage is raised to \$15, it would be monumental. Never in the history of the minimum wage has it seen a two-fold increase. Since the enactment of the Fair Labor Standards Act, the largest percent increase was between October 24, 1945 and January 25, 1950, when the minimum wage of \$0.40 per hour was raised to \$0.75 per hour (DeSilver, 2015). An increase from the current rate of \$7.25 per hour to a rate of \$15 per hour would be unprecedented. If the minimum wage is raised to \$15 per hour it will affect all 50 states and the territories of the United States.

Currently, only two states have minimum wage rates that are lower than the federal rate of \$7.25 per hour (United States Department of Labor, n.d.b). All other states

have their rates set at or above the federal minimum. If the federal wage rate were raised to \$15 per hour, this would effectively place a binding price floor on all states. Figure 4 shows a snapshot of the current minimum wage rates for each state. An increase in the federal minimum wage could impact states differently due to the increase nearly doubling the minimum wage in many states. Two of the biggest fleet concentration areas, Norfolk, Virginia and San Diego, California, have different minimum wages with Virginia at \$7.25 and California at \$9.00. This could mean that the impact of the increased minimum wage could have less of an impact on California compared to Virginia.

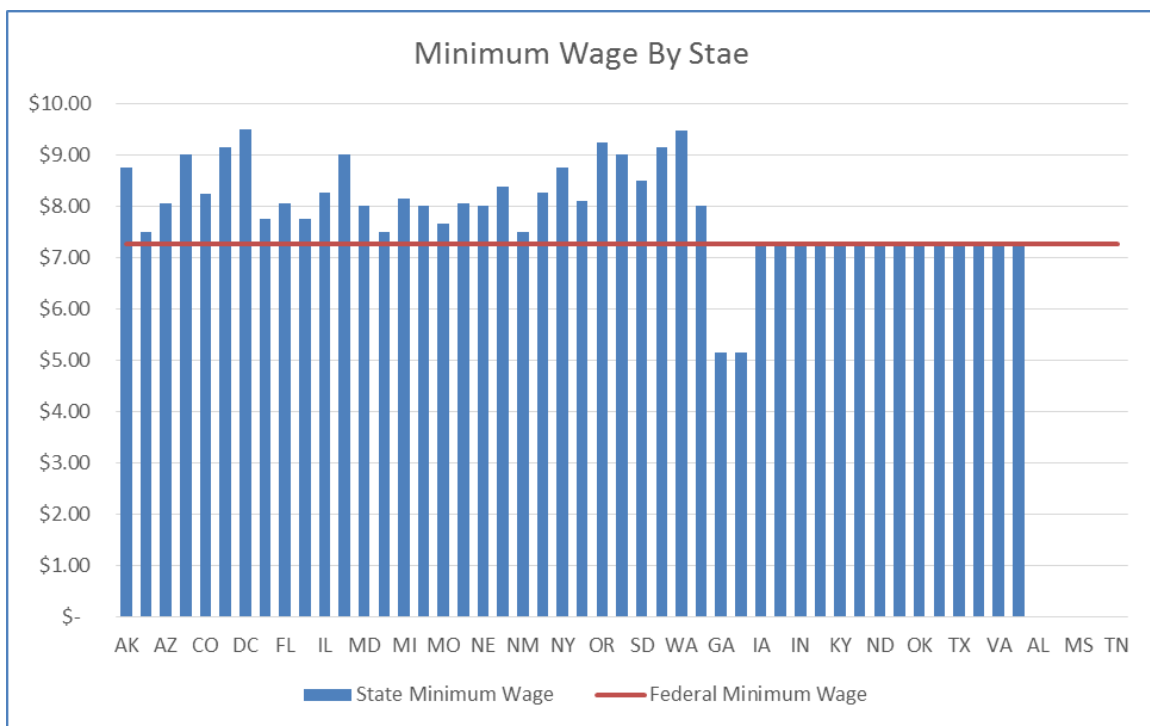


Figure 4. Current Minimum Wages by State. Adapted from United States Department of Labor (n.d.b).

