ABSTRACT
        Eastern Washington University (EWU) designed a plan
to resist faculty salary compression. Salary compression occurs when
cost of living increases fail to keep pace with salaries in the
external market thus, when new faculty are hired at or near market
rates, they will often have salaries higher than senior faculty with
equivalent academic preparation. Beginning in the early 1980s faculty
and administration at EWU had attempted to address salary compression
for about 10 years with no success and ultimately much animosity. A
new plan to resolve compression included these components: (1) no
explicit salary schedule; (2) use of an external salary survey; (3)
use of a "target salary" to define inequity; and (4) use of only rank
and years of professional experience to differentiate targets. The
plan was applied to full-time tenured and tenure-track faculty
including department chairs and resulting in finding that 91 percent
of faculty having inequities ranging from a few dollars to over
$30,000. The sum of inequities came to 4.6 million dollars with the
first allocation of some $257,000 awarded as salary equity increases
in September 1992. This reduced the inequity for each faculty member
by 5.6 percent. Further implementation has been hampered by state
legislation eliminating salary changes for state employees with base
salaries exceeding $45,000. (Contains 10 references.) (JB)

DEALING WITH FACULTY SALARY INEQUITY - A CASE STUDY

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Abstract

Salary compression occurs when cost of living increases fails to keep pace with salaries in

the external market. When new faculty are hired at or near market rates they will often have

salaries higher than senior faculty with equivalent academic preparation. Salary compression is

one of the causes of real and perceived inequities between ranks, within ranks, and between

internal and external salary levels.

This paper describes the background and deliberations which resulted in a salary plan

designed to fight salary compression at a comprehensive university. Regression analysis is used

to demonstrate the extent of compression before and after implementation of the new plan.

An Overview of Salary Compression

Salary compression is the condition that exists when the differentials between the salary levels of the ranks of assistant, associate, and full professor are too small or nonexistent. When salary compression is expressed as the differences or ratios between the average salaries of the professorial ranks, it ignores the impact of individual examples. For example, when the salary of an individual assistant professor equals or exceeds the salary of an associate or full professor the psychological impact of the circumstance is magnified. Other authors have noted that although such a difference in salary may be rationalized, the side effects of reduced morale and other negative attitudes are likely to accompany the situation (Snyder, McLaughlin, & Montgomery, 1992).

The reason that salary compression occurs is usually tied to the marketplace (Heller, 1987). Specific studies within disciplines have demonstrated that as the demand grows for entry-level faculty in excess of the supply the entry-level salary is driven higher (Dworkin, 1990). The specific discipline supply/demand equation may also be influenced by competition from industry (Semelroth, 1987). There also seems to be growing evidence that factors such as minority status and gender may also contribute to salary compression as demand for under represented individuals increases (Reis & Thurgood, 1993).

Diagnosing and Dealing with the Problem of Salary Compression

The presence of salary compression on a campus is a serious matter for administrators and governing boards. When the average salary gap between ranks diminishes over time, there is likely to be rancor among the senior faculty who may feel that their many years of loyal service is not being honored or respected. At Eastern Washington University we have noted a difference between interest groups regarding how the problem of compression is perceived. Administrators, charged with guarding overall interests of the academy and ensuring the long term viability of the institution may view compression as a "necessary evil" in their quest to hire the best possible candidate into every vacant position. Department members are usually motivated to build their

departments towards a position of enhanced strength, and hiring the best candidate available is a major part of building departmental strength. However, individual cases of severe compression may cause serious problems among department members. Thus the departmental interest is often in conflict with the individual interests of faculty. At Eastern the departmental interest has usually prevailed; hiring recommendations at competitive salary levels come to the administration from the department. Thus, at this institution, the individual departments have contributed to the problem of salary compression. Finally, individual faculty members have a strong desire to feel justly compensated for their work. When a senior faculty member with a strong record of teaching and scholarship is suddenly bypassed in salary by a "fresh" PhD assistant professor with little or no record of scholarly accomplishment, there is understandable rancor and unhappiness on the part of the senior faculty member.

