

SPAN OF CONTROL: A COMPARATIVE FACTOR ANALYTIC APPROACH*

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INTRODUCTION

How many subordinates can a manager effectively supervise?

The ratio of subordinates to superior is defined as the span of control or management. Urwick¹ normatively fixed the chief executive's span at four and the front-line supervisors to between eight and twelve. In practice, widely varying span can be found among different companies suggesting that there are many factors to consider in deciding the appropriate span.

Those who have written on the topic of span of control primarily specify a few of its various determinants and, in some instances, attempt to verify the nature of the relationship between these independent variables and the span of control. However, except in the case of Meyer², no other writer has attempted to integrate the various determinants and present a unified set of hypotheses about the relationship between the relevant variables. For sure, this will be the direction of future research work.

The author's objective in this paper is to collect the various determinants of the span of control that have been mentioned in the literature and attempt to establish the factors which involve the most parsimonious description of the dimensions of the span of control using the statistical technique of factor analysis.

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¹ L. Urwick, "The Manager's Span of Control," *Harvard Business Review* 34 (May, 1956) pp. 39-47.

² H. Meyer, "A Theory of Departmental Structure of the Formal Organization," Unpublished Ph.D. dissertation, Graduate School of Business, University of Chicago, 1967.

The next section is a description of the steps that Lockheed Missile and Space Company undertook in constructing an index of supervisory burden and how this index was used in predicting the appropriate span of control. Section 3 is a discussion of other span factors that have been mentioned in the literature. Section 4 considers the results of the factor analysis based on the responses of American and Filipino subjects.³ Section 5 is the concluding section.

INDEX OF SUPERVISORY BURDEN

Stieglitz [8] gives an account of how Lockheed Missile and Space Company developed an index of supervisory burden. First, the company officials defined the span factors they found to have caused differences in the span of control in various sections of their plants; namely:

- (1) Similarity of functions (similarity of the activities performed by the subordinates);
- (2) Geographical contiguity (dispersion of the subordinates);
- (3) Complexity of functions (nature of the tasks done);
- (4) Direction and Control (nature of the subordinates; the amount of training and attention needed by them);
- (5) Coordination (time needed to coordinate the activities of various units); and
- (6) Planning (the scope and complexity of activities to be planned).

The next step was to establish a point system to determine the degree of supervisory burden of each of these span factors. A five point scale was used, ranging from 1 to 5, for similarity of functions and geographical contiguity; 2 to 10 for complexity of functions, coordination, and planning; and 3 to 15 for direction and control. Thus, the point system applied also determined the relative weights given to each of the factors.

³The results based on the responses of the American subjects were first presented in a term paper submitted by the author while he was a doctoral student at the University of Chicago, to Prof. John Humpal as part of the requirements of the course, Business 360 (Organization: Structure and Process).

The sum of the points given for each of these factors in evaluating a particular position in the firm constituted a raw index which was then corrected for the amount of organizational assistance received by the superior. Informally, weight was also given to the competence of the individual superior in the computation of the final index.

Using this index of supervisory burden, various units of the firm were rated and a regression analysis was done between the computed index and the actual span of control. It is interesting to note that a significantly different relationship was established for front-line supervisors and middle managers.

The attempt of Lockheed to make the concept of optimizing the span of control operational in terms of an index of supervisory burden is bound to find application in other firms. However, there may be other span factors that have not been considered important by Lockheed's management that cause differences in the span of control for other firms.

The next section surveys the literature in terms of other span factors that have been found to cause differences in the span of control.

OTHER SPAN FACTORS

Terrien and Mills⁴ found that increasing organization size, as measured by total employment, is associated with a decline in the span of control. Fisch⁵, however, found a tendency for the span of management to be smaller as the company size decreased. Anderson and Warkov⁶ found a larger span in large organization and a smaller span in organization with a wide product range which led them to make a hypothesis that perhaps differences in product range and geographical dispersions of the firms included in their sample obscured the real relationship between the size and span of control.

⁴ F. Terrien and D. Mills, "The Effects of Changing Size Upon the Internal Structure of Organization," *American Sociological Review* 20 (February, 1955), pp. 11-13.

⁵ G. Fisch, "Stretching the Span of Management," *American Sociological Review*, 61 (Sept./Oct. 1963), pp. 74-85.

⁶ T. Anderson and S. Warkov, "Organization Size and Functional Complexity," *American Sociological Review*, 26 (February 1961), pp. 24-28.

