A LOOK AT MANUFACTURING EMPLOYMENT AND AN EXAMINATION OF THE RELATIONSHIP BETWEEN TAX ABATEMENTS AND PENNSYLVANIA’S MANUFACTURING ECONOMY

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The purpose of this thesis is multi-faceted. The first part of this thesis documents the history of the manufacturing sector, focusing on its employment, from the early/mid 1900’s and tracking up to the present. After noting several explanations for the decline in manufacturing employment, a closer look is given to tax abatements in the state of Pennsylvania. The state has spent nearly one billion dollars since 2013 to try and boost its’ manufacturing economy. The goal of the second part of this thesis is to examine the relationship between the use of tax abatements in Pennsylvania and the performance of the manufacturing economy in the state. This is done by examining economic indicators such as employment and output; attention is also given to cost per job created through the use of abatements, Pennsylvania’s tax climate and its human capital. I find that Pennsylvania’s spending appears to have done little to boost both manufacturing employment or the health of the industry as a whole.
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Chapter 1

Introduction

The Industrial Revolution forever changed the economies of many countries, including the United States. Economies that once relied on farming and grazing were transformed due to the invention of new technology (Tables Illustrating the Spread of Industrialization, 1997). Output in farming and manufacturing exploded. Suddenly workers were making products that they couldn’t before, and new technology allowed them to work faster. As a result, our economy changed. It evolved from what it was prior to the Industrial Revolution into something completely different. New companies were created and new employees were hired, both former farm workers and young, new workers alike. For the previous generation of Americans, farm life might have been the only thing they knew. For the next generation, they might have said the same thing about factory life, or mining life, etc. This period of growth and change highlights how flexible the economy is. What drives the economy today might not be what drives the economy in ten years. This holds true for economies around the world, not just in the United States.
In the end of the 19th and for most of the 20th century, manufacturing became a much more prominent part of the American economy. As technology improved through the 1800’s, manufacturing output grew and a higher percentage of workers turned to that line of employment (Brady, 1966). Companies manufactured steel, fabrics, consumer goods, and eventually many kinds of cars and electronics. As the possibilities grew, so did manufacturing output. Figure 1 above illustrates the growth in output per worker over the last half of the 20th century, more than quadrupling in that time span. The two World Wars helped to boost the industry; The U.S. government spent billions of dollars on defense contracts in order to produce enough weapons and armory to supply the army throughout the wars (Roser and Nagdy, 2016). World War II in particular came just after the worst economic collapse in modern U.S. history. At its peak, roughly a fourth of the working age population was unemployed (Smiley, 2008). As a result of
the money that was used for defense contracts and military spending, unemployment shrank to roughly three percent by the end of the war.

Over the next several decades the manufacturing sector continued to have success in the United States. Workers could spend their whole lives in factories and make enough to provide for their families. Companies relied on those workers to produce quality goods. By the mid 1900’s, manufacturing was a very expansive industry with a variety of products made in the United States. These goods included TV’s, VCR’s, automobiles, textiles, home goods, and so on. American consumers grew reliant on these products and the companies that produced them profited. This cycle of consumption and profit continues to this day, and for much of the 1900’s this allowed for the continued existence of factories and plants in the United States. Individual states, such as Pennsylvania, also greatly profited because of healthy manufacturing employment levels. But as time went on, the influences that affect the economy changed, shifting the balance of the American economy.

Figure 2. Manufacturing Employment Since 1980
Manufacturing employment in America experienced a decline starting in the 1980’s (Nutting, 2016). The Untied States hit its peak in manufacturing employment in 1979, however the decline has not been consistent. Employment numbers were down, but steady, during the 1990’s. Employment steadily decreased throughout the 2000’s, perhaps hastened by two recessions: one in the early 2000’s, and another which is more infamously known as the Great Recession. Since the beginning of the 21st century, manufacturing employment has dropped by roughly one third (U.S. Bureau of Labor Statistics, n.d.). States in which a large percentage of those jobs were located, otherwise known as the Manufacturing Belt, were hit especially hard. In some cases, entire regions that depended on the continuation of those jobs collapsed (Krugman, 1991).

Economists and politicians have taken notice of this fall in employment and worked to find out why this is happening and what can be done about it. Policy proposals such as exit taxes, renegotiating trade deals, tax breaks, and tariffs on imported goods have all been proposed. Politicians have made this issue a central theme to their campaigns, promising to bring back these jobs. Economists have studied this issue in depth, analyzing at it from a variety of angles to try and explain the cause and which policy proposals might be the most effective (Adkisson and Rickett, 2016).

Tax breaks in particular are a popular method among the states to attempt to sway manufacturers to either keep jobs in a particular area, or relocate from a different region. Shortly after his victory in the 2016 election, Donald Trump famously negotiated a deal with Carrier, an air conditioner company, to keep roughly a thousand jobs in the state of Indiana (Schwartz, 2016). The plant in that state was originally slated to close and the jobs were to be moved to Mexico, but through a combination of tax breaks and other incentives, the company was
motivated to stay in the United States (Schwartz, 2016). These types of deals happen across the
country and on very large scales (Story, et al. 2016). The state that spends the most amount of
money for this is Texas. Nearly twelve billion dollars has been spent by the state since 2013 for
manufacturing companies to either keep jobs local or bring in new ones. Other big spenders over
the past several years include Michigan ($1.6 billion), Pennsylvania (nearly $1 billion), and New

This thesis is divided into two major sections. The first section will chronicle the
rise and decline of the manufacturing sector’s employment level during the 1900’s. This thesis
will attempt to aggregate previous studies whose topics concern the change in manufacturing
employment. I will focus on common causes attributed to the decline, including international
trade deals like NAFTA. I will also look at improving labor productivity and the rise of the
service sector. The first section will conclude with what economists theorize are notable factors
for the decrease in these jobs.

This will lead into the second major section of the thesis: A focus on the practice of
awarding tax abatements for manufacturing companies. As previously mentioned, states spend
billions of dollars on these deals-at the expense of the taxpayer. This thesis will look at economic
data from the state of Pennsylvania and attempt to form a hypothesis as to whether or not the
$915 million spent since 2013 is worthwhile, or if it could be better spent elsewhere. It should be
noted that this thesis will have its limitations; there will never be a 100% clear answer to this
question because economists cannot know what would have happened if those tax breaks were
not given in the first place. However, it is still possible to look at the relationship between the
amount of money spent on abatement deals and the health of Pennsylvania’s manufacturing
economy. This thesis will attempt to start a discussion and form a hypothesis on these abatement programs, not to draw any hard conclusions.
Chapter 2

The History of Manufacturing and Its Employment as a Percentage of the U.S. Economy

The Industrial Revolution helped to bring about a steady growth in the U.S. Economy. GDP per capita, which for the most part showed slow growth from 1800 to 1865, began to rise at a faster pace in the latter half of the century; this coincided with the creation of new technology (U.S. Real Per Capita GDP in 2004 Dollars, 2009). These factors led to the creation of promising new companies and products, some of which are still household names today. A notable example of this is the automobile industry. The car, which didn’t even exist in the mid 1800’s, was not widely available for several decades. At the turn of the twentieth century, several new automobile companies were born with the goal of selling cars to everyday Americans. These companies took advantage of better technology and improved workplace practices. Ford, a popular automobile company, was founded in 1903 (Staff, 2000). The owner, Henry Ford, was a champion of the assembly line approach to building cars and was able to improve efficiency and productivity. Notable other car companies that were founded around this time include General Motors (founded in 1908), Chevrolet (founded in 1911), Dodge (founded in 1914), and Cadillac (founded in 1902) (Staff, 2000). As the popularity of automobiles rose, so did these companies.