Salary compression was apparent at EWU long before it became a national topic. In a 1981 study of salary compensation in the State, it was noted that four year college faculty had received the lowest overall increase for an 11 year period (88% overall) while the civil service employees had prospered with an overall raise of 120% (Washington State Council for Postsecondary Education, 1981). This situation served to hold back the salaries of continuing faculty. Salary compression has continued to exist not only between faculty ranks, but between civil servants and entry-level faculty. Currently a mid-career secretary earns approximately the same salary as an entry-level PhD ($28,000). By the mid 1980's, individual faculty members raised voices of complaint when plans were announced to replace retiring faculty from the College of Business with incoming assistant professors at salaries higher than any full professors in the institution. Although it took several years and hiring in other disciplines before rank comparisons showed significant compression, great disturbances were caused across campus by the salary being paid to these newly hired assistant professors.

Differences In Perception By Type Of Institution

Although not confirmed by formal studies, it appears that research universities have traditionally handled salary matters within colleges rather than by a university-wide model. Therefore, what a faculty member earns in a different college is perhaps of less concern at a research university than at a comprehensive university. The comprehensive university seems to lie somewhere on the philosophical continuum between a liberal arts college and a research university. Teaching has always been ranked above scholarship in salary plan construction at EWU. Therefore, whether one is teaching in the department of management or history, faculty members view "teaching as teaching" and assume that there should be "equal pay for equal work." Because it has been very difficult to fairly evaluate teaching effectiveness for merit pay, there has been a tendency to award teachers on a time-in-rank basis while research and service are more easily evaluated for merit pay.

The faculty at Eastern Washington University made an early attempt to control salary compression. When compression became a concern in the early 1980's the Faculty Senate, under our shared governance agreement, formed a subcommittee called the "hiring-in committee" to help control new faculty salaries. To answer the threat to hiring, the administration resorted to an "end run" tactic which was to hire all new faculty as term rather than probationary, since the rules required that only probationary hires would be reviewed by the hiring-in committee. This required the administration to convince new hires that their term status would be changed to probationary some time after hiring, and that they should not worry about the inconvenience.

Another attempt to resolve the salary compression problem was to appeal to the State Legislature. The legislators initially denied the problem existed. Following further complaints from EWU, the Legislature ordered the State's Higher Education Coordinating Board to conduct an exhaustive study to determine the extent of differences between and within institutions. One finding blamed prior administrations at EWU for part of the problem, for they had systematically drained salary residuals (the difference between the salaries of retiring faculty and their new

replacements) from the salary pool and used them for other purposes (Higher Education Coordinating Board, 1992). At Eastern there had been widespread suspicion that these moneys funded an upgraded intercollegiate athletics program, an assertion that is at least partially true.

In 1988 the administration honestly faced the problem, briefed the Board on the past practices, suggested remedies, immediately began tracking and reporting salary residuals and ceased hiring faculty as term when they were really intended to be permanent positions. These actions helped to expose the problem, but did nothing to correct the compression that already had been created.

After nearly ten years of increasing rancor and damaged relations between the faculty and the administration, a new administration, installed in 1989, committed to work with the faculty to resolve the problem of salary compression. All issues, from hiring procedures to the tracking and use of residuals, were "on the table." The Board indicated commitment to a resolution of the long standing problem, and a select group of faculty and administrators set out to analyze the problem and develop a plan for eventual resolution.

The Causes of Salary Compression

Both external and internal factors have contributed to salary inequalities at EWU. The State of Washington has no income tax and is dependent on sales taxes for the majority of state funding. Therefore, state revenues are closely tied to the state's economic health. Predictably, the magnitudes of salary increases have been uneven, ranging from 0 percent in 1984, 1986 and 1993 to 10.2 percent in 1982. Eastern Washington University faculty members do not receive automatic cost of living increments; all salary pool increases are dependent on unpredictable salary increases determined by the state legislature. The aggregate impacts of the above state salary practices have left EWU faculty salaries below comparable universities across the nation.

