

To: Janet Napolitano, UC President, 1111 Franklin St., 12th Floor, Oakland, CA 94607

From: Roger Anderson, Chair CUCEA and member of UCRS Advisory Board

Re: **Commentary on ROTF Report**

Date: February 16, 2016

Dear President Napolitano,

I am happy for the opportunity to comment on the ROTF report. My response is this extensive document (or actually 4 documents) summarize my analysis of the implications of the 2016 Tier both before and after the ROTF report was released. The first documents, “Simple model for Defined Contribution Pension Plans for UCRS” and the Excel spreadsheet “Simple analysis of Defined Contribution Pension Plans”, were released on August 25, 2015, and revised with minor changes on February 14, 2016. The third document entitled: “Draft Comments on ROTF Report” was sent to a few people on February 5, 2016. This memo is fourth document, and it relies on the theory and previous conclusions of the earlier reports. To simplify the discussion here I will mostly restrict the discussion to Option B, the pure DC Plan. **My conclusion is that the DC plan with a 10% UC contribution and a 7% employee contribution will not be sufficient to provide “income replacement”.** The Option A hybrid plan is somewhat better (see “Draft Comments on ROTF Report”), but still insufficient for highly compensated employees. A larger UC contribution is necessary. If either of these options are chosen, there will a large, obvious difference between the retirement income for 2016 Tier employees and 2013 and 1976 Tier employees. This is likely to make recruitment and retention more difficult.

The first document is in part a tutorial about the accompanying spreadsheet for DC plans which allows easy modeling with different assumptions about the rate of salary increase, the rate of pension increase, the number of years of service credit, the total contribution fraction which is the sum of UC and employee contribution fractions of salary, assumptions about years of pension payout, and a simple flexible method to specify the IRR for the pension annuity. The first document also presents the theory including mathematical equations for the pension pay-in and payout periods. The third document extends the theory of DC plans to a hybrid plan where lower incomes are covered by a DB plan and larger incomes have both DB and DC components. The simple result is that the hybrid plans can be modeled with the “Simple analysis of Defined Contribution Pension Plans” spreadsheet with some minor bookkeeping changes. The third document also compares replacement of after tax income as well as pre-tax income. Generally more after tax income is replaced because of the favorable tax treatment of Social Security. All three of these previous documents are transmitted with this letter.

There are several major concepts that might be used in designing a Defined Contribution Plan. But it seems that most of these considerations are interrelated. I find that the following set of issues to be important:

1. What is “income replacement”?
2. What fraction of salary must be used to fund the “income replacement”?

3. What is most important in recruiting and retaining talented faculty and staff?

First “income replacement” must be determined so that the values of the different parameters (salary and pension growth rates, service credit, pay-in and payout investment yields, ...) can be bounded. The “income replacement” must also include at least some consideration of inflation.

The gold standard for income replacement is the present 1976 Tier for UCRS members. For this tier anyone who has 40 years of service credit and a retirement age of 66 or more will retire with a pre-tax income greater than that of his/her three year highest compensation. The pretax income is increased because the pretax deductions to pretax income for Social Security, Medicare, and UCRS are no longer made. Also the pension may be far higher than average salary over a career when the retiree has had big boost in salary near the end of his or her career. The pension benefits are also indexed to CPI although not as tightly as Social Security.

Clearly one could do an analysis of Option B to try to make its benefits approximate the present 1976 and 2013 tiers, but my approach here is to define replacement income to for individuals as the income necessary to replace the final active year pretax income for an employee. The analysis is done for the typical employee without “spiking” of income for pension maximization. In figures 1, 2, and 3 the salary growth rate is assumed to be 4% per year over 40 years. The relevant salaries are given in Table I for the three salaries considered in my third document for a person without a spouse or domestic partner who has been in the 2016 tier for 40 years and is retiring in 2016. (For more explanation of why this example is relevant, see the previous documents.)

Table I

Pretax Income just before retirement with Option B

		UC care	Deductions per month			Gross Taxable
			FICA	Medi	UCRS	
Single active salary	\$150,000	\$226	\$605	\$181	\$875	\$127,356
Single active salary	\$200,000	\$226	\$605	\$242	\$1,167	\$173,125
Single active salary	\$265,000	\$226	\$605	\$320	\$1,167	\$237,188

Now the minimum “replacement income” are the last entries in Table I + Social Security income, and these numbers are found in Table II.