Perhaps another intervening variable is technology. Woodward⁷, after classifying firms in her sample into three groups in terms of production methods used, found that within each group the span of control of the chief executive increased directly with the level of technical complexity of the production methods, and the span of the front-line supervisors increased from unit to mass production but subsequently declined with process production.

Woodward also found an increase in the number of professional employed by the firm as the level of technical complexity increased. Thus, the degree of professionalism may be another factor that affects the span of control in terms perhaps of ease of communication.

Whisler *et. al.*⁸ stated that "control can be assigned in a variety of alternative pattern at the discretion of leadership, with technology organization size and other factors . . . The pattern of control that is established determines a homologous pattern of role demands . . . These role demands can be expressed in terms of individual attributes: innate intelligence, acquired special or general knowledge, energy, sensitivity, insight and daring . . ." Thus, individual attributes of the subordinates may be considered as another variable affecting the span of control.

Jacques⁹ considered the amount of discretionary aspect of the job as the relevant measure of the size of the job of the subordinate and thus, the variable subject to the control by the superior. Moreover, the review mechanism used by the superior, i.e., direct vs. indirect, also determines the number of subordinates he can effectively supervise.

Hill¹⁰, in applying queuing theory to the span of control, assigned numerical values to such variables as the length of an average session of the subordinate with his superior, the average interval between

⁷J. Woodward, *Management and Technology* (London: HMSO, 1958).

⁸T. Whisler, *et. al.* "Centralization or Organizational Control," *Journal of Business*, 50(January, 1967), pp. 10-26.

⁹E. Jacques, *The Measurement of Responsibility* (Cambridge: Harvard University Press, 1956).

¹⁰L. Hill, "Application of Queing Theory to the Span of Control," *Academy of Management Journal*, 6(March 1963), pp. 58-69.

session, the cost of subordinates' and superiors' time, and the cost incurred with delays in having sessions with superior. Perhaps all these factors can be subsumed into the cost of queuing time.

Koontz and O'Donnell¹¹ preferred to explain differences in span of control in terms of factors that affect the frequency and severity of superior-subordinate relationships. They mentioned the following:

- (1) The relative difficulty of training subordinates;
- (2) Adequacy and clarity of authority delegation;
- (3) Planning (workable plans and plans consistent with goal);
- (4) Rate of change in objectives, policies and production process;
- (5) Use of objective standard in evaluating subordinate's performance;
- (6) Communication techniques used by superior and subordinates;
- (7) Amount of personal contact required of superior (e.g., conferences and committee meetings); and
- (8) Functional authority imposed on superior (e.g., personal matters handled by front-line supervisors).

In discussing how decentralization improved the efficiency of Sears Roebuck and Company, Worthy¹² brought out the relationship between span of control and the number of organization levels.

Finally, Meyer¹³ first looked into various communication impediments and then later presented hypotheses relating them to the span of control. He classified communication impediments into these categories:

¹¹ H. Koontz and C.O'Donnel, *Principles of Management* (New York: McGraw Hill, 1968), pp. 247-51.

¹² J. Worthy, "Organization Structure and Employee Morale," *American Sociological Review* 15(April 1960), pp. 169-179.

¹³ Meyer, *op cit.*

- (1) Nature of the employees;
- (2) Nature of the communication media used;
- (3) Geographical distance and other physical impediments;
- (4) Nature of the jobs controlled;
- (5) Communication interferences: volume of vertical communication; and
- (6) Communication interferences: number of organization levels.

In Meyer's theory, the span of control is largely determined by the trade-off between two opposing factors — costs of superior-exerted control and the economies from superior-exerted control. The hypotheses he presents are:

- (1) The higher the economies from superior-exerted control, the smaller the span of control;
- (2) The more the firm uses substitutes for control (manuals, rules and regulations), the less it uses superiors and thus, the larger the span of control;
- (3) The span of control tends to be larger in firms where the impediments exist to a larger degree (because firms tend to reduce the costs of superior-exerted control by selecting better employees and using written communication);
- (4) The higher the interdependency of a firm's jobs, the narrower the span of control;
- (5) The more extensive the use of Electronic Data Processing (EDP) by a firm, the smaller its span of control;
- (6) The more expansive the vertical communication, the larger the span of control; and
- (7) Certain qualities in employees such as intelligence, job skills, personality traits (including motivation), facilitate the ease with which an employee is able to control or be controlled.