Salary management practices at EWU have contributed to salary compression. We have operated on a fixed step salary schedule since the 1950s. In general, with each salary increase, faculty receive a fixed step on the salary schedule, increasing salaries an average of about

2.5%, with any remaining funds distributed as a percentage of each individual base salary. Therefore, full professors with higher salaries get an ever decreasing proportion of any salary increase. In the early 1980s a fixed-step faculty development increment was added to the fixed step, decreasing the proportion of any increase paid to highest paid faculty. Salary compression was made worse by small or non-existent promotional raises as well as market factors that came into play during the last six years, resulting in higher beginning salaries for new faculty.

Description of the First Attempt at Solving the Salary Compression Problem

After several years of increasing dissatisfaction with the situation described above, and the noted inability of the existing salary plan to deal with salary compression, the Faculty Senate decided to join with the administration to form what became known as the "Joint Salary Committee" (JSC) in 1989. The JSC was made up of members of the Business Affairs Council and the Faculty Affairs Council and several academic administrators. The JSC was charged with developing a salary equity plan that would assure current and future equity in faculty salaries. They were to provide solutions to the following problems: 1) Define the current faculty salary equity (compression) problem, 2) identify the amount of money needed to correct the problem, 3) identify sources of funds to correct the inequity problem and 4) adopt procedures to prevent future salary inequities.

The JSC responded to the above charge by developing a new salary plan that included a procedure for correcting salary compression within and between faculty ranks. First, they developed a new salary schedule, called the Schedule of Entitlement, which was designed to accurately represent a fair and equitable salary distribution based on years of service and faculty rank. The Schedule of Entitlement had 28 equal steps with a 2.16 differential between step 1 and 28. Step 1 would be $28,000 in September of 1991, and step 28 would be $60,481. Floors and ceilings were established for each faculty rank, and it was hoped that ceilings would, eventually, counteract salary compression. Assistant professors were on the schedule from step 1 to 7, associate professors from step 8 to 14 and full professors from 15 to 28.

Step placement on the Schedule of Entitlement was critical if salary compression was to be alleviated. Needless to say, a complicated step placement system was developed. The faculty would be placed on the new schedule according to the following criteria: 1) initial placement would be the floor of the hire-in rank plus a maximum of up to 6 steps for past experience, 2) one step for each year at EWU, 3) two steps for each promotion or placement at the floor of the rank, which ever is greater, 4) there would be retroactive hard ceiling for each rank and, 5) up to 2 steps for past merit annuities could be added.

The amount of salary inequity would be determined by the difference between a faculty member's salary as indicted by their placement on the salary Schedule of Entitlement and their actual salary. Twenty percent of any legislatively mandated raise would be used to move individuals with inequities up on the salary schedule. The amount each faculty member would be advanced on the salary schedule would be based on the percentage difference between their actual salary and their salary on the Schedule of Entitlement.

The JSC recognized that salary compression was partially caused by a stagnate salary schedule and market-driven hiring-in salaries. They proposed to deal with market factors by developing a "market index" derived from discipline-based hiring-in salaries at peer institutions and hiring-in salaries from the Schedule of Entitlement. If the ratio of the discipline's hiring-in salaries at peer institutions divided by the hiring-in salaries from the Schedule of Entitlement exceeded 1.2, then the department would be eligible for a market adjustment for hiring new faculty.

Once this plan was in final draft from the JSC, the Senate referred the plan to an all faculty vote. The vote was negative. The plan failed for two major reasons, 1) salary compression would not be corrected fast enough and 2) the plan did not recognize the salary differentials that existed between Eastern faculty and the faculty of peer institutions.

Revisiting the Question - The Second Attempt at a Solution

The JSC was reconstituted and began anew to craft a solution that would be acceptable to the faculty and the administration. After four months of deliberation and open hearings, we found

that defining inequity based on an external model that used national salary survey data nearly eliminated interpersonal discontent with our salary allocation recommendations. A new plan was adopted by our faculty senate and the administration in June 1992, and its first implementation occurred in September 1992. This new plan has several features that distinguish it from the first plan. These include 1) no explicit salary schedule, 2) use of an external salary survey, 3) use of a "target salary" to define inequity, and 4) use of only rank and years of professional experience to differentiate targets.