These companies and others like them grew quickly, flooding the market with new products for consumers. The much more affordable prices expanded the market to a whole new potential pool of customers, increasing profits. Companies offered popular products to consumers, and then used the profits from these sales to expand their business, hire more workers and offer more products. This pattern became a staple for successful businesses. The rise
in these companies was partnered with the rise in manufacturing employment. In the run up to World War II, manufacturing employment rose as the government began to devote more money towards military spending. In 1939, manufacturing employment reached nearly ten million (U.S. Bureau of Labor Statistics, 2017).

After the United States officially entered World War II, defense spending rose to unprecedented levels, easily eclipsing the amount spent in the run up to the war, as well as the spending done during World War I (Roser and Nagdy, 2016). In 1940, the U.S. spent just under $17 billion dollars on the military (in terms of U.S. dollars from the year 2000). Two years later, that number rose to just under $230 billion dollars, and by 1945 the U.S. was spending over $700 billion dollars on the war effort. Today, despite increased costs and an expanding military, the U.S. has yet to get back to those spending levels. In 2015, the defense budget was roughly $600 billion dollars (Gould and Bender, 2015). Much of the money during the war was being spent on defense contracts, given to manufacturers to produce weapons, vehicles and other such goods to be used in the war. From 1943-1945 manufacturing made up over a third of the country’s GDP, peaking at 37% in 1945. The U.S. Government was spending almost 90% of its budget on the military, a figure which has also never been reached since World War II (Tassava, 2008).

The manufacturing industry became a major driving force behind an economy that was raising output because of the war. Early on during the war, President Franklin Roosevelt set large goals of production. He wanted 60,000 aircraft in 1942 and 125,000 in 1943; 120,000 tanks in the same time period and 55,000 antiaircraft guns (War Production, 2007). In order to meet these goals, civilian employment experienced a major jump. At one point during the war, unemployment dropped to 1.2%, a number unheard of for many people with memories of the Great Depression. Nearly 40% of workers who were employed worked in manufacturing;
another all-time high figure (Tassava, 2008). The companies that employed these workers and received government contracts did extremely well during the war. For example, consider Westinghouse Electric and Manufacturing Company. Westinghouse was the recipient of numerous contracts from the United States during World War II, specifically from the Navy, Army, and the Office of Scientific Research and Development. The company produced over 8,000 pieces of equipment for the military. It produced gyroscopic stabilizers for tank guns, injection molded plastic containers for mess kits, and electric motors for B-29 bombers (Vitale, 2011).

As a result of the many defense contracts acquired and the thousands of parts created by the company during the war, the early 1940’s was a hugely profitable time period for Westinghouse. From 1940 (just before the war began) to 1944 (the peak of production) net sales increased from $239 million to $840 million (Vitale, 2011). Profits for the company rose from $31 million to $97 million. In addition, employment at Westinghouse more than doubled from 52,373 to 115,425 and payroll nearly quadrupled from $109 million to $388 million. The government also helped to finance the company’s expansion during the war. Out of the $153 million worth of plants and machines that Westinghouse acquired during the war, the government directly financed $111 million of it (Vitale, 2011). This situation was not uncommon; a great number of companies were essentially subsidized by the federal government in order to increase employment and production. This is one of the main reasons why unemployment fell so low during this time period; as many workers as possible were needed in order to meet President Roosevelt’s ambitious goals. From the start of the war in 1939, manufacturing employment rose from just under 10 million to roughly 16.5 million at its peak in

Not surprisingly, after World War II manufacturing declined slightly. Defense contracts simply weren’t as common due to the decrease in the defense budget (Roser and Nagdy, 2016). Despite this, manufacturing employment was still healthy and grew over the next several decades. A majority of these jobs were located in an area known previously as the Manufacturing Belt, a stretch of land in the Northeast and Midwest. At the region’s peak in the early 1900’s, 74% of all manufacturing jobs were located here (Krugman, 1991). During the 1950’s, the Manufacturing Belt still controlled 64% of all manufacturing employment. This area included states such as Pennsylvania, New York, Ohio, and Michigan, among others. These states relied on manufacturing to help drive their economics, and during the mid-1900’s companies provided countless jobs in that region. For example, between 1967-1977, 200,000 manufacturing plants opened in the United States. The plants ranged in size from 15 employees to 400, and were both single and multi-unit plants (Dunne, et al. 1989).
These plants provided well-paying jobs to communities. In 1976, the average wage for manufacturing employees was roughly $5 per hour (United States Average Hourly Wages in Manufacturing). Adjusted for inflation, this translates to over $21 per hour in 2016 dollars. Over the course of a year, this equates to an income of roughly $43,000 (in 2016 dollars.) In 1976, the official poverty line for a single person was $2,557 (U.S. Congress, 1976). This equates to $10,785.55 today. Given how much more manufacturing employees made relative to the federal poverty line, these workers were able to enjoy a decent, middle class lifestyle for much of their careers. These figures stayed largely consistent during the mid to late 1900’s. In 1963, the adjusted average hourly wage was just under $20, sitting at $19.61. In 1989, the average adjusted wage was roughly $19.50 per hour (United States Average Hourly Wages in Manufacturing, 2016).
Despite the success of these companies and the employees who worked there, manufacturing employment in the United States has been experiencing a downturn for the past several decades. This drop is depicted in figure 3 on the previous page. The peak number for manufacturing employment was 19.5 million in June of 1979. During multiple recessions in the early 1980’s, employment dropped to about 16 million, and for much of the rest of the 20th century that number fluctuated between 16 and 18 million (U.S. Bureau of Labor Statistics, 2017). That number declined once again, and after the turn of the 21st century, manufacturing employment has essentially gone into a nosedive. After a short recession in 2001, the total number of workers dropped from 17 million to 14 million before somewhat stabilizing for a few years. As a result of the Great Recession, employment dropped further to roughly 11.5 million. It has since recovered slightly, rising to just over 12 million workers today (U.S. Bureau of Labor Statistics, 2017).

The aforementioned Manufacturing Belt, being the central location for manufacturing in the United States, suffered significant losses. In Pennsylvania, the state hosted nearly one million manufacturing jobs in 1990. By the end of the Great Recession, that number dropped to roughly 550,000. Unlike the country, Pennsylvania has not been able to recover any significant number of the jobs that were lost; manufacturing employment hovers around 560,000 to this day (State and Area Employment, Hours and Earnings, 2016).
The number of manufacturing workers as a percentage of the total labor force has also dropped dramatically, as shown in figure 4. In 1970, those employees made up 26.4% of the total labor force. Aside from a short period in the 1970’s, that percentage has consistently dropped. Today, it sits at 10.3% (U.S. Bureau of Labor Statistics, 2017). Even during times when manufacturing employment was stable the percentage still dropped, indicating that the sector is no longer a stalwart in the U.S. labor force; other sectors, like the service industry, are growing and overtaking manufacturing in employment.