Table II

	Preretirement			Income replacement		Fraction, <i>f</i> , of
After retirement		net before tax	SS income	needed from DC		gross salary
Single active salary	\$150,000	\$127,356	30000	\$97,356		0.649
Single active salary	\$200,000	\$173,125	30000	\$143,125		0.716
Single active salary	\$265,000	\$237,188	30000	\$207,188		0.782

The fractions in the last column of Table II must be replaced by the payout from the individual's DC plan. The fraction of gross salary, p_{in} , that is required for this replacement may be calculated for various M , N , g_s , and g_p . The contour plots in Figures 1, 2, and 3 show the values of p_{in} for a wide range of r_{IRR} and r , that are consistent with the fractions, f . The other parameters are shown on the plot, and only $M = 21$ has not been discussed earlier in this memo. The reason for this choice is that Social Security lists the life expectancy of a 66 year old female person as 21 years. The growth rate for salaries is assumed to be 4% and for pensions 2%. Clearly a person retiring in a period of low interest rates will be in trouble if interest rates are high. This is because the IRR for an annuity is often set a few hundred basis points about the 10 year Treasury bond. On the other a person retiring when interest rates are high, may collect a windfall if interest rates fall (or the firm issuing the annuity may go bankrupt!). It is a difficult task to choose the most reasonable values for r_{IRR} . Similarly the trajectory for the long term yield for UCRS is unclear. The present (7/1/15) 10 year annualized yield is about 6.3%, and it seems clear that the 10 year average will continue to fall during the 2015-16 year. What will happen during the employment time for individuals? The investment yields may remain in the vicinity of 5 to 6%. Also if inflation remains low the IRR for annuities may remain less than 5%. The bounds of $3\% \leq r_{IRR} \leq 5\%$ and $5\% \leq r \leq 6\%$ seem like reasonable bounds.

We see in the figures that the ROTF recommendation of $p_{in} = 17\%$ (The line for 17% is wider than the other p_{in} contours.) will not work for any of the income cases considered. A larger total contribution is necessary to minimally fund the DC pensions with any certainty of even minimum income replacement. If the income replacement that I assume cannot be obtained, what chance is there that income replacement can ever approximate that for the present DB plans.

Considering the difficulties with income replacement with Option B, it seems somewhat futile to consider the recruitment and retention issues. However I believe that the ROTF has dealt with these issues in an excellent manner. But I can make one further point about recruitment of young faculty: they are much more likely to be concerned with their startup packages and the research support that is available. All young faculty will need housing allowances, MOP loans, summer salary, support for students, Additionally STEM faculty will need competitive startup funds to build their labs and keep their research going until they earn their first large research grant.

I suggest that UC not adopt the Governor's directive this calendar year. Perhaps a more effective plan can be developed with another full year of analysis, but otherwise we need to negotiate a better deal.

Sincerely yours,

Roger W. Anderson

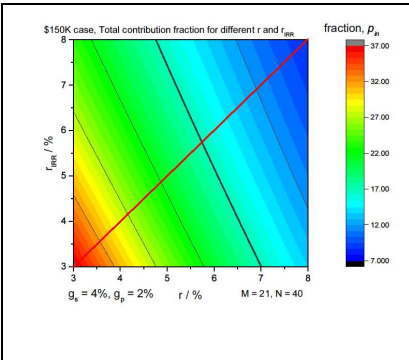


Figure 1

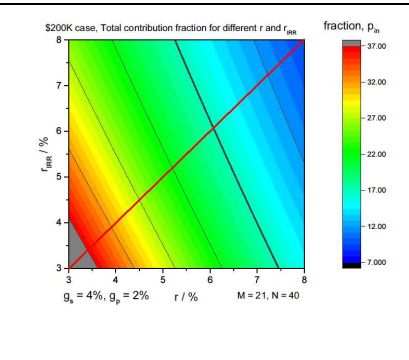


Figure 2

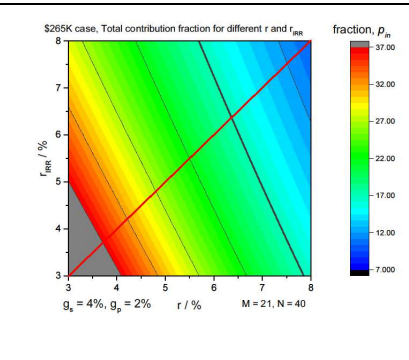


Figure 3