Choosing External Data

The plan uses the data from the annual Oklahoma State University Faculty Salary Survey by Discipline (Office of Institutional Research, 1992). This is a survey of salaries at institutions belonging to the National Association of State Universities and Land-Grant Colleges. It lists the average national salaries by rank for virtually all disciplines at the department level. and in some cases sub-department level, found in the institutions surveyed. It also provides average national salaries for new assistant professors, by discipline. We have used these specific data in our model.

Defining Inequity In Terms Of Targets

Armed with the Oklahoma State Faculty Salary Survey (FSS/OSU) salary averages, we proceeded to discuss ways to define inequity. This is done by establishing a target salary for each faculty member, and defining inequity as the difference between the target and the faculty member's current base salary. The next problem is to define the targets.

We first tried to use discipline specific data in determining targets. This approach, for our university, led to tremendous difficulties. These stemmed primarily from the previously mentioned view that since teaching is the primary focus of a comprehensive university, disciplines should be less important in determining salary. Even if we were to let discipline factors have little weight, problems arise. Should we use the grouped discipline averages for those in the foreign languages, or should we differentiate salary targets for those in German from those in French,.etc.? Should

we concede that the vastly higher FSS/OSU average salaries in business disciplines should be reflected in our targets so that those in our business faculty, who already have significantly higher salaries, would receive a sizable portion of equity funds? What do we do with a faculty member whose appointment is in one department, but whose teaching specialty, or research discipline, or doctoral thesis, is more closely allied with another? Our solution was to opt for simplicity.

We chose to simply compute three numbers from FSS/OSU data. For each rank, we used those disciplines that are represented in our university and we computed a weighted average of the associated FSS/OSU salary averages. In our computation, discipline average salaries are combined to find college averages. The college averages are combined to find a weighted average for the university. The numbers of faculty in our colleges are used as the weights. The computation we have described gives us three numbers: the "average" salaries from FSS/OSU for assistant, associate, and full professors, as a composite for those disciplines represented at Eastern Washington University. But then what are the targets? We chose to set the target for a "typical" faculty member at 90% of the computed averages from FSS/OSU. A "typical" faculty member is defined as one having the "typical" number of years of experience for the rank: seven years for an assistant, ten years for an associate, and fifteen years for a full professor. Years of experience have been a fairly well established factor in personnel actions in our institution. We then decided to adjust the target for individual faculty by increasing or decreasing the target by two percent per year of experience greater than or less than the "typical" years. Those without appropriate terminal degrees had their years of experience reduced by three. In this way each faculty member was assigned a target based on rank and years of experience. Each faculty member's inequity is then defined as the shortfall between the base salary and the target.

Allocating Equity Dollars to Faculty Salaries

Knowing everyone's target, and knowing the amount of available equity funds, is not enough. We need to choose a method allocating the dollars to those having inequities. Several methods were suggested: 1) give everyone who has an inequity the same percentage raise on their

base pay, so long as it does not raise them above their targets; 2) give everyone who has an inequity the same fixed dollar raise, so long as it does not raise them above their targets; 3) give money only to those with the greatest inequities (percentage inequity or fixed dollar inequity) and gradually include more and more people with each new round of equity correction; 4) give each person the same percent of inequity reduction, namely the percent computed as the dollars available versus the sum of all inequities.

We opted for the last method suggested above. This method provides some salary improvement for each faculty member with an inequity, and it gives more to those having greater inequities. Moreover, it does not tend to create major anomalies, such as entirely erasing differences in salary created by past merit raises.

An Analysis of the Impact of the Plan on Salary Compression

We can divide salary compression into two types -- compression between ranks and compression within ranks.