Earlier in the chapter, it was mentioned that between 1967-1977, 200,000 manufacturing plants opened in the U.S. Unfortunately, those plants did not experience long term success (Dunne, et al. 1989). Plants that had hired 400 employees began downsizing during the 15-year period after they opened. For single unit plants with 400 employees, during the stated time period an average of 104 employees were laid off or fired. Factories with 175 original employees
lost an average of 53 of them, while plants with 75 employees lost an average of 11. Smaller size factories of only 35 and 15 employees did comparatively well, adding an average of 7 and 8 employees respectively. Multi-unit plants, while they still had a low survival rate, on average were able to add employees over the same 15-year period.

New technology, budding industries, and government assistance allowed manufacturing employment to flourish for much of the 20th century. Millions of workers were provided with quality jobs and a way to support their families. But despite output continually growing, employment has collapsed over the past several decades. Manufacturing as a share of total employment has also decreased dramatically since 1970. Thousands of factories have shut down and vast regions have been negatively affected by this. Politicians and economists have noticed this downward trend and offered various hypotheses to explain it. Some of these hypotheses, as well as their credibility, will be analyzed further.
Chapter 3

Common Explanations for the Decline in Manufacturing Employment

The fall in manufacturing employment has been swift and undoubtedly hurt millions of Americans, especially those who have spent their entire lives in the industry. For a number of older workers, it may not be possible to retrain and enter a different field at this point in their lives. This can be due to a variety of factors such as age, finances, and so on. It’s natural for those affected, and the politicians who represent them, to try and seek the root cause for the disappearance of these jobs. If a cause is discovered, it could theoretically be possible to bring these jobs back, easing the burden on the affected families. There are many explanations for what transpired over the past several decades, from globalization and improving technology, to individual trade deals such as NAFTA and the rise of other sectors of the economy (such as the service industry.) The goal of this chapter will be to take a look at each of these explanations individually, aggregate a number of studies about each of the hypotheses, and then attempt to reach a conclusion on the validity of each of them.

Trading with other groups of people is a concept that has been around for thousands of years. It allows both groups to flourish by acquiring more than they would be able to make on their own, and it gives each group the chance to specialize in making what they are good at. This is known as ‘comparative advantage.’ Until as recently as several decades ago, trading with countries across the globe has been restricted due to technological limitations as well as tariffs that restrict international trade (The Globalist, 2004). However, over the past several decades, the rate of globalization has increased greatly. For evidence of the rising trend
of globalization, look at the United States’ level of imports and GDP. Thirty years ago, 80% of the products that Americans consumed were made by U.S. producers. As of 2009, 65% of those consumed goods are made by American producers (Manning, 2009). Also, in 1960 trade made up only 9.17% of America’s GDP. In 2013, 30.03% of this country’s GDP came from imported goods—more than tripling the percentage from 1960 (Ortiz-Ospina and Roser, 2016). These statistics are illustrated in table 1.

<table>
<thead>
<tr>
<th></th>
<th>1960</th>
<th>2009/2013</th>
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<tbody>
<tr>
<td>% of Products Made by U.S. Producers</td>
<td>80%</td>
<td>65%</td>
</tr>
<tr>
<td>% of GDP As a Result of Trade</td>
<td>9.17%</td>
<td>30.03%</td>
</tr>
</tbody>
</table>

Table 1. Evidence of Growing Reliance on Trade in the U.S.

A notable factor in the increase of foreign trade has been the reduction of tariffs imposed on other countries. The history of post-World War II tariff reduction can be traced back to 1947, when 153 countries ratified a multilateral agreement known as GATT, or General Agreement on Tariffs and Trade (Modic, 2014). The goal of GATT was to reduce the level of tariffs and increase global trade. GATT provided a forum for countries to come together to discuss economic and trade issues while working to lower barriers of trade (Modic, 2014). These negotiations between countries were called ‘rounds’. For example, after the Uruguay round of negotiations in 1993, countries agreed to enact, among other things, a new series of enforceable trade rules. In 1995 the World Trade Organization (WTO) replaced GATT, but it still carries on GATT’s original goals of increased trade and a reduction of tariffs. As countries join the WTO, they agree to keep their tariffs below a certain level in order to limit their harmful effects. Oftentimes, countries set their tariffs at levels far below that stated threshold. For example, the
average stated threshold for all countries was just under 40%. The average actual level of the applied tariff was under 10% (World Trade Organization, 2013).

<table>
<thead>
<tr>
<th></th>
<th>1996</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Tariff Levels</td>
<td>11%</td>
<td>9%</td>
</tr>
<tr>
<td>Global Trade</td>
<td>$5 trillion</td>
<td>$19 trillion</td>
</tr>
</tbody>
</table>

Table 2. Average Tariff Levels and Global Trade, 1996-2013

Over the past seventeen years since the WTO’s inception, tariffs have dropped by roughly 15% worldwide and global trade has quadrupled, reaching $19 trillion in 2013 (World Trade Organization, 2013). This is shown in table 2. In addition, more countries have been joining the WTO over the same time span. Today, there are 164 members of the WTO. China’s entrance into the WTO in 2001 was especially notable. A country known for being a goods maker and a large exporter, China’s entrance into the WTO allowed it to enjoy decreased tariffs and expand its economic influence in the world (Li, n.d.).

But is globalization the cause of the decline in manufacturing jobs? According to several studies, it may be partly to blame. A study from the University of Aberdeen looked at several plausible causes of deindustrialization among economically advanced economics, including increased global trade, and determined that it did in fact play a role (Kollmeyer, 2009). According to the study: “global trade exerts both direct and indirect effects on employment patterns in economically advanced countries.” However, the study did note that there were other explanations that were other relevant factors, including rising consumer affluence and the resulting desire for a different set of goods (Kollmeyer, 2009). Other economists have reached similar conclusions; numerous studies have corroborated with the finding that globalization has cost the United States a sizable amount of manufacturing jobs (Alden, 2012). Many economists
point to trade with China, in particular, for hurting America’s employment numbers. A study conducted by professors at multiple universities looked at the influence of Chinese imports on manufacturing employment (Acemoglu, et al. 2015). They found that these imports played a major factor in employment losses as well as lag on the U.S. economy in general. They estimate that from 1999-2011, the United States lost approximately two million jobs due to trade with China. Another study concluded that between 1990-2007, approximately 25% of the total decline in manufacturing employment can be attributed to trade with China (Autor, et al. 2013). In addition, they state that the rising imports from China are linked to a higher level of unemployment, lower labor force participation, and lower wages in areas that are near import competing manufacturing industries.

