AN ANALOGY FOR A PERSPECTIVE UNDERSTANDING OF THE YEAR TO YEAR CHANGE IN PAYROLL COSTS DUE TO THE EXPERIENCE INCREMENT SYSTEM

(Sent to Harford County Officials on February 10, 1979)

Recently I forwarded a letter to various public officials in Harford County. The letter and its enclosure analyzed the subject of the cost of the experience increment for County employees. That analysis was somewhat technical and may not have been fully understood by all of its intended readers. Since that time I have thought of a simple analogy which helps to illustrate the point that was made therein. For completeness I will first restate the question I am addressing.

An experience increment of $500 dollars paid to an employee earning $11,000 per year amounts to approximately a 4% increase in salary. Discussion of the Harford County budget for the coming year in the local press indicates that the County Treasurer and Chief of Administration plus certain writers analyzing the budget believe that an additional 4% over the previous year must be budgeted for each employee receiving the increment. This I claimed in my letter and enclosure of January 30, 1979 is not correct. The enclosure contained a mathematical analysis which showed that a payroll system was cyclic in that people in the high experience levels, whose salary contained many increments, retired and thus compensated for many employees moving up the increment scale. I observed that the experience "shift" from year to year could cause an increase (or equally a decrease) depending on the experience statistics of the work force. I claimed that the budgeting of 4% (as in my example above) was an absolute upper bound that applied only in the unlikely circumstance of no retirees in a given year. The analogy below helps to put the problem in perspective and aids in understanding the point of contention.

ANALOGY

Consider a classroom of 30 students and a teacher . Assume the 30 children are sitting in a row of chairs facing the teacher as depicted below.

C1 C2 C3 • • • C30

Teacher

The student sitting in chair 1 has one piece of candy, the student sitting in chair 2 has two pieces of candy etc. and the student sitting in chair 30 has thirty pieces of candy. The candy is analogous to the experience increments. The teacher instructs the child sitting in chair 30 to leave the room (analogous to retiring) and to leave his/her 30 pieces of candy on the vacated chair. The teacher then instructs each of the remaining 29 students to stand, leave their candy on their vacated chair, and to be seated in the adjacent chair to their left. The teacher then goes into the hallway and returns with a child whom she seats in chair 1. Now each child has one piece of candy more than when this exercise of chair moving began. Yet the teacher has not had to produce a single piece of additional candy. The moving

from one chair to another is equivalent to personnel moving up in salary due to an additional year of experience. The child brought in from the hall is analogous to a new employee entering at a base salary.

The analogy illustrates the point that when a work force is stable or in steady state, as far as average experience, then the year to year cost increase due to the increment is expected to be zero. Alternatively, in the absence of this steady state, an average taken over a suitable number of years will find the increases are balanced by decreases.

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Author's added note November 16, 2015
In my formal paper ((3rd entry below) titled "Fallacy of Required New Money…" in Appendix B , page 76, I develop two simple mathematical analogies that address the issue of "new money costs"
a.)In the first example I examine with a straight forward Excel spread sheet the cost dynamics of a teacher who retires at the very top of the pay scale. The spread sheet calculations show that upon retiring and being replaced by a new hire teacher entering at the same entry point in the pay matrix, as did the retiring teacher when first hired , leads to a payroll cost reduction from salary difference as follows: The salary difference equals exactly the sum total of all increments the retiring teacher benefitted from (in current dollars) during the retiring teacher's career. This salary difference offsets many increments given throughout the system. This micro example thus sheds light on why little or no new money is needed in the overall macro case for the entire work force.
b.) The second analogy treats increments as being multiplicative (e.g. 3% annual increases rather fixed $500 increments). In that Appendix I show (with simple formulas and numbers) how the salary differences between retirees and new hires compensates for a cumulative sum or "ladder" of increments leading to the conclusion of little or no new money needed to fund increment costs.