Compression Between Ranks

We can define and quantify salary compression between ranks in at least two ways. The first method compares average salaries for two ranks. As suggested by Snyder, McLaughlin, and Montgomery (1992), we can compute a salary ratio by dividing the average salary of the lower rank by the average salary at the higher rank. This ratio can then be compared to the associated ratio for average salaries from some external standard such as the Oklahoma State University Faculty Salary Survey (Office of Institutional Research, 1992). Snyder, et al., did this on a discipline by discipline basis to see if specific compression problems for disciplines at Virginia Tech were shared by those disciplines at peer institutions.

At Eastern Washington University, we were also guided by the FSS/OSU data. We used the reported average salaries for just those disciplines represented at our institution. For each rank, we found the FSS/OSU average salaries for each academic department and combined these to find the college averages. We then found the university FSS/OSU average salary for each rank by

computing the weighted average of the college averages. The numbers of faculty in each college were used as the weights. We used these FSS/OSU average values as part of our determination of "target" salaries for our faculty in our equity plan. We can also use them to measure compression and the change in compression achieved by the implementation of our plan.

Since we have now implemented the plan for two years, we can analyze its effect. Following the suggestion of Snyder, et al., we have computed the ratios of the average salary for a rank with the average salary of a higher rank. We have found that our salary equity plan has slightly improved our salary ratios as shown in the Method 1 section of Table 1.

TABLE 1

Salary Compression Between Ranks, Two Methods of Measurement

Professor Ranks	Oklahoma State Salary Survey: Ave. Salaries of EWU Disciplines	Method 1 EWU Average Salaries by Rank and Salary Ratios			Method 2 Salaries Equalized at Mean Years of Experience of Higher Rank		
		1991-92	1993-94	% Change	1991-92	1993-94	% Change
Assistant	36823	36689	36779	0.2%	38813	40334	3.8%
Associate	43979	37419	40382	7.3%	37419	40382	7.3%
Ratio	0.837	0.980	0.911	-7.7%	1.037	0.999	-3.8%
Associate	43979	37419	40382	7.3%	41076	44243	7.2%
Full	59043	45337	48697	6.9%	45337	48697	6.9%
Ratio	0.745	0.825	0.829	0.5%	0.906	0.909	0.3%
Assistant	36823	36689	36779	0.2%	41447	43492	4.7%
Full	59043	45337	48697	6.9%	45337	48697	6.9%
Ratio	0.624	0.809	0.755	-7.1%	0.914	0.893	-2.4%

In Method 1 we display the salary ratios for pairs of ranks for the 1991-92 Oklahoma State Survey, the 1991-92 EWU salaries, and the computed 1993-94 EWU salaries. The percentage changes in the ratios indicate that we have reduced the compression between assistant and associate professors and between assistant and full professors by over seven percent each. The compression between the two higher ranks has seen a slight increase. We are aware of some "noise" in our data caused by promotion and retirement and other factors during the two years of this study. We still need to reduce compression significantly to match the desired FSS/OSU ratios.

The Method 2 section of Table 1 compares typical salaries between ranks equalized for years of professional experience. We can compute a salary ratio using corresponding points on two regression lines, one for each of two ranks. Here the regression lines are for salary versus years of professional experience, and the points can be chosen in a number of ways. We have chosen the points at the mean number of years of experience for the higher of the two ranks. This theoretically compares two faculty salaries at different ranks, but for the same number of years of professional experience. The ratio shown for 1991-92 demonstrates the effect of recent hiring of assistant professors at high market values. The ratio indicates that, when equalized for years of professional experience, assistant professors had salaries 3.7% higher than associate professors. This reveals that the greater years of experience held by associate professors had not been rewarded with adequate salary increases. This phenomenon is related to the discovery by McCulley and Downey (1993) who, in their analysis of a salary equity study, found that the years of service factor may act as a suppressor for salaries. Our salary plan, which gives higher targets based on rank and years of experience, was designed in part to reverse the suppressor effect. Indeed, after two years of implementation of our salary plan, this 3.7% advantage is seen to have been eliminated.

Compression Within Ranks

Figure 1 gives a graphic demonstration of the result of the first implementation of our plan for 162 full professors who received equity increases in 1992.

