Dean&Francis
ISSN 2959-6130

How Do Tax Increase Policies Affect Employees Employed by Firms of Different Sizes?

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Abstract:

This study examines how firm size changes the impact of corporate taxation on employee benefits, using the 2014 surtax policy change in Connecticut policy focus. Through a comparative case analysis of two large and two small firms in Connecticut (treatment group) and Pennsylvania (control group), this study analyzes the changes in average non-wage employee benefits before and after the tax rate changes. Financial data from SEC filings (2011–2017) shows that large firms in Connecticut experienced a significantly larger decline in their average employee benefits (−40%) compared to the control group case in Pennsylvania (−9.7%), which a difference of 30.3%. On the other hand, small firms showed a smaller difference (2.6%) in benefit reductions between the control group and treatment group. Employment levels remained relatively stable across both groups, suggesting that benefit adjustments are the main response to surtax policy. These findings suggest that firm size contributes to the effect of taxation on the employee benefits that employees receive, with larger firms showing a greater change in their employees' responses to tax increases.

Keywords: Employee, Surtax, Employee benefit, Firm size.

1. Introduction

Taxation is a primary measure for the government to adjust its economy, budget, and income distribution. The Tax Cut and Job Act (TCJA) of 2017, which significantly influenced the corporate and individual income tax structure, was a main subject of debate [1]. Ultimately, the outcome of the TCJA can be evaluated by its effects on corporations and their employees. Taxation influences company investment decisions due to the changes in the cost of physical capital [2]. While Summer's study focused primarily on physical capital, the logic that increased capital costs influence investment decisions may also hold for changes in human capital costs. If taxation affects corporate resource allocation, it may also change company decisions on employee wages and benefits.

Gruber and Poterba show that companies actively adjust employee compensation and benefits, such as

ISSN 2959-6130

pensions and health insurance, in response to tax incentives [3]. This discovery shows that firms can indirectly reduce tax-induced costs by reducing employee benefits, causing an unexpected consequence for employees.

However, the degree of benefits reduction in response to taxation might vary due to a range of factors. For example, firm size can influence the changes in benefits: The larger companies are systematically different from smaller ones in terms of their tax rates, financing channels, management complexity, and ability to endure costs. Therefore, companies of different sizes may respond differently to the same tax policy, leading to heterogeneity in how they adjust employee benefits. This study aims to examine how a surtax policy affects average employee benefits at firms of different sizes, evaluating how firm size mediates the impact of a surtax on employees, mainly focusing on the policy effect 2014 surtax policy change in Connecticut. This paper contributes to the study of taxation heterogeneity by introducing firm size as a key variable in the analysis of taxation on employee benefits. The conclusion may provide policymakers with a more detailed insight, allowing them to assess the heterogeneous effects of taxation on employees at different-sized firms and avoid unintended consequences for individual employees.

This paper will follow this structure: The second part will be a literature review on the general effects of taxation and firm size on employee benefits; the third part will describe the case study; the fourth part will present the analysis and evaluation of the results; the fifth part will provide the conclusion.

2. Literature Review

2.1 Tax Policies Impact on Wage and Unemployment.

Changes in corporate tax policies have been an important measure for the government to adjust the economy and government budget. However, the outcomes of these policies do not always align with what policymakers expect, especially regarding their impact on employees. Traditional tax incidence theory posits that the burden of the corporate income tax falls mainly on capital owners in a closed economy [4]. Later studies demonstrated a different conclusion for open economies, where capital has high mobility [5]. Thus, when a corporate tax increase occurs, capital will outflow to regions with lower tax rates, resulting in a reduced domestic capital stock and capital per worker. This reduction lowers the productivity of labor and the number of jobs. In this case, the tax burden falls on the inputs with lower mobility, namely labor, resulting in lower wages and higher unemployment [6]. Randolph's study shows that 70% of the corporate tax burden in the USA is borne by the American work force, while the remaining 30% is borne by capital owners [6]. Felix found that in an open economy with highly mobile capital, companies can reduce their corporate tax burden by reducing wages and cutting employees [7]. A 1% increase in a state corporate income tax is associated with an average wage decrease of 0.14% to 0.36% [7], supporting the conclusion that employees also bear a large portion of the corporate tax, especially in an open economy.