2. Considerations

The effects of a nationwide binding wage floor require significant consideration. Any firm in the minimum wage market will be required to consider how to manage the new binding wage. The new binding wage floor would create an offset in both the covered market (firms impacted by the minimum wage) and the uncovered market (firms not impacted by the minimum wage) described by two sector model. The surplus created by the new binding price floor will be a shock to the market. Firms that are covered by the binding floor and those that are not must adjust business practices. Those that must pay more for labor will make hard decisions about how to manage a more expensive labor force. Those firms that do not have to pay more for labor may have to adjust to an increase in the supply of labor and could possibly adjust their pay scales to take advantage of a new equilibrium price in labor for their market. Firms selling products with inelastic demand, like luxury items, could pass on the higher labor costs to the consumer. This would be difficult for the fast food industry due to the many substitutes for fast food.

A binding minimum wage floor that causes firms to change their business practices will inevitably generate offsets in the minimum wage labor market because firms will want to defray the cost of labor in order to maintain current levels of profit or the opportunity for future growth. These offsets may include reducing the workforce but offering more responsibility and hours to those they retain (Brown, 1999). Firms may also change the structure of their workforce to feature fewer employees and more automated systems. These are business decisions that will take some time to implement and therefore the response in the minimum wage labor market will be delayed (Brown, 1999). Thus, there will be a lag in market response. The effects of any major policy must be evaluated over time before any determination of effectiveness can be made. The subsequent offsets must also be evaluated over time.

3. Offset Benefits the Navy

As the policy effectiveness and offsets are evaluated, the Navy can benefit from the surplus of labor supply in the market. The Navy must constantly and continuously develop future enlisted leaders as people choose to leave the Navy either through retirement or other forms of separation. This turnover can be linked to the search for new talent as described in Search Models (Brown, 1999). The surplus of labor created by a new minimum wage of \$15 per hour could be a ready source of new talent for the Navy. Effectively the Navy would have a larger pool of people to choose from as firms adjust their workforce positions to adjust to the new minimum wage labor price floor. The Navy could potentially benefit from the availability of more talented, better qualified people looking for opportunities that the Navy could provide.

The Navy affords new recruits several intangible benefits that have been, at least anecdotally, part of the attraction that motivates people towards service. The Navy offers people the opportunity to train in many technical fields. This training delivers skills that can be transferred back to civilian firms that require employees at levels higher than the minimum wage to have said skills and the experience using those skills. The Navy also offers new recruits the benefits of full medical and dental coverage, the ability to serve the nation's interest, the life skills required to be successful in the Navy or any follow-on career, travel opportunities, and follow-on education opportunities. When considering the effects of a \$15 minimum wage on naval accession, these intangible benefits the Navy offers should be considered. Overall, if the federal minimum wage is raised the Navy could be a beneficiary of surplus labor in the market. Relatively younger workers with little or no experience who are seeking marketable skills, training, and education opportunities may gravitate toward naval service due in part to the decision of firms to adjust workforce structure and in part to the intangible benefits naval service offers.

One of the biggest reasons people join the military is the steady paycheck. This was one of the major reasons all active-duty and reserve forces met or exceeded their recruitment goals in fiscal year 2008, which was the first time that it happened since 2004; this was attributed to the economic downturn that the United States went through in 2008–2009 (Alvarez, 2009). “When the economy slackens and unemployment rises and

jobs become more scarce in civilian society, recruiting is less challenging,” said Dr. Curtis Gilroy, the director of accession policy for the Department of Defense (Alvarez, 2009). During economic downturns, recruiters start to see an influx of people who cannot find a job or are not able to support their family from the jobs available. The same concept can be applied to what might happen if the minimum wage is increased. It will produce a scenario in which potential employers are not hiring or reduce the number of hours available to employees. This could push people towards military recruiters because they do not see any alternatives.