FIGURE 1

1992 Equity Increases for Full Professors - Base Salary versus Years of Experience

salary

years of experience
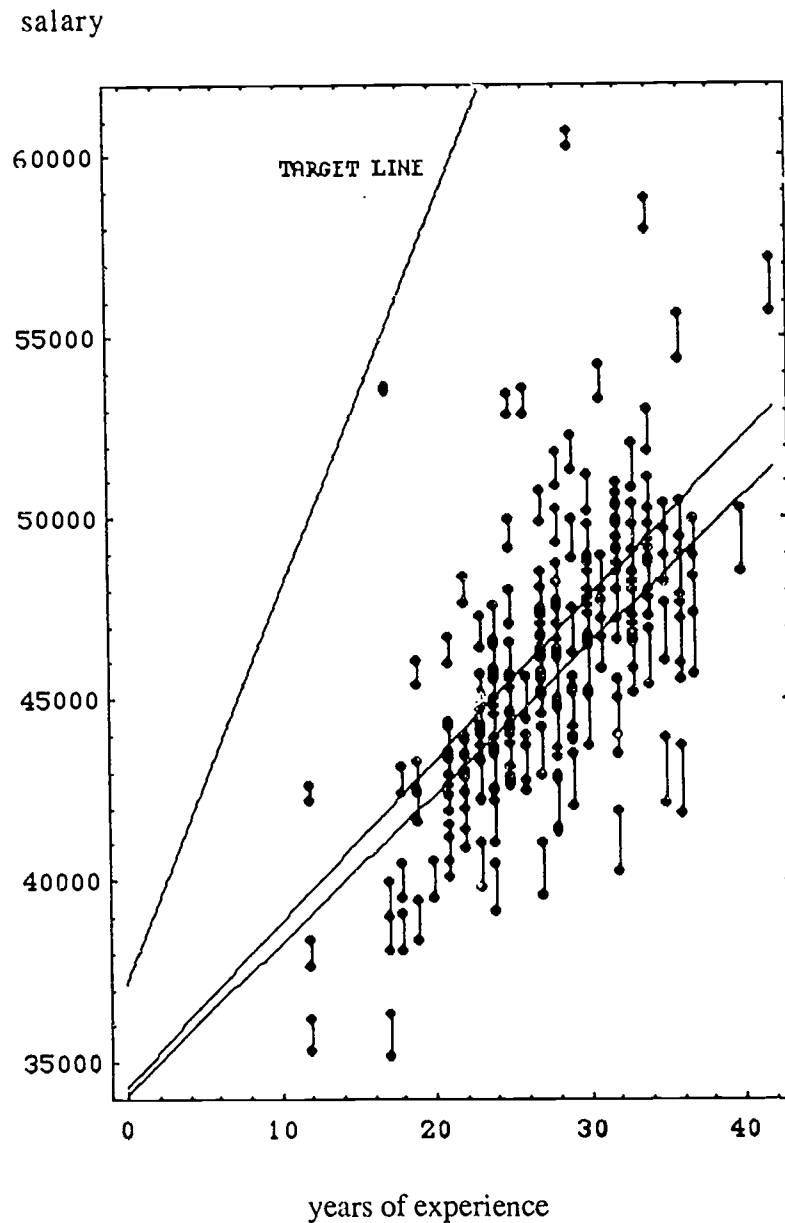
For each of the full professors two points are plotted in Figure 1. These show salary versus years of experience before and after the equity increase, with a vertical line connecting the two points. The vertical lines represent the size of the increase. The distance of each initial salary from the target line shown in the figure determined the relative size of each increase. Thus professors with lower salaries and greater years of experience are seen to have received the greatest increases. Also shown in this figure are the two regression lines for salary versus years of experience before and after the increases. The change in the regression line demonstrates that the equity increases have rotated the regression line upward, increasing the slope. We proceed to quantify the relationship of this increased slope with compression.

Compression within a rank can be measured with the aid of a ratio found by dividing a slope of a regression line by the average salary for the rank. The formula used is

Compression Ratio = (slope of regression line)/(average salary).