Any practices that increase a company's spending on labor, such as corporate taxes, mandated benefits, or minimum wage, will be regarded as an increase in labor cost [8]. Summer argues that the incidence of these mandated employer costs falls on the employees through reduction of wages or increased unemployment[8]. Summer's findings can be directly applied to corporate taxes, further suggesting that firms can reduce their workforce to mitigate the tax burden [8].

However, the degree of the tax burden on employees depends on various factors such as company size [9]. Fuest et al. found that in Germany, every 1 euro increase in corporate tax liability reduces wages by 0.56 euros [9]. Typically, in small companies with low asset values and a single-plant operation, wages reduce significantly because of an inability to conduct tax avoidance due to their size. On the other hand, in larger companies, with much higher asset values and multi-plant operations, employees' wages are barely influenced by higher taxation [9]. In the USA, an increase in corporate tax in one state motivates firms to shift operations to other states with lower corporate tax rates [10]. By relocating operations to reduce their tax burden, the tax incidence on employees may be lower due to the firm's greater capacity for tax avoidance.

2.2 The Influence of Firm Size on Employee Benefits and Tax Avoidance

2.2.1 Employee Benefits

Firm size influences the quantity and quality of employee benefits. There is a positive correlation between employer size and wages [11]. Brown and Medoff's study confirmed this relationship by excluding the effects of "collar" color, union status, and industries, showing that it exists without other factors' influence [11]. Later research conducted by Idson and Oi explained this phenomenon by concluding that higher wages in larger firms are a direct result of higher productivity, drawing on theories such as economies of scale and agglomeration, as well as better access to capital and technology, to analyze the causes of this enhanced productivity[12]. Idson and Oi found that labor productivity increases with firm size, using data from the Census of Manufacturers [12]. Larger firms create jobs and working conditions that enable employees to be more productive, which results in a higher market equilibrium

wage [12]. In general, these previous studies have shown and explained the positive relationship between wage and firm size, which can be used to explain wage differences between different-sized firms in the control group and treatment group.

2.2.2 Firm Size Influence on Tax Avoidance

The ability to conduct tax avoidance also differs by company size. Small companies, lacking the scale to avoid tax, experience a higher overall tax incidence for both the company and its employees [9]. Intermediate-sized companies might be able to reduce their taxation by moving operations across states, as shown by Giroud and Rauh [10]. Waruwu and Kartikaningdyah found that larger companies might choose not to conduct tax avoidance due to considerations of reputation and public image[13]. Conversely, some large firms with stronger political connections might be more likely to conduct tax avoidance because of the protection afforded by political connections [14].

However, evidence is still lacking about whether the benefits gained from conducting tax avoidance are passed on to employees in the form of reduced tax incidence. This study aims to address this gap by analyzing data and evidence from cases.

3. Case Analysis

3.1 Background of the Cases

To analyze the effect of policies on corporate tax rates, this study will measure and compare the changes in employee compensation and unemployment between the control state, Pennsylvania, and the treatment state, Connecticut. The reason for selecting these two states is their similar industrial structure (with a high proportion of finance, insurance, and biomedical industries) and close geographical location in the northeastern United States, which means the states also share a lot of cultural similarities, helping to eliminate potential heterogeneity caused by regional and cultural differences. Furthermore, both states had similar economic indicators from 2011 to 2014, such as an average unemployment rate of 7.8% in Connecticut (CT) and 7.3% in Pennsylvania (PA), an hourly wage of $28.8 in CT and $25.2 in PA, and a labor force participation rate of 65.6% in CT and 63.4% in PA.

This study selected PA as the control state because it had a constant corporate tax rate of 9.99% from 2011 to 2018. This provides a clean control that is not influenced by corporate tax changes. On the other hand , CT was selected as the treatment state because it increased its tax on May 29, 2014, from 20% to 25% surcharging on a 7.5% base. This policy change enables the study to compare the effect of increased corporate taxation on employees of firms of different sizes.

The following four cases will focus on two large companies with a market capitalization exceeding 10 billion in 2014, and two small companies with a market capitalization between 1 billion and 10 billion in 2014. All four firms operate in similar industries to ensure the accuracy of this study. Case 1 companies in both groups are the large companies, with market capitalizations over 10 billion. Case 2 companies is the smaller size companies.

