

# 行政院國家科學委員會補助專題研究計畫成果報告

## 從退休所得角度分析 401(k) 計畫與其他退休金 計畫之互補與替代關係

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## 中文摘要

本篇論文使用一種新的衡量方法，也就是以雇主退休金的提撥成本，從勞工退休所得的角度，研究退休金計畫選擇的改變與退休金計畫彼此間的互補與替代關係。利用美國國稅局 Form 5500 資料，本篇論文比較美國企業在 1985 與 1996 兩年間對退休金計畫的選擇改變。希望能提供新的研究證據，檢視 401(k) 退休金計畫是否已經成為美國退休金計畫的主要選擇。另外更設計一羅吉斯回歸模型，進一步分析 401(k)、確定給付退休金計畫及其他確定提撥退休金計畫三者間的互補與替代關係。研究結果發現，在主要的退休金計畫階層(Primary Plan Level)，401(k)計畫並未取代傳統的確定給付型退休金計畫，反而是取代與它性質相近的其他確定提撥型計畫；而在次要的退休金計畫階層(Secundary Plan Level)，401(k)計畫則用來補充傳統的確定給付型計畫與其他的確定提撥型計畫。

關鍵詞：退休金計畫、固定給付制、固定提撥制、401(k)、互補與替代關係

## I. Abstract

Using firm level data from Form 5500s with Internal Revenue Service, this paper provides new evidence of the substitution and supplementary effects between 401(k)s and other employer's pension plans. By comparing employer's pension plan choices in the same firm between 1985 and 1996, we trace how employers changed their pension offering from 1985 to 1996 for each individual firm. Multinomial Logit Regression Models were adopted to analyze the substitution and supplemental effects between 401(k) and other employer's pension plans. The empirical results do not support the hypothesis that the new 401(k) offerings are used to replace existing defined benefit (DB) plans, but rather to replace existing other defined contribution (DC) plans or to supplement DB/DC plans. For the substitution effect in the primary plans, we find bigger firms and unionized firms are more reluctant to change their primary DB plans. Moreover, the change of union status did not have any influence in the changes of employer's primary pension plan choices. For the substitution and supplemental effect in the secondary plans, we find that bigger firms, unionized firms and firms in service industry are less likely to substitute 401k plans for their existing DC plans. We also find that bigger firms and firms in service industry are more likely to supplement 401k or DC plans for their primary DB plans; whereas unionized firms and downsizing firms are more reluctant to do so.

Keyword: Pension; defined benefit plans; defined contribution plan; 401(k) plan.  
substitution effect; supplement effect

## **II. Introduction and Research Purpose**

Over the past twenty years the trend in private employer pension plans has been moving away from traditional defined benefit plans and toward defined contribution plans. In particular, the rapid growth of 401(k) plans is one of the most important reasons for the current trend toward defined contribution plans. The 401(k) plan differs from traditional employer-sponsored pension plans in that employees are permitted to make voluntary pre-tax contributions. Therefore this plan offers more freedom for attaining desired savings beyond the employers' contribution. In addition, employers may also view the 401(k) plan as an opportunity to reduce their pension costs since participation is voluntary. Moreover, firms can match their workers' contributions. This particular feature permits firms to pay efficient wages exclusively to low discounters<sup>1</sup> (high-quality workers) who are more productive workers than high discounters.

The extant literature is unanimous in its documentation of the inverse relationship that can be observed between the net change in defined contribution plans and that in defined benefit plans. However, there is no universal agreement on the evidence of the termination of one and the creation of the other. Clark and McDermed (1990 and 1993), Gustman and Steinmeier (1992), Ippolito (1985, 1986, 1993, and 1997), and Kruse (1995) have all attempted to measure the substitution effect between defined benefit and defined contribution plans by analyzing the net change in the number of plans and/or of participants. It has been also argued that the 401(k) plan is a good substitute for both DB and other DC plans. Papke (1994, 1996) and Papke, Petersen and Poterba (1996) have examined whether sponsors of traditional defined benefit plans are replacing their defined benefit plans with 401(k) plans or other defined contribution plans. Wang and VanDerhei(1999) examine pension trends by the changing shares of primary plans, active participants, and employers' costs across plan types and firm types from 1985 to 1993. Their findings suggested that defined benefit plans has decrease about 20 percents for all three measurements from 1985 to 1993 and that defined contribution plans no longer prevail only as secondary plans.

Unfortunately all of these studies share the following limitations. First, most of studies that have investigated changes in the distributions of pension choices over time have treated the sponsorship of defined benefit, defined contribution, or 401(k) plans as a dichotomous decision. However, employers often offer more than one type of plans—one primary and other supplemental plan/plans. Thus, an employer's pension plan choice actually is not a selection from three types of plans but rather a selection from seven choices of combinations of these three types of plans. Therefore, it is more appropriate to examine changes in the distributions of seven plan choices over time when investigating the issue of pension trends. I construct a panel of firms that sponsor at least one pension plan in 1985 and compare their pension plan choices between 1985 and 1996 to account for the substitution and supplementary effects between 401(k)s and other employer's pension plans.

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<sup>1</sup> Low discounters attach approximately equal values to future and present consumption, whereas high discounters attach disproportionate values to current consumption and tend to discount pension heavily in comparison to cash wage.

### **III. Empirical Findings and Conclusion**

By tracing the same company from 1985 to 1996 and comparing the changes in their pension plan choices, this paper provides new evidence of the substitution and supplementary effects between 401(k)s and other employer's pension plans. The empirical results do not support the hypothesis that the new 401(k) offerings are used to replace existing DB plans, but rather to replace existing other DC plans or to supplement DB/DC plans. This paper finds that for all firms existing in both 1985 and 1996, 11.6 percent substituted 401(k)s for existing DC plans, 10.7 percent adopted 401(k)s to supplement existing DB/DC plans, and only about 4 % substituted 401(k)s for existing DB plans. Overall for firms adopting any new 401(k)s plans from 1985 to 1996, 38.14 percent substituted 401(k) plans for existing DC plans, 35.84 percent adopted 401(k)s to supplement existing DB or DC plans, and only 13.12 percent substituted 401(k)s for existing DB plans.

The findings of this paper also show that industry, firm size and union status are important factors that drive employers to change their pension choices over the trends from DB to DC plans.

For the substitution effect in the primary plans, we find bigger firms and unionized firms are more reluctant to change their primary DB plans. Moreover, the change of union status did not have any influence in the changes of employer's primary pension plan choices. For the substitution and supplemental effect in the secondary plans, we find that bigger firms, unionized firms and firms in service industry are less likely to substitute 401k plans for their existing DC plans. We also find that bigger firms and firms in service industry are more likely to supplement 401k or DC plans for their primary DB plans; whereas unionized firms and downsizing firms are more reluctant to do so. The findings of this paper enrich our understandings about what are important factors that drive employers to change their pension choices over time.

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