

Effect of Implementing a Defined Contribution on Cost for Public Employers

Introduction

High level of unfunded pension liabilities is one of the biggest reason why private and public employers in America go bankrupt. Years of underfunding and high investment volatility has caused financial issues for a lot of these entities. Traditional defined benefit (DB) pension plans were too expensive to upkeep, and that is why when the government allowed companies to use defined contribution plans, a lot of employers, public and private alike, froze their defined benefit plans and started to enroll their new employees into defined contribution (DC) pension plans.

In recent years, especially after the big impact on defined benefit plans in 2008, there was an increased trend for employers to move from defined benefit pension plans to defined contribution pension plans. Employers believe they are able to save cost by switching to defined contribution plan and transfer the investment risks to employees. As a summer actuarial intern at a retirement consulting firm, I was told by my superiors that defined contribution pension plans are actually less effective and efficient for both the employers and the employees. Currently, there are multiple studies done by different firms and public entities, but none of them are able to provide conclusive evidence about which plan is better for the employer. In addition, these studies are showing opposite effects, with some claiming that implementing a new plan will save money, while other states that implementing a new plan will only add risk. The goal of this paper is to examine the effects of implementing a defined contribution plan on salary and administration expenses of employees.

Most of the studies on this subject have been case studies done at the local level or on private companies, where the entities differ a lot from each other and accounting standard is more

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lenient. This paper aims to test the hypothesis at a national level by selection different cities from all over America. This way, not only will the accounting and reporting standard be very strict, the characteristics of the entities will also be more similar. The hypothesis of this paper is that the combined amount of salary and administration will be higher with the implementation of a defined contribution plan, and implementing will not actually help employers save money but will actually make it costlier for these public employers in the long term.

In order to implement this study, this paper will be separated into three main sections. Firstly, some of the previous literature and their findings will be discussed to show the relevance of the study. These empirical studies will be used to show the difficulty of this study, and how this study will contribute to the current literature. The data and methodology used in this paper will be discussed. Financial data of different cities of different sizes will be gathered. Each year, public entities are required to disclose their financial positions through an annual report called the Comprehensive Annual Financial Report (CAFR). This report includes a lot of information about each public entity, including their covered salary expense, whether the entity uses a DC plan or a DB plan, and covered employees and retirees. The panel data will include information from 2005 to 2014 for 20 cities of different sizes in America. Using these data, a panel data regression and a difference-in-difference analysis will be performed. In the last part of this paper, the result of the regression will be discussed. The regression should show a statistically significant positive correlation between the DC plan indicator and the expenses. This paper will be very important for public employers to understand how implementing a DC plan will affect them, as they are using taxpayers' money to fund these plans. Hopefully, this paper will help them make more educated decisions in terms of choosing the right plan design.

Literature Review

The challenge in evaluating pension plan type on evaluating employer costs is that there are a lot of factors that determines the costs to employers, such as salaries, turnover costs, and plan contribution cost. In DB plans, employers will contribute the whole amount, while in DC plans, employers will only contribute as much as employees. One of the main area of exploration in this paper is the cost saving mechanisms of implementing defined contribution plans for public employers all across the nation, and previous research has shown opposite and contradicting results in other areas. One way to prove the hypothesis is through a difference-in-difference analysis, similar to that used by Card and Krueger (1994) to analyze raising minimum wage's effect on employment. In the study, employers who only offer a traditional DB plan will be the control group, and those who offer a DC plan on top of a DB plan will be the treatment group. The goal is to analyze and compare the differences in employer cost structures before and after implementing a DC plan.

The general conception of employers is that implementing a DC plan would help them reduce cost and unfunded pension liabilities, and this theory makes intuitive sense since employers are able to predict how much they need to contribute and are able to shift some of the risk of investment volatility to employees. Thom (2013) showed that DB plans are unfavorable due to the fact that it increases indebtedness for employers in the form of unfunded pension liabilities, and DC plan could be a remedy. In addition, Most and Wadia (2015) argued that people living longer are increasing cost for employers, as they need to provide retirement benefits for longer periods of time under a DB plan with a life annuity. These extra costs would be added to employers' balance sheets as unfunded liabilities, which, shown in a study done by Chen (2015), would have a significant positive effect on firm idiosyncratic volatility.

However, multiple studies have shown that, although the risk was shifted to the employees, extra administrative costs associated with lower job tenure and financial education programs were incurred on the employer side. Calmers, Johnson, and Reuter (2014) explored this topic by doing a case study in Oregon, and using methods including Monte Carlo simulation and counterfactual analysis, they were able to conclude that by offering a choice between DB and DC plan, employees will terminate and retire at the time where they would receive the most retirement benefit, which would directly add cost to employers not only by increasing their benefit liability but also by incurring high administrative cost by shortening careers. Matson and Dobel (2006) claimed that because employees are often the ones making investment decisions, employers need to provide financial education, which would increase administration cost, to employees to better plan for retirement, so that employees will retire on time. On this issue, Dvorak (2012) stated that return advantage of DB plan is higher than DC plan, and this is a direct result of poor investment timing driven by employee contribution. In a traditional DB plan, employees do not need to make investment decisions, and contributions are often counter-cyclical, but the investment decision of a DC plan falls into the hands of the employees, and contributions are often pro-cyclical. This study shows that employees will not be ready to retire by the normal retirement age if they invest on their own and proves Matson's and Dobel's (2006) point regarding the important of financial education under a DC plan, and will incur extra expense for employers. Another way for DC plan to increase employer cost is by reducing job tenure and changing the retirement landscape. Schragger (2008) concluded that employees working in sectors with higher turnover rate would prefer a DC plan, suggesting that DC plans are better for employees who often switch jobs. When viewed from the employer's side, this study suggests that employers will have to pay less in terms

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of retirement benefits under a DB plan, since a DB plan is better suited to retain workers from leaving the workforce and switch to another company.

These studies led to the hypothesis that cities which offer DC plans on top of DB plans will have more cost than those that just offer a DB plan. As concluded by Ezra (2015), adopting a DC plan as a cost-saving mechanism is a self-deception, and employers, especially public ones, are better off with a traditional DB plan.

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