3.2 Case 1

3.2.1 Treatment Group - United Technologies Corporations

United Technologies Corporations (UTC) works in the aerospace and defense industries, with its subsidiary Pratt & Whitney located in EastHartford, Connecticut. UTC merged with Raytheon (RTN) to form Raytheon Technologies Corporation (RTX) in 2020. This study focuses on UTC before its 2018 merger with RTN. In 2014, UTC's market capitalization was about 65 billion dollars with around 211500 employees. Its similar industrial focus to the control group, subsidiary location, and large market capitalization make it a suitable large-company case study to compare the effect of the 2014 tax increase with the control group. In addition to its matching background, UTC is also a listed company with transparent and organized annual reports that enable accurate data to be used in the analysis.

3.2.2 Control Group - Air Products and Chemicals

Air Products and Chemicals (APD) is a chemical company that manufactures atmospheric gases, located in Allentown, Pennsylvania. In 2014, APD had a market capitalization of about 26.9 billion dollars and around 21200 employees worldwide. Air Products serves industries like refining, chemical, manufacturing, and food. The company's long history, status as a representative of Pennsylvania's manufacturing sector, and high market capitalization make APD an ideal candidate as a large company in the control group to investigate the effect of the tax increase in Connecticut. Furthermore, it is a listed company with comprehensive annual reports that enable historical analysis of its operations.

3.3 Case 2

3.3.1 Treatment Group - Kaman Corporation

Kaman Corporation (KAMN) is a diversified company that is dedicated in the aerospace, defense, medical, and industrial markets, and is located in Connecticut. In 2014, its market capitalization was 1.03 billion dollars with 4797 employees. KAMN is selected not only because of its small size, but also its industrial focus—aerospace and

ISSN 2959-6130

industrial—in which KAMN produces, which is highly similar to that of CRS, enabling a fair comparison. These shared characteristics help eliminate potential heterogeneity caused by differing industries when analyzing the effect of increasing taxation on similar-sized companies in the control group.

3.3.2 Control Group Case 2 - Carpenter Technology Corporation

Carpenter Technology Corporation (CRS) is a manufacturer of alloy materials targeting markets such as aerospace, transportation, defense, and industrial sectors, located in Philadelphia, Pennsylvania. In 2014, CRS had a market capitalization of 2.94 billion dollars, with 4900 employees. CRS produces various specialty alloys and processed parts to ensure superior performance in these critical applications. It had been chosen due to its small company size and the industry that CRS is in, which is similar to the small size company of treatment group.

4. Findings

4.1 Methodology

The financial data of this study were all extracted from the EDGAR database of the U.S. Securities and Exchange Commission (SEC), covering all annual reports (Form 10-K) submitted by United Technologies Corporation, Air Products and Chemicals, Kaman Corporation, and Carpenter Technology Corporation from 2012 to 2018 (i.e., fiscal year 2011 to fiscal year 2017).

This study analyzes the financial statements of the four case study companies, focusing on the average non-wage benefits employees received from 2011 to 2017. Because the selected companies did not report total wage and salary compensation, this study only calculated the non-wage benefits employees received and the number of employees from 2011 to 2017. The study focused on the following three components from the financial statements: net pension expense, other post-retirement benefits expense, defined contribution plan expense, and stock-based compensation expense. These benefits for a specific year were summed and divided by the number of employees in the company that year to calculate the average employee benefit expense. The primary objective of this study is to analyze how the tax increase affected employee benefit expense differently in the paired companies of different sizes.