Part of globalization involves signing trade deals with other countries or groups of countries. These trade deals reduce tariffs, quotas, and other regulations that hurt international trade, but unlike the WTO these trade deals are between a smaller group of countries instead of the 164 member trade organization. The North American Free Trade Agreement (NAFTA) was signed by America, Canada and Mexico to boost trade between the three countries. Despite being signed in 1993, the agreement has come under intense scrutiny in recent years-especially in the 2016 Presidential election. While on the campaign trail, President Donald Trump called it “the single worst trade deal ever approved in this country (Greenberg, 2015).” Former candidate Bernie Sanders argued “NAFTA…cost us 800,000 jobs nationwide, tens of thousands of jobs in the Midwest (Sanders overshoots on NAFTA job losses, 2016).” As the number of manufacturing jobs has dropped, NAFTA has become more of a target for both politicians and the public. According to a recent national survey, the public is divided over the trade agreement. 32% of Americans want to withdraw from the trade agreement, while 30% want to continue with
it. An additional 37% don’t know enough about it to give an opinion (GSD&M and Vianovo, 2016).

While the general public seems to be divided over the issue, there is much more of a consensus among economists. A recent survey asked economists if, on average, American citizens have been better off with NAFTA than without it. 63% believed so, with an additional 22% strongly believing that Americans have been better off (IGM Forum, 2012). The Congressional Research Service, a non-partisan research arm of Congress, concluded that “NAFTA did not cause the huge job losses feared by the critics or the large economic gains predicted by supporters. The net overall effect of NAFTA on the U.S. economy appears to have been relatively modest (Fergusson and Villarreal, 2017).” The reasoning behind their conclusion is that trade with Canada and Mexico represents a small amount of U.S. GDP, thus limiting any potential positive or negative impacts. While not a resounding endorsement of the trade agreement, the CRS study dismisses accusations that NAFTA is the cause for the employment decline. The U.S. Chamber of Commerce released a report assessing the impact of NAFTA after twenty years. Their conclusions differ from the CRS study in the sense that the Chamber of Commerce alleges that NAFTA has had a larger, more positive impact on the economy. Among the findings, the Chamber noted that 14 million jobs are supported by trade with Canada and Mexico, 5 million of which were the direct result of NAFTA. U.S. Service exports to Canada and Mexico have tripled, from $27 billion in 1993 to $82 billion in 2011. Finally, since the implementation of NAFTA, trade between the two countries has more than tripled to $1.2 trillion dollars (U.S. Chamber of Commerce, 2012).

Another often cited explanation for the falling manufacturing employment is the increased labor productivity, allowing companies to increase output while relying on fewer
workers to maintain the factories. Proponents of this hypothesis point to the fact that despite the decrease in employment, manufacturing output is at an all-time high. While the technology used in these factories has certainly improved since the height of manufacturing employment in the late 1970’s, is it partly to blame for the job losses? There is evidence to back up this assertion.

The Center for Business and Economic Research at Ball State University released a study in 2016 about this issue, and concluded that 88% of these job losses were due to automation; a staggering number. The study also finds that roughly 12% of the job losses have been a result of international trade (Wiseman, 2016). Even manufacturing jobs overseas are starting to be replaced with robots. Foxconn Technology, a supplier for Apple and Sony, recently replaced 60,000 workers with robots at a factory in China. They cited the lower labor costs associated with using robots. A government survey found that 600 companies in China have similar plans (Rosenthal, 2016).

If companies were to decide to move production back to the United States, automation will limit the number of jobs that actually come back home. Since 2010, 1,300 companies have “re-shored” jobs in the U.S. However, those moves only resulted in 265,000 manufacturing jobs coming back (Companies Reshoring, 2016). This is only a fraction of the six million jobs lost over the past several decades. It also is only a fourth of the roughly million manufacturing jobs that have been created since the end of the Great Recession (see figure 1). While international trade likely caused a certain percentage of the lost jobs, automation will hurt any attempts to bring those jobs back home.
When examining the decline of the manufacturing employment as a percentage of the U.S. labor force, it is important to note the rise of service industry. The service economy has been prevalent going back many decades. In 1939, just before the rapid increase in military expenditures, the number of people in the service industry outnumbered those in manufacturing by over 2 to 1 (Short, 2014). Since that time the service industry has grown by in employment by just under 550%, compared to roughly 40% for manufacturing (as of July 2014). When adjusting for population growth, the service industry has still grown by 70%, while manufacturing employment actually declined by almost 70%. As of mid-2014, service industry employees outnumber manufacturing employees by 9.9 to 1, a remarkable jump (Short, 2014). As of 2009, the service economy accounted for nearly 80% of the U.S. GDP and employed 80% of the country’s labor force, supplying 89.7 million jobs (Ward, 2010).
While the growth of the service industry is a notable achievement for the U.S. economy, its relationship to the manufacturing industry is a different matter. There is, however, evidence to suggest that the rise of service employment and the decline of manufacturing employment are related. As previously mentioned, a study conducted looked at the deindustrialization of economically advanced nations (Kollmeyer, 2009). There were three hypotheses tested: global trade, productivity growth, and consumer affluence. The idea behind consumer affluence is that as nations become richer and individual wealth rises, people begin to demand more from the service industry, and less from the manufacturing sector. These citizens spend more of their additional income on services and less on manufactured goods. The results showed that all three had some impact, but that consumer affluence was the single greatest factor in the deindustrialization process (Kollmeyer, 2009). A study released in 2009 looked at the growth of the service industry as a share of the total economy. It emphasized that the growth is due to the consumption of services. As the need for skill intensive services has risen, so has wages. This helps to attract new workers to the field. Because many skills are specialized, that creates greater need for the consumption of services and skills that the consumer does not have, creating a cycle (Buera and Kaboski, 2009).

The work in the previously cited reports suggests that there is a relationship between the service and manufacturing economics. However, the decline of manufacturing employment is likely not directly attributable to only one cause, but rather it is more plausible that a group of causes are to blame. It’s been concluded by some that global trade, productivity and consumer affluence all had an effect on manufacturing employment (Kollmeyer, 2009). While other researchers attributed the majority of those job losses to automation, they also credited globalization (Wiseman, 2016). It is important to note that just because a variety of causes are
likely to blame, does not mean that certain explanations deserve the criticism they receive.

NAFTA has come under much scrutiny, and while the deal is not perfect, a wide majority of economists agree that NAFTA has been beneficial to the U.S. economy. Some others found that the effects of the trade deal have been modest, regardless of whether those effects were positive or negative (Fergusson and Villarreal, 2017). At this point in time, the question that many policymakers struggle with isn’t “what caused these jobs to disappear?” The question is: “how can these jobs be brought back?”
Chapter 4

Tax Abatements and Their Use in the State of Pennsylvania

It is important to understand what is causing the decline in manufacturing employment so that we can better comprehend exactly what policy makers are doing to counter-act it. There is essentially nothing that can be done about improved labor productivity. Improvements in this area will continue to reduce the number of workers needed to effectively run factories. As such, politicians tend to focus on globalization, and what policy options are available to offset the negative effects of this.