The Questionnaire

A questionnaire was constructed on the basis of the various determinants of span of control that were discussed above. (Appendix A). The questionnaire includes thirty variables each of which had to be rated on a 5-point important-not important scale.

The basic assumption in a study of this type is that the respondents are adequately exposed to formal organizations such that they can discern factors causing differences in the span of control. Ideally, the respondents should come from a firm or an industry so that the results can be validated with the actual situation. As usual, however, the questionnaires were administered to students. The results, therefore, should be taken as tentative and conditional in nature.

Two sample groups were considered. The American respondents were from the Graduate School of Business of the University of Chicago who, at the time they filled up the questionnaire, were enrolled in the course: ORGANIZATION STRUCTURE AND PROCESS. A total of 35 completed questionnaires were collected from this group. Subsequently, a matching group of 35 Filipino respondents who were students in BUSINESS POLICY I at the MBA program of the University of the Philippines were selected to fill up the questionnaire.

The span variable *complexity of activities performed by subordinates* garnered the highest mean rating of 4.31 (i.e., most important) among the Filipino respondents while the variable *personality characteristics and capability of the manager* was listed most important (mean = 4.00) by the American respondents. The Filipino respondents considered *use of Electronic Data Processing (EDP) by the firm* least important (mean = 2.54) while the American respondents rated the *number of products* as the least important variable (mean = 1.54). The standard deviation of these variables are .89, 1.01, 1.10, and .65, respectively.

The responses of each group were factor analyzed separately to determine their perceived dimensions of the span of control. Then the factors of these two groups were compared using the coefficient of congruence.¹⁴

¹⁴ H. Harman, *Modern Factor Analysis*: (Chicago: University of Chicago Press, 1967), p. 270.

THE RESULTS

The computer program generated the factor loadings for thirty variables using the Principal Component Method. The resulting factors were then rotated by the use of the Varimax Method¹⁵ to arrive at an orthogonal multiple factor solution.

The following tables present the ten factors that came out of the factor analysis of the responses of the Filipino subjects and the twelve factors that were extracted from the responses of the American subjects. Only those variables with loading greater or equal to an absolute value of .4 were included in a factor. Moreover, whenever a variable appeared in two or more factors, it was assigned only to the factor which carried the higher loading.

The ten factors extracted for the Filipino respondents explain 70.91 per cent of the total variance while the twelve factors for the American respondents explain 82.86 per cent of the total variance.¹⁶

The interpretation of these span factors is more or less straightforward. Some illustrations are:

(1) Factor FI.

The *more* objective the standards applied in assessing a subordinate's performance and the *more* formal the review mechanism used by a superior in evaluating the performance of his subordinates, the *wider* is the span of control. This factor can perhaps be labelled as the *nature of performance evaluation*.

(2) Factor A2:

The *less* the time in which the needed effort is exerted to coordinate the activities of subordinates, the *smaller* the amount of the discretionary content of a manager's job, and the *smaller* the volume of vertical communication in the organization, the *wider* is the span of control. This factor may be labelled as *aspects of coordination*.

¹⁵ *Ibid*

¹⁶ The sum of the squared given values for the two groups are 23.7418 and 24.8570. These figures are divided by the no. of variable (= 30) to arrive at the proportion of the total variance explained by the factors extracted.

(3) Factor F2:

The *more* interdependent the jobs are, the *more* motivated the subordinates (i.e., motivation as an overall measure of their personality attributes) are; and the *more* organization assistance is provided to the superior, the *wider* is the span of control. The *nature of jobs and people* may be a label that we can attach to this factor.

Table 1.1

Dimensions of the Span of Control
Filipino Subjects (N = 35)

| FACTORS | VARIABLES | LOADINGS |
|---------|---|----------|
| F1 | Objectivity of standards applied in assessing subordinate's performance | .82 |
| | Review mechanism used by superior in evaluating subordinate's performance | .76 |
| F2 | Degree of job interdependence | .80 |
| | Personality attributes of the subordinates | .60 |
| | Amount of organizational assistance received by the superior | .55 |
| F3 | Adequacy and clarity of authority delegated to the superior | -.84 |
| | Degree of professionalism of employees | -.81 |
| | Personal characteristics of manager | -.78 |
| | Number of organizational levels | -.54 |
| F4 | Functional authority imposed on superior | .88 |
| | Amount of training of the subordinates | .47 |
| F5 | Size of the organization | .87 |
| | Nature of the production processes used by the firm | .71 |
| F6 | Volume of vertical communication | .86 |
| | The rate of organizational change | .72 |
| | Volume of horizontal communication | .71 |
| | Nature of the communication media used | .70 |
| F7 | Scope and complexity of activities to be planned | .83 |