The choice of the regression factor (or factors, if multiple regression is used) plays an important role in measuring compression. The choice of a regression factor should be driven by institutional values or by the perceived need to address specific problems. Factors from which to choose include academic preparation and earned degrees, past or present merit recognition, gender, discipline-based market factors, years in rank, years at the institution, and years of professional experience. At Eastern Washington University, for the purpose of distribution of salary residuals, we have chosen years of professional experience. Salary compression can be defined as the amount the actual compression ratio falls below the desired ratio. Choosing the desired ratio is a matter again of the choice of the regression factor and institutional values. In the case of gender as the factor, as in the study by McCulley and Downey (1993) where the correlation was -0.29 when males were coded with 1 and females with 2, the desired ratio is presumably zero. We could say that in the McCulley and Downey study the gender inequity was measured by 0.29 compression.

When years of professional service is the factor, there is no easy choice for the desired salary ratio. At Eastern Washington University in the 1970's we based at least some of our salary

decisions on the model of a step plan for which a step for a year of service was equal to 4% of step number one. Thus the step from step 26 to step 27 was a 2% increase and the step value as a percentage of the average salary was close to 3%. The higher percentage increases for those on the lowest steps created one of the contributing factors to our salary compression today, although the greatest factor has been the hiring of new faculty high on the old salary schedule.

For our new equity salary plan, we have implicitly settled on 2% of the average salary as the desired value for a year of experience. Our target salary line for each rank has a ratio of 0.02 for the slope of the line divided by the target average salary for the rank as computed from the Oklahoma State Survey. Table 2 shows where we stand relative to our desired ratio of 0.02, and shows the improvement of our ratios and the reduction of compression over the past two years.

TABLE 2

Salary Compression Within Ranks

Ratio of Slope of Regression Line with Mean Salary for Rank

Rank	Desired Target Ratio	1991-92 Actual Ratio	1992-93 Actual Ratio	1993-94 Computed Ratio	Two Year Movement Toward Target	Two Year Reduction in Compression
Assistant	0.0200	0.0075	0.0097	0.0101	0.0026	20.8%
Associate	0.0200	0.0102	0.0104	0.0108	0.0006	6.1%
Full	0.0200	0.0090	0.0098	0.0103	0.0013	11.8%

The ratios of the slope versus average salary for the two regression lines in Figure 1 are the two values 0.0090 and 0.0098 shown for full professors in Table 2. The increase in the ratio shows that the percentage increase in the slope of the regression line exceeded the percentage increase in the average salary. Thus compression within this rank has been reduced.

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The Effect And Plan Summary

Eastern Washington University's salary equity plan was adopted by the faculty senate and the administration in June 1992. The plan applies only to full-time tenured and tenure-track faculty including department chairs. The decisions we made in defining the targets resulted in 91% of the faculty having inequities, ranging from a few dollars to over $30,000. The sum of the inequities came to 4.6 million dollars. The Board of Trustees approved the plan in August and the first allocation of some $257,000 was awarded as salary equity increases in September 1992. These funds enabled us to reduce the inequity for each faculty member by just 5.6%. While this would imply that it would take 17 more years of this special action at the same level to eliminate inequities (more if our state appropriations for salary increases do not match inflation as reflected in FSS/OSU), our goal in the plan is to allocate funds in a manner that is accepted by the faculty as a fair way to reduce perceived inequities. Can most faculty say, as a result, "I received my fair share of the allocated dollars." We believe we have succeeded. Inequities won't disappear, but as one of the framers of our plan said of our targets, "Just because you can't get to the North Star doesn't mean you can't be guided by it!"

After one successful year of running the plan, progress has been hampered by a legislative mandate that no salary changes could be effected for any employee of the State of Washington who had a base salary in excess of $45,000 per year. Since this ruling, which took effect July 1, 1993, salary residuals have been tracked and reported, but not distributed. A recent recommendation from the faculty was to implement the plan for those faculty members earning under $45,000, and simply carry the amount owed to those earning over $45,000 as an "IOU" to be paid in future times. This recommendation is still under study and consideration.

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