There are several proposals to fight the continuing trend of offshoring jobs. These proposals can range from pulling out of or renegotiating trade deals, to taxing countries that move jobs overseas. Consider the ‘carrot and stick’ approach to induce firms to act in a certain way. Some people prefer to threaten these firms with the stick, while others tend to try and entice them with the carrot. A popular method used by state and local governments to entice companies is offering tax exemptions, or abatements, to companies in order to bring more jobs to a certain state or prevent those jobs from leaving (Story, 2012). Tax abatements allow companies to forgo paying a certain amount of taxes, or delay paying them until a later date; these deals can range from a few years to several decades. Once the deal expires companies are forced to pay the normal tax rates unless they renegotiate the deal. It was previously mentioned that President Donald Trump struck a deal with Carrier to keep roughly 1,000 jobs in Indianapolis. Part of the deal included millions of dollars in tax abatements from the state of Indiana (Schwartz, 2016).

Offering tax abatements to companies is a strategy used by nationwide by state and local governments, albeit to varying degrees. To repeat from earlier, Texas offers $20 billion dollars a year in the form of abatements to companies; $12 billion of that goes to manufacturing
companies. Texas is by far the largest spender in tax abatements, followed by Michigan, Pennsylvania, California, and New York (Story, et al. 2016). Pennsylvania, in particular, spends $4.84 billion a year on tax abatements on businesses. This is $381 per capita, and 18 cents per dollar of the state budget. A notable percentage of that, over $900 million from 2013-2016, went to manufacturing companies. Due to the drop in U.S. based manufacturing companies, all states have an incentive to try and entice as many companies as possible to move to a certain location. Per year over $80 billion is spent on tax abatements for companies nationwide, with the total number of abatement programs coming in at 1,874. Forty-eight companies have received over $100 million since 2007, including GM, Ford, Boeing and more (Story, et al. 2016).

Given that tax abatements are very popular around the country, it is important to try and gauge their effectiveness in bringing businesses and jobs to a certain location. Several studies have taken a look at this question. A researcher at the University of Michigan wrote a paper on their effectiveness and noted that abatement programs had a number of criticisms (Maurer, 2005). A major criticism is that these programs are often a zero-sum game. Cities are bidding against other cities, and states are bidding against other states. What one state wins, another state loses, mitigating their overall impact. While it may be considered a win for a particular region or state, at a macroeconomic level the positive and negative effects of the program offset, creating a zero-sum. Oftentimes, regions’ attempts to outbid each other puts a great deal of fiscal stress on their tax bases. Once again, this limits any potential positive impact. In this situation, the only winners are the businesses who receive these tax breaks. Another major criticism is that experts don’t know what would have happened if the tax abatements were not given out. It’s hard to judge their effectiveness if researchers don’t have that information (Maurer, 2005). Other criticisms include the fact that in some situations, governments either hand out tax breaks to
companies that weren’t planning on leaving or were already planning on moving to that location, essentially wasting money. Governments are also forced to hold companies accountable, making sure they live up to the promises they made when moving to the region. The article concludes by saying that while these abatements may possibly be ineffective, they provide evidence that a region is attempting to invigorate the local economy, which can be beneficial in other ways (Maurer, 2005).

A recent 2011 study looked at the use of tax abatements in the St. Louis region, attempting to quantify their effectiveness; they reached a few conclusions (East-West Gateway, 2011). The first conclusion supported the zero-sum criticism outlined earlier. Researchers found that increasing tax revenue in combination with the use of tax abatements in one neighborhood were met with declining tax revenue in another neighborhood. The same held true with jobs, an increase in jobs in one region coincided with a decrease of jobs in another. They also found that these deals could have possibly contributed to the financial duress of many municipalities, even during the mid-2000’s when the economy was performing well and many state/local governments ran budget surpluses (East-West Gateway, 2011). In addition, the evidence showed that poorer neighborhoods often had trouble competing with higher income areas, resulting in a lack of jobs for these areas and contributing to the economic disparity already found in the region. Finally, the study found great need for better standards of accountability (East-West Gateway, 2011). Local agencies often have inadequate resources to hold businesses accountable for their end of the agreement (increase in jobs, investment, etc.)
A literature review from the University of Kansas reached similar conclusions (Middleton, 2001). While the research showed that these deals do affect a firm’s choice of where to move, evidence also showed that some abatement programs are wasted on companies who were not likely to relocate in the first place. The paper noted that these incentives did not appear to increase national welfare, only the welfare of select areas. The researchers examined the prospects for reform, including banning the practice outright or attempting to regulate the practice. While in the past economists have advocated for a ban on abatement programs, the prospects for this do not appear likely (Middleton, 2001). Regulations, such as only allowing fiscally distraught areas to use tax abatements, seem more likely than the first option. But difficulties in enforcing those regulations, as well as likely efforts from cities and states to weaken such rules, stand in the way of proper implementation (Middleton, 2001).

Figure 6. Pennsylvania Manufacturing Employment
Tax abatements in Pennsylvania is a major topic of this chapter because Pennsylvania has greatly suffered from the decline in manufacturing jobs. Located in the aforementioned Manufacturing Belt, the state was once home to many manufacturing companies that employed hundreds of thousands of employees. In 1990, there were roughly 960,000 manufacturing employees in Pennsylvania. Over the next decade, that number dropped to about 880,000. During the 2000’s manufacturing employment continued to steadily drop off. After the Great Recession, manufacturing jobs dropped to just under 560,000 (State and Area Employment, Hours and Earnings, 2016).

More than just jobs were affected, entire towns disappeared and fell into disrepair. One such example is Aliquippa, a town built by Jones & Laughlin Steel Corporation in the early 1900’s. The company did this to provide homes to their workers. In 1984, J & L merged with another company and immediately laid off 8,000 employees in the Aliquippa area (Crowder, 2015). The combination of the soaring unemployment and people leaving the area essentially ruined the local economy. At its peak, the population was over 27,000. Today, the population is about 9,000 (Crowder, 2015). The town is littered with closed stores and abandoned homes. Aliquippa is but one of many towns in Pennsylvania that has been affected by the changing economy. In a bid to turn the tide, prevent more jobs from leaving and bring new jobs to the state, Pennsylvania is investing a substantial sum of money to provide tax abatements to companies.

With Pennsylvania spending just under a billion dollars since 2013 on these programs, it is important to try and verify a couple of things: first, that the abatements are being used responsibly and effectively. Secondly, within the context of the state budget, it is important to ask whether the $900 million could be better spent elsewhere. For the past two years the state
government made notoriously slow progress passing a budget. In 2015-2016 fiscal year, the budget standoff lasted until March of 2016—roughly nine months past the original deadline to pass the budget (Langley, 2016). In 2016, the legislative conflict was resolved by mid-July; past the June deadline but a much shorter standoff (McKelvey, 2016).

Unfortunately, it is impossible to know with complete certainty. But there are a number of economic statistics that serve as indicators of the effectiveness of the spending. The most obvious indicator is the level of manufacturing employment in Pennsylvania. As previously discussed, the state’s manufacturing sector shrunk greatly over the past several decades, from 960,000 to 560,000 at the end of the Great Recession (see figure 2). But even after the recession ended and manufacturing employment began to rebound (at the national level and in many states like Michigan), Pennsylvania has lagged behind. Ever since employment bottomed out at 557,000 in January 2010, there has essentially been no change over the next seven years. The high mark since the Great Recession was 571,000 in February 2015. As of December 2016, that number sits at roughly 557,000 (State and Area Employment, Hours and Earnings, 2016). It should be noted that manufacturing makes up just under 10% of Pennsylvania’s total labor force.