| | | |
|-----|---|------|
| | Time and effort needed to coordinate subordinate's activities | .72 |
| | Discretionary contents of manager's job | .44 |
| F8 | Geographical dispersion of subordinates | -.83 |
| | Cost of subordinate's queuing time to the superiors . . . | -.65 |
| | Availability of manuals, rules and regulations as substitute for superior exerted control | -.63 |
| F9 | Job skills possessed by subordinates | -.83 |
| | Similarity of activities performed by subordinates . . . | -.72 |
| | Complexity of activities performed by subordinates . . | -.65 |
| F10 | Number of products | .79 |
| | Use of EDP by the firm | .45 |
| | Amount of personal contact required of manager . . . | -.53 |
| | Discretionary content of subordinate's job | -.67 |

Table 1.2

Dimensions of the Span of Control
American Subjects (N = 35)

| FACTORS | VARIABLES | LOADINGS |
|---------|---|----------|
| A1 | Number of products | .81 |
| | Size of the organization | .68 |
| | Number of organizational levels | .68 |
| A2 | Time and effort needed to coordinate subordinates' activities | -.70 |
| | Discretionary content of manager's job | -.64 |
| | Volume of vertical communication | -.54 |
| A3 | Personality attributes of the subordinates | -.73 |
| | Cost of subordinate's queuing time to see superior . . . | -.58 |
| | Use of EDP by the firm | -.58 |
| A4 | Complexity of activities performed by subordinates . . | .74 |
| | Personality characteristics and capability of manager . | -.40 |
| A5 | Nature of the communication media used | -.89 |
| | Amount of personal contacts required of manager . . . | -.51 |

| | | |
|-----|---|------|
| A6 | Amount of training of subordinates | .76 |
| | Job skills possessed by subordinates | .75 |
| | The rate of organizational change | .44 |
| A7 | Geographical dispersion of subordinates | -.76 |
| | Discretionary content of subordinates' job | -.74 |
| | Degree of job interdependence | -.53 |
| | Volume of congenial communication | +.51 |
| A8 | Amount of organizational assistance received by superior | -.78 |
| | Degree of professionalism of employees | -.58 |
| | Adequacy and clarity of authority delegated to the subordinates | -.41 |
| A9 | Availability of manuals, rules and regulation as substitute for superior exerted control | .81 |
| | Similarity of activities performed by subordinates . . . | .50 |
| A10 | Functional authority imposed on supervisor | .86 |
| A11 | The nature of the production process used by the firm | -.86 |
| A12 | Review mechanism used by superior in evaluating a subordinate's performance | -.86 |
| | Objectivity of standard applied in assessing a subordinate's performance | -.54 |

One can proceed to interpret and attach labels to the other factors noting the signs of the factor loadings of the variables. In so doing, some of the factors will appear to include variables that do not go together. Thus,

(1) Factor F3:

The *less* professionalism and the *less* adequate and clear authority delegation existing in the organization should bring about a *shorter* span and not a longer span, just as *fewer* number of organizational levels (i.e., a flat organization) and the presence of *more* capable managers should lead to *wider* spans. In other words, there appears to be inconsistency in the sign of two out of the four variables included in this factor.

(2) Factor F9:

The *less* job skills possessed by subordinates and the *less* complex the activities performed, the *wider* is the span but the sign of these two variables does not seem to go with the sign of the variable similarity of activities. It is expected that the *more* similar the activities performed by the subordinates, the *wider* is the span of control.

(3) Factor A4:

When the activities performed by subordinates are *more* complex, the result should be *shorter* spans and not longer ones. On the other hand, the *more* competent the manager is, the *wider* (not narrower) should be the span.

(4) Factor A7:

The *less* dispersed geographically are the employees and *less* the discretionary content of the job, the *wider* is the span of control; but *less* interdependent jobs and a *large* volume of horizontal communication should require a *shorter* and not a wider span of control.

In comparing the Filipino span factors with the American span factors, F1 and A12 stand out but are in direct conflict. While the two factors include the same variables, the factor loadings of these variables are opposite in sign. Thus, there is a positive relationship in F1 but a negative relationship of the variables objectivity of standards and formality of the review mechanism used in the evaluation of performance in A12.