Another reason that recruiters see more people interested in the military is due to the de-escalation of forces abroad. The military is a more enticing prospect as the threat of death goes down. A recent study conducted by Harvard found that 60 percent of the 18–29-year-olds say they support sending combat troops to fight ISIS, but that 62 percent would not join the military to support (Khalid, 2015). The numbers would more likely be higher if the threat of conflict was not there. Gilroy stated that the decline in violence in Iraq had a “positive effect” on the recruitment numbers seen in fiscal years 2008 and 2009 (Alvarez, 2009).

B. RECOMMENDATIONS

There is no culminating point when it comes to anticipating the effects of minimum wage changes. The wage can either bind firms or have little effect on the demand and supply of labor for firms in the minimum wage market. A change to the minimum wage must be evaluated over time to understand the full ramifications of the adjustments made by the market. If the minimum wage is raised to \$15 per hour, it will change the landscape for firms in that market and how the Navy engages the challenges of recruiting new talent. The Navy could ultimately benefit from a change in the minimum wage. In response to the potential for increase in supply of labor at the minimum wage level the Navy should consider the following recommendations:

- Use talent-specific advertising
- Utilize focused advertising for people who potentially are let go as part of a workforce restructure that are more qualified than the average recruit.
- Continue to focus on the non-monetary/intangible benefits of enlistment.
- Emphasize the training, travel, service, and educational aids enlistment offers.
- Make use of network-centric media to attract qualified talent.
- Find people through the use of online business network data.
- Review and consider changing enlistment incentives.
- Offer new incentive pays to new recruits to entice higher qualifications.
- Review current enlistment metrics and assess their validity in the new market.

VII. FUTURE STUDIES

We have looked at what the possible impacts could be on Navy enlistments if the minimum wage is increased to \$15 per hour. A minimum wage increase could increase the number of personnel in the job market due to firms reducing their manning to account for the cost of labor, but does that mean that the pool of candidates looking for military service will increase equally?

A. WHO IS JOINING?

One of the other big questions is “Who is joining the military?” This is becoming a very important question because it can help shape how the military acquires recruits. Studies will help to identify why people of different backgrounds join the military, and could possibly find key indicators as to why people join. This information could be utilized to create a more cohesive and direct program on how to recruit. These studies would go more into the sociology and psychology realms of study, but could be utilized to create cost effective recruitment policies. This could also possibly identify what or if there is a monetary value that makes people more enticed to join the military.

Current studies are finding one of the biggest factors is socio-economic. “An important predictor to military service in the general population is family income. Those with lower family income are more likely to join the military than those with higher family income” (Lutz, 2008). Lower socio-economic families could be one of the biggest populations significantly impacted by an increase in the minimum wage. There will more than likely be fewer jobs if the minimum wage is increased thus moving more people into the job market. This could push more people to the recruiting station as they do not see any alternatives. This has been seen in the past when the economy has seen a decline.

B. MINIMUM WAGE INCREASES DECREASE JOBS AVAILABLE

Studies conducted by David Neumark and others have shown that an increase in the minimum wage reduces the number of available jobs. It raises firms’ expectations on what type of work they are willing to pay minimum wage for and it also increases the

costs that firms encounter. Firms can either charge more for their products to make up for the lost revenue or they reduce the number of working hours available to cover the increase in costs. These factors are why the overall job market shrinks with an increase in wages. The same holds true to the job market when the economy is in a downturn. The supply of personnel able to work is greater than the demand. This would usually drive wages down due to supply and demand economics, but the minimum wage produces a price floor for wages, which means that demand can stay the same while the supply goes up. Both scenarios have the same outcome, which is more people in the job market. History has shown that the military benefits from this scenario and sees an increase in the number of recruits. An increase in the minimum wage can have the same impact, which means that the military will see an increase in recruits and will have the ability to be more selective with who they allow in. The increase in personnel could mean that the military will have a more efficient and better-qualified base from which to pull. This would help the overall composition of the military and would be an area to study further.

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