When compared to the federal level, Pennsylvania’s stagnant recovery looks even worse. Since the manufacturing labor force bottomed out at 11,453,000 in March 2010, the economy has gained back roughly a million of those jobs that were lost. The jobs added back during the Recovery represent 6.8% of the total manufacturing labor force. As shown in table 3 below, those jobs have mainly gone to southern states or states with large automotive industries, such as Michigan (27.3% of its current manufacturing labor force was recovered after the Great Recession), Ohio (11.3%), Indiana (17.3%) and Texas (9.7%) (U.S. Bureau of Labor Statistics, 2017). It should be noted that Texas’ percentage represents only jobs gained from 2010-2015;
the state had an economic downturn in 2016 which hurt its recovery (Ailworth and Leubsdorf, 2016). Meanwhile, various northeastern states which have allotted a similar amount of money in tax abatements are seeing essentially no gain in employment. Pennsylvania, New York, Virginia, and Massachusetts have given out total abatement amounts ranging from $600 million to $900 million in roughly the same time frame. None of those states have seen substantial job growth in that sector since the end of the Great Recession. In fact, New York actually lost manufacturing jobs despite spending over $800 million on abatements (U.S. Bureau of Labor Statistics, 2017).

<table>
<thead>
<tr>
<th>States</th>
<th>% of Total Manufacturing Employment Added After Great Recession</th>
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</thead>
<tbody>
<tr>
<td>Nationwide</td>
<td>6.8%</td>
</tr>
<tr>
<td>Michigan</td>
<td>27.3%</td>
</tr>
<tr>
<td>Ohio</td>
<td>11.3%</td>
</tr>
<tr>
<td>Indiana</td>
<td>17.3%</td>
</tr>
<tr>
<td>Texas</td>
<td>9.7% (As of 2015)</td>
</tr>
</tbody>
</table>

Table 3. % of Total Manufacturing Employment Added After Great Recession

Figure 7. Pennsylvania Manufacturing Output. Source: Wells Fargo
While Pennsylvania is weak on manufacturing employment, its level of output has jumped in recent years. This is detailed in figure 7. After recovering from the Great Recession, Pennsylvania’s manufacturing output has risen to its highest level in a decade, reaching $85 billion in 2015. This is after bottoming out at $73 billion during the Great Recession. That accounts for over 12% of the state’s total gross product (Center for Manufacturing Research, 2016). Pennsylvania exports over $36 billion worth of goods each year and has experienced a 15% growth in that figure since 2010. These exports help to support 19% of Pennsylvania’s workforce (Center for Manufacturing Research, 2016). While tax abatements may not directly bring jobs to the region, they may have an indirect impact. Those abatements may help to sustain and raise Pennsylvania’s output and exports. The export market in particular is linked to a large percentage of jobs.

A side effect of offering tax abatements to businesses is that companies tend to become more strategic in order to obtain as many benefits as possible. This includes forcing communities and states to compete with each other in order to bring businesses to their region. This happens across the nation, including Pennsylvania. The state recently awarded $1.6 billion in tax credits to Royal Dutch Shell, an oil company, in return for Shell building a multibillion dollar plant in Pennsylvania. Other states including Ohio and West Virginia were also competing for the same plant (Bumsted, 2016). While competition helps to bring about the best deals for businesses, they can hurt state and local governments. Gifting abatement deals that are too large to businesses can do great damage to local budgets, forcing either tax hikes or budget cuts. In many Pennsylvania locations, budget cuts are not an option—especially given the current school funding crisis. After education budget cuts a number of years ago, Pennsylvania schools are being forced to take dramatic actions, including combining schools, cutting staff, and increasing class sizes. Some
school districts are forced to close schools altogether. The most recent budget for the 2015-16 year underfunded schools by about $200 million (Lyons, 2016).

In addition to potentially contributing to budget shortfalls elsewhere, bloated tax abatement deals end up costing governments a large amount of money per job created. For example, consider the Shell deal. In terms of direct impact, that deal is going to create 6,000 temporary construction jobs and 600 permanent jobs at the factory once construction is complete in 2021 (Myers, 2017). Given that Shell received $1.6 billion dollars in incentives, that amounts to roughly $242,424 spent per job created. Compared to other deals, this is not an exorbitantly high number. But once construction is complete there will only be 600 permanent jobs. If the construction jobs are taken out of the equation, it cost Pennsylvania over $2.6 million per job; a very high number. It should be noted that there will likely be an indirect effect that will result in more jobs being created, including jobs resulting from the billion dollars in investments Shell has promised (Bumsted, 2016). That is still a high figure to spend on job creation (based on figures of job creation cost), and there is a lingering question of how long those jobs will last (Feyrer and Sacerdote, 2011).

Also, there have been numerous accountability problems (that have already been mentioned previously) with holding companies to their pledges. In 2014 Pennsylvania Auditor General Eugene DePasquale released an audit of the Department of Community and Economic Development (Department of the Auditor General, 2014). The Auditor General criticized the department, saying that greater transparency and accountability was needed to better oversee job creation programs. DePasquale reviewed over $200 million dollars given to 600 businesses between 2007 and 2010. He noted numerous failures in oversight of these programs and recommended various changed be made in order to see a better return on investment. His
recommendations included establishing performance measures, requiring payroll information, and creating penalties for companies that failed to live up to their promises. Given the concerns about oversight, it is imperative that Pennsylvania hold Shell accountable in order to reap the full economic benefits of the deal.

When state and local government officials negotiate tax abatement deals with companies, the end goal is to have those companies invest in Pennsylvania’s economy and provide well-paying jobs to communities. But just because manufacturing was once an important part of Pennsylvania’s economy, that doesn’t make it the best investment for policy makers. Sometimes economic conditions and the labor force change, resulting in some sectors growing while others shrink. The changing conditions can thwart policy makers’ best efforts to help revive a sector. While that is not necessarily the case with manufacturing in Pennsylvania (that is a question for other reports) it does beg the question of whether there are other, healthier, sectors of Pennsylvania’s economy to invest into. 70% of the jobs created here over the past year are in either health care and social assistance, or in professional and business service (Vitner and Feik, 2016).

This state is known for having several prominent economic sectors, including its scientific research and development sector. This sector, which includes pharmaceutical research companies, is growing very quickly in the state. In 2016, its employment has risen by 5.2%. Employment in management and consulting has jumped extremely quickly, growing by 9.7% over the past year. Jobs in the architecture and engineering fields have also seen a healthy rise, up 5.3%. Job and income growth is expected to rise even more in these and other fields in Pennsylvania (Vitner and Feik, 2016). Professional and Business services as well as leisure and hospitality are seeing respectable job gains, growing at close to 2 and 3% respectively.
Construction employment has seen essentially no growth, while the manufacturing sector has been a net drag on the economy, losing about .5% of its jobs as of May 2016. In addition, much of this growth is taking place in urban areas, with younger people moving to larger cities such as Philadelphia. This trend is yet another signal that Pennsylvania’s economy has been evolving over the past several decades (Vitner and Feik, 2016). While it has been noted that tax abatements’ effectiveness as a policy is dubious, if policy makers are going to continue making those types of deals it may be more beneficial to invest in sectors of the economy that are in a healthier state.