One can also note from Table 1.1 and 1.2 that variables included in the Filipino factor are not always the same variables included in an American factor. In other words, while some overlaps exist between Filipino and American factors, the variables do not always match. A test of the similarity of factors extracted from two different groups using a fixed set of variable is the coefficient of congruence. Table 2 gives the coefficient of congruence that are equal or greater than 0.4 in absolute values for the factors of the two groups with overlapping variables.

Positive coefficients in Table 2 indicate similarity of Filipino-American factors while the negative ones show dissimilarity of Filipino-American factors. There are only four sets of factors which can be considered as fairly similar dimensions of the span of control

perceived by both the Filipino and American respondents. On the other hand, there are eight combinations of Filipino-American factors which turned out to be fairly dissimilar. In general, therefore, one can conclude that the perception of Filipino and American graduate students in business differ as to the importance of variables affecting the span of control. This may be due to a number of factors other than cultural differences such as exposure to formal organizations, age, etc. which cannot be held constant.

It is also possible that a questionnaire effect exists. Although the variables included in the questionnaire administered to the Filipino respondents were the same as those in the questionnaire administered to the American respondents, the arrangement of these variables was deliberately altered. This was an attempt to test the stability of the responses. Based on the results, it seems that the variation in the design of a research instrument may bring about different responses even among the same respondents.

CONCLUSION

The results of this study show that Filipino and American graduate business students perceive different factors affecting the span of control. Moreover, this study suggests that, even allowing for cultural differences, the perception of span of control factors may be heavily situation-oriented. In any event, a checklist of possible variables affecting an appropriate span of control as summarized in the questionnaire used in this study may be a convenient starting point in the development of a Lockheed-type of an index of supervisory burden.

In a specific application to a firm, a factor analysis approach may be pursued to reduce these variables to a meaningful few. Assuming that the dimensions extracted from the factor analysis are appropriate, then one can proceed to the construction of an operational index of factors. However, instead of a subjective weighing scheme embodied in the Lockheed method, one may use the average of the mean response of the variables included in each of the factors divided by the total of these averages as weights. In other words, suppose there are $i = 1, \dots, n$ responses for each factor: $A(i) = \sum_{j=1}^M \bar{X}(ij)$ where $\bar{X}(ij)$ is the mean response on the j th variable of the i th factor. Then the weights applied to these factors can be objectively determined as

$$W(i) = A(i) / \sum_{i=1}^n A(i) \quad i = 1, \dots, n$$

The index $I = \sum_{i=1}^n 100 W(i)(F_i)$ where $F(i)$ is the i th factor score can then be correlated with the actual span of control to establish its validity.

Table 2

Comparison of Filipino and American
Span of Control Factors Using
the Coefficient of Congruence

| Similar Factors: | Coefficient of Congruence |
|---------------------|------------------------------|
| F4 and A10 | 0.59 |
| F5 and A1 | 0.51 |
| F10 and A1 | 0.47 |
| F8 and A7 | 0.40 |
| Dissimilar Factors: | |
| F5 and A11 | -0.61 |
| F2 and A8 | -0.55 |
| F1 and A12 | -0.52 |
| F9 and A4 | -0.52 |
| F6 and A5 | -0.48 |
| F7 and A2 | -0.47 |
| F9 and A6 | -0.46 |
| F3 and A8 | -0.45 |

Alternatively, one can proceed to directly estimate the relationship between the span of control and the dimension of the span of

control extracted from the factor analysis using regression analysis. Here, the actual span of control found in the firm under study will be treated as the dependent variable while the span factors will be the independent variables. The derived equation will then provide an independent check of the sign of the span factor extracted from the factor analysis.