4.2 Finding on Large Size Company

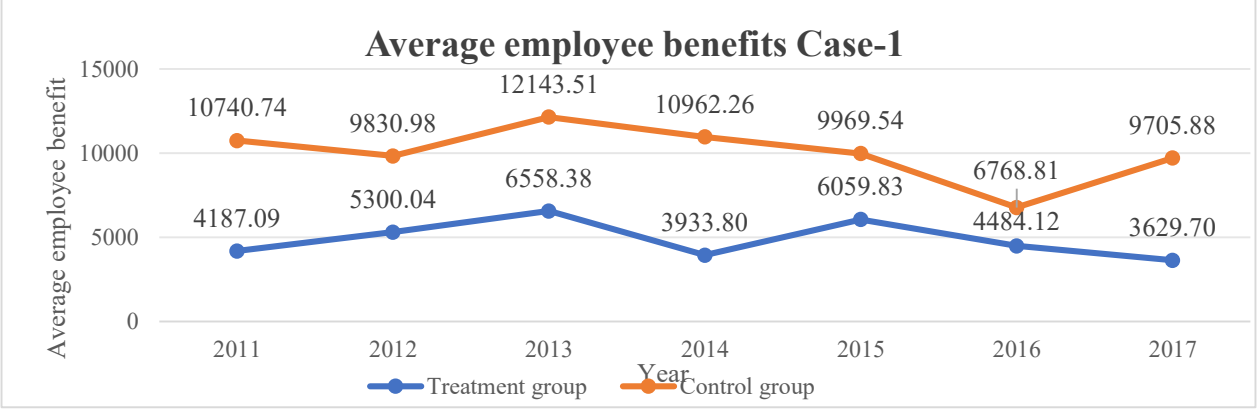

Figure 1: Average employee benefits case-1

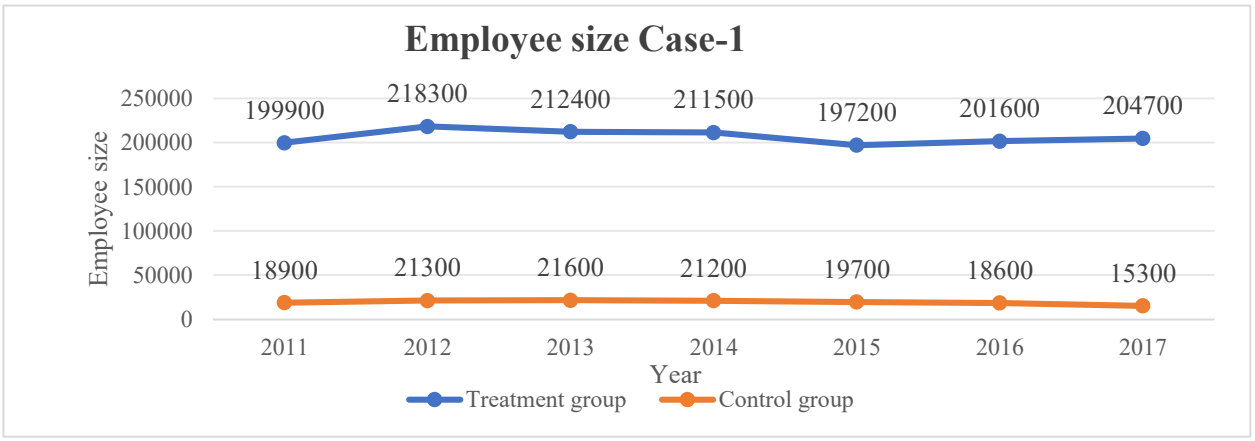

Figure 2: Employee size case-1

As shown in Figures 1 and 2, the large treatment company, Connecticut-based UTX, was influenced by the surtax increase from 20% to 25%. In 2014, UTX's average employee benefit decreased by approximately $2,600, a 40% decrease compared to the previous year. Although the number of employees remained at a similar level in 2014 compared to 2013, it dropped from 211,500 to 197,200 in 2015—a 7% cut compared to the prior year.

In the control group, there was no significant variation in the average employee benefit expense for APD compared to UTX. However, APD also experienced a relatively smaller decrease of approximately 9.7%, from $12,143 to $10,962. In terms of employment, APD did not show a significant decrease in its number of employees; its workforce decreased by around 1.85%, from 21,600 to 21,200 in 2014.

Based solely on these two large companies, the average employee benefit decreased more significantly in the treatment group than in the control group. The average employee benefit expense of the treatment group decreased by 30.3% more than that of the control group in 2014, the year the policy was implemented. However, the percentage of employees decreased about the same in the treatment group and the control group. This suggests that the tax increase policy could have had a negative impact on the benefits they received at large companies with a market capitalization of over $10 billion in 2014. However, in terms of the actual number of employee changes, the treatment group decreased its employee size more than the control group.