A possible counter-argument to this is that a number of citizens have different kinds of human capital. While they may be effective workers in a manufacturing plant, they may not be as effective in the service industry. This counter-argument shows why it is crucial the state government to assist in the career transition of these workers. In this scenario, assuming that the government is helping to subsidize the expansion of industries besides manufacturing, it is imperative that funding for retraining programs is also provided. Granted, for some workers retraining will be difficult, but it is a necessary transition that needs to be made to ensure smoother economic growth. One study done on the effectiveness of government retraining programs for adults found modest, yet positive results (Friedlander, et al. 1997).

Hypotheses that may help explain the state’s weak manufacturing economy are Pennsylvania’s tax climate and the quality of its human capital. Every year, Ball State University’s Center for Business and Economic Research (CBER) releases a report card on a number of different economic variables for each state. In 2015, the last year for which the report was released, Pennsylvania scored a D- on Tax Climate and a C on Human Capital. The overall health of the manufacturing industry was scored a C- (Center for Business and Economic
Research, 2016). It has been observed that Pennsylvania’s tax abatement programs are going towards new industries moving to the region, giving less attention to companies who are already located in the state. This may be partially to blame for the weak tax climate. Meanwhile, states like Ohio, Michigan, Indiana and Texas all scored higher in tax climate. Of the four Northeastern/Mid-Atlantic states previously mentioned (Virginia, Pennsylvania, New York, and Massachusetts) Virginia scored the highest at a C, while the other three states scored D or F.

Table 4 outlines how each state scored on a number of different categories.

<table>
<thead>
<tr>
<th>State</th>
<th>Tax Climate</th>
<th>Human Capital</th>
<th>Productivity and Innovation</th>
<th>Overall Manufacturing Sector Health</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pennsylvania</td>
<td>D-</td>
<td>C</td>
<td>C</td>
<td>C-</td>
</tr>
<tr>
<td>Virginia</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>New York</td>
<td>F</td>
<td>C-</td>
<td>B+</td>
<td>D-</td>
</tr>
<tr>
<td>Massachusetts</td>
<td>D+</td>
<td>B-</td>
<td>A</td>
<td>C</td>
</tr>
<tr>
<td>Michigan</td>
<td>C+</td>
<td>D</td>
<td>B</td>
<td>A</td>
</tr>
<tr>
<td>Ohio</td>
<td>C</td>
<td>C-</td>
<td>B</td>
<td>B</td>
</tr>
<tr>
<td>Indiana</td>
<td>A</td>
<td>C</td>
<td>B+</td>
<td>A</td>
</tr>
<tr>
<td>Texas</td>
<td>A</td>
<td>D+</td>
<td>B-</td>
<td>C</td>
</tr>
</tbody>
</table>

Table 4. CBER 2016 Report Card by State

Human capital was also noted as a cause of slow growth in the manufacturing sector. It was noted that white collar jobs in the industry are growing, while blue collar jobs are declining. This has resulted in a mismatch; blue collar workers who may have an extensive history in manufacturing but aren’t qualified for the white collar jobs that many factories are seeking to fill. Pennsylvania historically has dedicated a lower than average percentage of its budget to education, indicating that the state does have room to grow on education funding (Mahon, 2015).
Allowing these workers an opportunity to achieve higher degrees and seek out more qualified positions could help the state’s manufacturing industry. While Pennsylvania did score low on human capital, it tied most of the other states mentioned, and actually surpassed Texas and Michigan. There are many factors scored in the CBER’s report, including productivity, global reach and worker benefit costs. What this report does is indicate that a variety of variables combine to shape the general health of a state’s manufacturing sector. For states like Pennsylvania, New York, Massachusetts and Virginia, they earned a C-, D-, C, and D respectively. Meanwhile Texas, Michigan, Indiana and Ohio scored a C, A, A and B respectively (Center for Business and Economic Research, 2016). While tax abatements are certainly one of those variables, it seems that allotting abatement programs to companies will not provide an automatic boost to the manufacturing industry.

Research into tax abatements has shown that they are a popular, yet not very effective method to stimulate the economy. At both the local and state level, governments give large tax breaks to companies in return for promises to create jobs and invest in that region’s economy. Numerous studies have shown that positive benefits of these deals are dubious, and low accountability standards across the country result in municipalities and states not reaping the full economic benefits of the deal. Meanwhile, governments and tax payers are saddled with long term costs. This chapter was not meant to make a final decision on whether these abatement deals are worthwhile; in the right situation, they very well may be. That being said, it seems likely that reform is needed in order to ensure fair and prosperous deals are being reached.

In Pennsylvania, firms receive $4.84 billion each year, with almost a billion dollars since 2013 going to the manufacturing sector. Again, this chapter is not supposed to be conclusive, it’s purpose is to take a look at the relationship between these abatements and the performance of the
manufacturing sector. It appears, after looking at various economic indicators and the performance of other sectors, that this money may be misplaced. Other areas of the economy are healthier and could probably make better use of the abatements, rather than manufacturing which is struggling to hold its current employment numbers. Those funds could also be re-appropriated to other areas of Pennsylvania’s budget, such as education or social services. Future tax abatement deals should be looked at with caution given the current performance of manufacturing in Pennsylvania. It should be noted though, manufacturing still makes up just under 10% of total employment in the state; while manufacturing may not be the future of Pennsylvania’s economy, it cannot simply be forgotten about today.
Chapter 5

Conclusion

After looking at economic data and studies concerning the manufacturing industry, it does not appear that the industry will be able to recover from the sharp drop in employment. While there has been a small uptick in these jobs since the end of the Great Recession there is no evidence to suggest that this growth will reach pre-2000 numbers, or even continue rising at all. With technological improvements and the continuing trend of breaking down of trade barriers, the past several decades have seen a stark decline in the notability of manufacturing as a percentage of total employment. Output is at an all-time high in the United States, signaling that the companies themselves are still healthy, but the industry as a whole no longer provides the jobs and security it once did. Other sectors of the economy, notably the service industry, have grown in output and employment since World War II and are now supplying a much larger percentage of jobs than the manufacturing industry. As previously noted, service sector jobs outnumber manufacturing jobs in this country by a ratio of 9.9 to 1, and there is nothing to indicate that this disparity will grow smaller.