BIBLIOGRAPHY

- Anderson, T. and Warkov, S. "Organization Size and Functional Complexity," *American Sociological Review*, 26 (February 1961), 24-28.
- Fisch, G. "Stretching the Span of Management," *Harvard Business Review*, 61 (September/October 1963), 74-85.
- Harman, H. *Modern Factor Analysis*, Second Edition Revised. Chicago: University of Chicago Press, 1967.
- Hill, L. "Application of Queuing Theory to the Span of Control," *Academy of Management Journal*, 6(March 1963), 58-69.
- Jaques, E. *The Measurement of Responsibility*. Cambridge, Massachusetts: Harvard University Press, 1956.
- Koontz, H. and O'Donnell, C. *Principles of Management*. New York: McGraw Hill, 1968, 247-51.
- Meyer, H. "A Theory of Departmental Structure of the Formal Organization," Unpublished Ph.D. dissertation, Graduate School of Business, University of Chicago, 1967.
- Stieglitz, H. "Optimizing the Span of Control," *Management Record*, 24 (September 1962), 25-29.
- Terrien, F. and Mills, D. "The Effects of Changing Size Upon the Internal Structure of Organizations," *American Sociological Review*, 20 (February 1955), 11-13.
- Urwick, L. "The Manager's Span of Control," *Harvard Business Review*, 34(May 1956), 39-47.
- Whisler, T. et. al. "Centralization or Organizational Control," *Journal of Business*, 50(January 1967), 10-26.
- Woodward, J. *Management and Technology*, London, HMSO, 1958
- Worthy, J. "Organization Structure and Employee Morale," *American Sociological Review*, 15(April 1950), 169-179.

APPENDIX A

QUESTIONNAIRE ON THE SPAN OF CONTROL

The following have been mentioned in the literature as possible determinants of the span of control — the ratio of the number of subordinates to a superior. Please go over the list first and then rate the importance of these determinants using the following five point scale:

- 1 — not important
- 2 — slightly important
- 3 — important
- 4 — moderately important
- 5 — very important

PLEASE ENCIRCLE THE APPROPRIATE NUMBER

| | Not important | | Very important | | |
|--|------------------|---|-------------------|---|---|
| 1. Complexity of activities performed by subordinates | 1 | 2 | 3 | 4 | 5 |
| 2. Job skills possessed by subordinates | 1 | 2 | 3 | 4 | 5 |
| 3. Geographical dispersion of subordinates | 1 | 2 | 3 | 4 | 5 |
| 4. Similarity of activities performed by subordinates | 1 | 2 | 3 | 4 | 5 |
| 5. Amount of training of the subordinates | 1 | 2 | 3 | 4 | 5 |
| 6. Discretionary content of subordinate's job | 1 | 2 | 3 | 4 | 5 |
| 7. Degree of professionalism of employees | 1 | 2 | 3 | 4 | 5 |
| 8. Adequacy and clarity of authority delegated to the subordinates | 1 | 2 | 3 | 4 | 5 |
| 9. Personality attributes of the subordinates | 1 | 2 | 3 | 4 | 5 |
| 10. Size of the organization | 1 | 2 | 3 | 4 | 5 |

| | | | | |
|---|---|---|---|---|
| 11. Nature of the production process used by the firm | 1 | 2 | 3 | 4 |
| 12. Number of products | 1 | 2 | 3 | 4 |
| 13. Use of EDP by the firm | 1 | 2 | 3 | 4 |
| 14. Number of organizational levels | 1 | 2 | 3 | 4 |
| 15. Scope and complexity of activities to be planned | 1 | 2 | 3 | 4 |
| 16. Cost of subordinate's queuing time to see superiors | 1 | 2 | 3 | 4 |
| 17. The rate of organizational change | 1 | 2 | 3 | 4 |
| 18. Volume of vertical communication | 1 | 2 | 3 | 4 |
| 19. Volume of horizontal communication | 1 | 2 | 3 | 4 |
| 20. Nature of the communication media used | 1 | 2 | 3 | 4 |
| 21. Degree of job interdependency | 1 | 2 | 3 | 4 |
| 22. Functional authority imposed on superior | 1 | 2 | 3 | 4 |
| 23. Amount of organizational assistance received by the superior | 1 | 2 | 3 | 4 |
| 24. Availability of manuals, rules and regulations as substitute for superior-exerted control | 1 | 2 | 3 | 4 |
| 25. Discretionary content of manager's job | 1 | 2 | 3 | 4 |
| 26. Amount of personal contacts required of manager | 1 | 2 | 3 | 4 |
| 27. Time and effort needed to coordinate subordinates' activities | 1 | 2 | 3 | 4 |

| | | | | | |
|---|---|---|---|---|---|
| 88. Objectivity of standard applied in assessing a subordinate's performance | 1 | 2 | 3 | 4 | 5 |
| 89. Review mechanism used by superior in evaluating a subordinate's performance | 1 | 2 | 3 | 4 | 5 |
| 90. Personal characteristics and capability of manager | 1 | 2 | 3 | 4 | 5 |