4.3 Finding on Small Size Company

To evaluate the effect of the tax policy on employees at companies of different sizes, the same analysis is conducted on the small companies in the second case pair. However, both companies' financial statements did not contain information on "Other Post-Retirement Benefits" from 2011 to 2017. Therefore, the average employee benefit for this pair does not include this benefit.

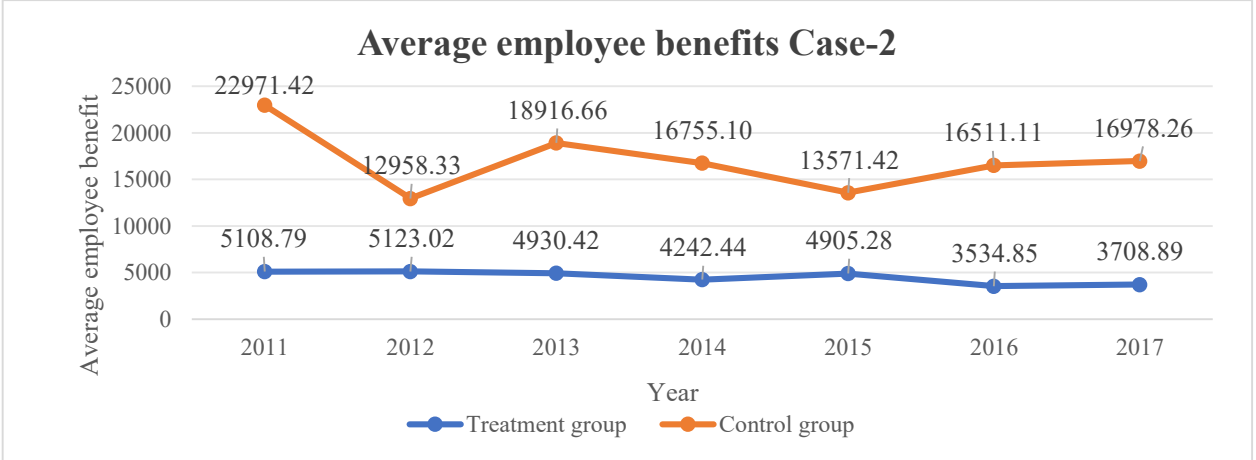

Figure 3: Average employee benefits case-2

ISSN 2959-6130

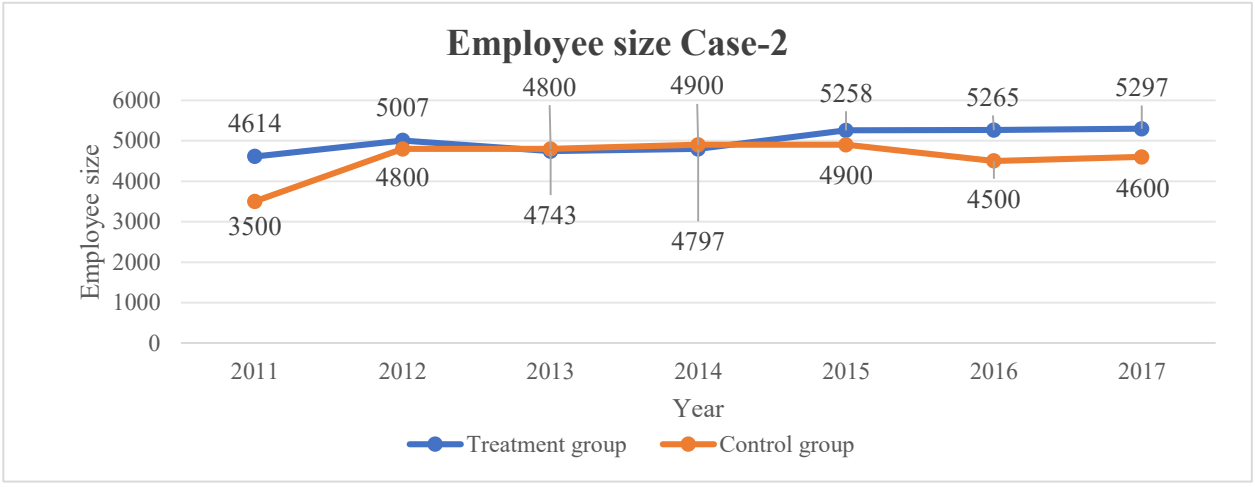

Figure 4: Employee size case-2

As shown in Figures 3 and 4, the small treatment company KAMN was not significantly influenced by the tax increase. Its average employee benefits decreased from $4,930 in 2013 to $4,242 in 2014, a 14% decrease. However, its number of employees increased by 54 people, from 4,743 to 4,797, a 1% increase.