The rapid decline in manufacturing employment has presented many workers with the difficult challenge of re-assimilating into the workforce or dropping out of the labor force entirely. Many workers have spent their entire careers in manufacturing, so making a transition to something else-especially something that may not be as financially rewarding, is not easy. This is an unfortunate reality for those working in a declining sector of the economy. But while there are downsides, the rise of another sector presents many benefits in the form of more
employment opportunities and promising growth. At this point in time, the U.S. economy appears to be healthy, with overall employment rising at a steady pace through 2016. It seems shortsighted to focus on one aspect of the economy, especially when that one aspect is becoming an increasingly small portion of the total employment. While an evolving economy presents challenges to both policy makers and the public, it is important to act in a way that progresses the economy forward, instead of seeking to preserve what it once was. Unfortunately, that is what many politicians are attempting to do today by railing against trade agreements and pursuing expensive tax abatement deals with companies.

As noted earlier, trade abatement are popular methods used by local and state politicians to slow down the current downward trend in manufacturing employment (as is the case in many states). Over $80 billion is spent per year on these deals nationwide, and there is no sign of these programs losing popularity. Despite the outlined criticisms of this method, civil servants view these deals as a way to make their region more economically competitive while signaling to other businesses and the public that they are attempting to economically improve themselves. Multiple studies have questioned the viability of these programs, and the results have largely confirmed previous criticisms. It seems likely that these deals allocate money improperly to businesses and puts undue financial stress on cities (and in numerous cases, states.) There are accountability concerns that could prevent governments from enjoying the full benefits of the agreements, and many poor areas lack the funds to compete with other regions, resulting in jobs and investments not going to the area that needs them the most. Nationally, it appears that these abatements result in a zero-sum game; one region’s gain is another’s loss. It is likely that it will take federal legislation to either regulate or eliminate these programs, and it is something that
economists have already advocated for in the past. Where or not such legislation passes is another matter entirely.

On the subject of Pennsylvania’s manufacturing tax abatement program, the results are not much brighter. Of the economic indicators looked at, there is not much to suggest that these abatements are having the desired effect on the state’s economy. It is true that output is growing right now, but that is not translating directly in manufacturing jobs; Pennsylvania’s manufacturing employment has seen basically no substantial gain since the end of the Great Recession. It is likely that other factors, such as low human capital, poor tax climate, and other factors are weighing down the potential for Pennsylvania’s manufacturing industry, and thus limiting any positive gains from the $900 million in abatements given to companies. Other Northeastern/Atlantic states, such as New York and Virginia, have also seen subpar results with similar levels of funding. This suggests that there may be geographic influences at play here.

This thesis presents no final judgement on the use of tax abatements; they may very well be effective in some cases. But it is clear that there are many powerful influences that determine the health of a region’s manufacturing industry.

This is not an issue that can be fixed solely by creating more abatement programs and spending more funds. More research needs to be done in order to determine under what conditions these abatements can be successful in, so that states can get the most return on their investment. For Pennsylvania, it appears likely that policy makers must either: focus on institutional reforms designed to spark the manufacturing economy, or focus on other, more promising sectors of the state’s economy. If Pennsylvania decides to go with the latter option, it is important that manufacturing cannot simply be forgotten. This industry makes up almost 10%
of the state’s total employment; it is both a large percentage of the electorate and the general public.

As previously mentioned, the purpose of this thesis is to help open and facilitate discussion on the use of tax abatements by Pennsylvania and other states. While manufacturing employment is an issue that is frequently brought up as an issue, the use of tax abatements attracts much less notoriety. As such, people may be unaware of the positive and negative aspects concerning them. Hopefully, this thesis and other works like it are able to educate the public on their use and potential dangers. Generating public interest and starting an informed discussion on tax abatements is the first step to fixing what many researchers have concluded is a broken system. Assuming that those researchers are correct, action needs to be taken. Whether or not the system is banned entirely or simply regulated is an issue for another paper to analyze.

The positive and negative aspects of both options need to be carefully looked at before policy makers move forward with a proposed solution. Assuming some action is taken to curb the use of these programs, there is the question of what should be done with the money used to fund them. That is a question left up to the individual states to decide. Earlier in the thesis, it was posited that Pennsylvania needed increased funding for education. While that may be true, there may also be other areas of the state’s budget that could use additional funding. Other states such as New York, Virginia, etc. will also have to take a look at this to determine the best path forward. Any form of action on tax abatements will take years to accomplish, but that should not stop politicians, economists, and the public at large from raising the issue. An open dialogue and augmented research is a significant move forward that could possibly serve to improve the economy and the financial health of governments across the nation.
BIBLIOGRAPHY


ACADEMIC VITA

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EDUCATION

The Pennsylvania State University, University Park, PA
Schreyer Honors College
- Bachelor of Arts in Political Science
- Bachelor of Arts in Economics

SKILLS/QUALIFICATIONS

Research
• Assisted State Senator Vincent Hughes in several projects, putting together research memos and briefing the staff on various topics such as school infrastructure funding, sports gambling laws, and lead poisoning
• Attended numerous committee, staff, and lobbying meetings to summarize important topics and use the information to create memos for senior staff
• Led multiple projects, coordinating with other interns and staff to assess tasks, keeping consistent contact with others resulting in the successful completion of the projects

Data Analysis
• Organized and confirmed campaign event logistics, ensuring volunteers had the correct data
• Sorted through hundreds of pages of bills and campaign documents to pinpoint minute details and note any changes
• Updated a crucial constituent tracking database with hundreds of new pieces of information coming in each week. The database was used by Senator Hughes to assess his district’s positions on bills, policy proposals, etc.

Communication/Public Relations
• Assisted Senator Hughes with constituent outreach events, meeting citizens in person and taking their concerns directly to the Senator for a response
• Phone Banked for the Joe Sestak campaign, calling hundreds of supporters in the state with campaign updates
• Drafted occasional press releases for Senator Hughes for certain holidays and commemorative events

RELATED EXPERIENCE

Legislative Intern, Pennsylvania State Senate Democratic Appropriations Committee
May-August 2016

Intern, Joe Sestak Campaign for U.S. Senate
April-October 2015

Intern, Kevin Dougherty Campaign for Pennsylvania Supreme Court
March-September 2015

LEADERSHIP ROLES

Vice President of Finance for Phi Mu Delta Fraternity, Mu Epsilon Chapter
January-December 2016
• Established budget protocol, that resulted in consistent record keeping and fund management
• Helped other members to pay their semester dues, including tailoring payment plans/methods to their individual needs
• Oversaw budgets worth $20,000 ($10,000 per semester), incorporating input from other vice-chair positions

Academic Chairman of Phi Mu Delta Fraternity, Mu Epsilon Chapter
January-December 2015
• Mentored members of the fraternity who were struggling academically to help them set up a plan to improve grades. This included assisting with study plan development, referrals to academic subject matter experts.
• Cooperated with other chair positions and the Executive board to create new programs to assist and motivate members
• Routinely communicated with struggling members to assess their progress and offer any help that could be provided

THON Chairman of Phi Mu Delta Fraternity, Mu Epsilon Chapter
January-May 2017
• Lead the Fraternity’s effort to raise money, awareness and excitement about THON, a dance marathon to end the fight against childhood cancer
• Created an alumni outreach project, both in person and on social media (Facebook, Twitter, etc.) to elicit donations
• Prearranged fundraising events, tracked deadlines, encouraged participation and communication with Phi Mu Delta