The small control company CRS experienced a lower change in its average employee benefits compared to KAMN. In 2014, its average employee benefits decreased by 11.4%, from $18,916 to $16,755. Its employment size increased by 2.1%, from 4,800 people in 2013 to 4,900 in 2014.

For this pair, the average employee benefit of the treatment company KAMN decreased by 2.6 % more than that of the control company CRS. The rate of employee growth was also higher in the control group than in the treatment group, by 1.1%. This could further imply a negative relationship between employee benefits and the tax increase.

4.4 Evaluation of Company Size Effects on the Employee Benefits

In the study of the first pair (large companies), results show that the treatment group's average employee benefit decreased by 30.3% more than the control group's. In the second pair (small companies), the treatment group's average employee benefit decreased by only 2.6 % more than the control group's. In both cases, the employee size does not significantly influence because of the increase of surcharging taxation. This might imply that the tax increase may bring a larger negative impact on larger companies than on smaller companies.

However, this finding is not strong evidence that employees in larger companies with higher market capitalization are affected more than those in smaller companies. The relationship between the effects of tax policies on benefits at different-sized companies requires analysis with a larger and more varied sample size.

5. Conclusion

5.1 Summary of Key Findings

This study aimed to study how does surcharging taxation policies affects employee benefits at different-sized companies, focusing on how company size moderates the relationship between them.

In Case 1 ,which is an analysis of companies with more than 10billion dollars capitalization in 2014,the treatment group company UTX observed a significant negative impact on its average employee benefit, decreased by 40%, in response to the increasing surcharging tax in Connecticut in 2014. The control group company APD in Pennsylvania, with no change in taxation from 2011 to 2017, experienced a smaller change compared to the treatment group, and its average employee benefit changed by only 9.7% in 2014. In fact, there was a significant difference in the changes in average employee benefits between the control and treatment groups, with the treatment group showing a 30.3% greater reduction in the large company cases.

In Case 2, which analyzed a small company, the effect of the increasing surcharging taxation still existed but was much weaker than in Case 1. There was a much smaller difference in the percentage changes of average employee benefits between the treatment and control groups, a difference of only 2.6%. In terms of employee size, both groups demonstrated an increase, but the control group showed a greater increase than the treatment group.

Based only on these four companies, company size could be an important factor that influences average employee benefit changes during a change in taxation. This study

shows that employees in larger companies might be influenced more significantly than those in smaller companies.

5.2 Research Implications and Contributions

This study introduces company size as an independent variable, expanding the previous study on the heterogeneity effects of taxation policies. The results show that the mechanism proposed by Gruber and Poterba , which businesses adjust benefits in response to taxation, may affect employees differently based on company size [3].

For the policymakers, the finding emphasizes the need to consider the distribution effects of tax policies. The tax policies aimed at large companies might result in an unanticipated effect on those companies' employees. When policymakers are evaluating the overall effect of taxation policies, they might need to consider these costs on employees to prevent unexpected outcomes.

5.3 Limitations

There are several limitations in this study. Firstly, the sample size is relatively small, consisting of only four cases, which weakens the universality of the results. Secondly, the methodology is insufficient to control for all external factors like macroeconomic trends, specific industry shocks. Therefore, the causality relationship remains unclear. Finally, the lack of data for Case 2 could also affect the universality of these research results.

5.4 Future Research

This study suggests that future studies could use a large sample size to conduct a more accurate econometric analysis on the effect of employees on taxation. Future studies could also investigate the mechanism that caused the difference in average employee benefits at large and small companies when facing increasing surcharging taxes. In addition to those, the time span of future research could also be expanded to evaluate whether these effects on employees are long lasting or short lasting.

Overall, this study provided primary evidence that company size could be a significant factor in analyzing the effect of taxation policy on employee benefits. Although larger scale research is needed to corroborate these findings, the study called for a greater consideration of the heterogeneity of taxation policies.

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