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ADDIS ABABA UNIVERSITY
SCHOOL OF GRADUATE STUDIES

**STUDENTS' FUTURE TIME ORIENTATION AS
A FUNCTION OF SCHOOL PERFORMANCE
AND HOME ENVIRONMENT IN
CENTRAL ETHIOPIA: INSTRUMENT
DEVELOPMENT AND VALIDATION**

DESALEGNE SHANKO
JUNE, 1993

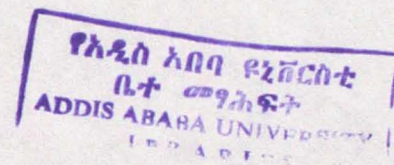
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**A Thesis Submitted to
The School of Graduate Studies
Addis Ababa University**

**In Partial Fulfillment
of the Requirements for the Degree
of Master of Arts in Educational Psychology**

BY

**DESALEGNE SHANKO
JUNE, 1993**

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ABSTRACT

Sixty nine statements from different spheres of life, reflecting students' future time orientation (FTO) were locally prepared, and administered to 500 grade 10 and 11 students from central Ethiopia. Item analyses through principal component analysis and item-test correlation yielded 51 items and 16 FTO factors with varimax rotation. The relationship between FTO scale versus students' achievement, sex, dwelling, socio-economic status (SES), parents' level of education and perceived intrinsic instrumentality (PI) was investigated. Employing stepwise regression and X^2 analyses a significant effect was found due to achievement and PI. Separate as well as combined effects of the rest of variables were not significant. Consequently, the scale can profitably be used for assessing strength of motivation. In spite of the developmental stage of adolescence that enables them to assert the future events realistically, the present findings were interpreted with respect to 'heuristic-bias' (Manger & Tiegen, 1988) that might have occurred. Further research directions particularly, for selecting significant variables associated with FTO have been proposed.

CHAPTER ONE

INTRODUCTION

1.1. The Problem

Human activities are time oriented. The capacity of sense of time is a universal characteristic of man. This capacity is learned and inherited through long term evolutionary perspective as Toda (1983) points out.

The ability to conceptualize time (future) has an impact on the psychological present and related activities. The future is cognitively 'present' in man's activity shaping his achievement motivation and affective quality. the effects of the future on the present behavior and /or organizing future possibilities are peculiar characteristics of man. In this connection Gjesme (1983) said that;

The ability to foresee and anticipate, to make plans for and organize future possibilities represents one of the most outstanding traits of man. This orientation ahead is more than an expression of the continuous effort toward a better adaptation between man and the world. The restless striving is just more than a drive for competence and display. This basic urge reflects also an effort to be ahead in time - a need to conquer the future. Man's unique ability to conceptualize time enables him to anticipate and organize future possibilities and there by to bring effects of future time into the psychological present (p. 347).

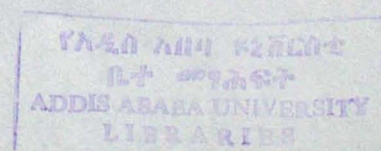
From the teleological perspective as opposed to the naive

mechanistic theory, the impact of future time is probably immense; compared to the role of the past experiences. Whereas laboratory experiments of behaviorists favor the past, cognitive psychology emphasizes finality (Nuttin, 1964).

In spite of the universal characteristics in temporal experience (the past, the present and the future), the meaning, manifestation and emphasis on the three orientations according to Gjesme (1979) differ from culture to culture and so do probably the factors that determine individual differences in these orientations.

Cross-cultural studies and findings from sub-cultures have shown differences in temporal orientations, time perception and time utilization (Shannon, 1976; Meade, 1972; Sundberg, Poole and Tyler, 1983).

The relationship between FTO and other variables has been investigated in a variety of ways, both in school and non-school settings. In non-school settings it has been treated in relation to socialization (Trommsdorff, 1983) economic deprivation (Agarwal, Tripathi & Srivastava, 1983) consumption behavior (Bouwen, 1977) and psychological deficits such as maladjustment (Gestenger & Leon, 1979) schizophrenia (Wallace, 1956), etc.



The majority of previous studies related FTO with different variables which are associated to achievement, in school settings. The importance of FTO among other non-cognitive variables would be of paramount implication regarding school activities, since school work is related to the future outcomes. The contribution of non-cognitive variables, besides cognitive variables to achievement oriented activities is reviewed elsewhere (Makonnen 1987, Daniel, 1992, Meherens and Lehman 1960).

Previous studies related FTO with different variables such as achievement motivation (Gjesme 1974, 1979), ability (Gjesme, 1979) attribution theory (Wolf and Savikas, 1985), delay of gratification (Gjesme, 1979; Habtamu, 1986), Sex (Gjesme, 1979; Habtamu, 1986; Lens, 1983; Trommsdorff, 1980), socialization of mothers' and their children (Trommsdorff, 1983), academic achievement and study persistence (DeVolder and Lens, 1982), social class (Lamm, Schmidt and Trommsdorff, 1976), etc.

Gjesme (1979) found that high ability group of children had higher scores in future time concern (anticipation) as compared to low ability group.



DeVolder and Lens (1982) classified FTO into three sub-dimensions in terms of time, namely, distant future, near future and open present. Their sample (N=251) of high school students were divided into high and low achievers according to academic performance of the students. They found that high achievers had higher scores in distant and near future relative to low achievers. The difference between the scores in open present for these groups was non-significant; although high achieving students were more instrumental to reach those goals in open present, when study persistence was considered.

Inconsistent and more differentiated results were found regarding sex. Lessing (cited in Gjesme, 1979) found that boys had higher scores in distant future, although there was no difference in the near future. Gjesme (1979) found that girls had higher scores in FTO. Habtamu (1986) came up with non-significant result of sex difference in adult population of Ethiopia. Taking pessimism /optimism as sub-dimensions of FTO, Trommsdorff (1983) and Lamm, Schmidt and Trommsdorff (1976) found that females were more optimistic in family domain and pessimistic in occupational domain, whereas males were more optimistic in occupational domain and pessimistic in family domain.

Several studies found social class difference in FTO regardless of different stratification of classes, in the various studies. Lamm, Schmidt and Trommsdorff (1976) came up with the result that middle class children were more future oriented than lower class children. Interpreting the results, it was said that middle class is aimed at strengthening self confidence and self responsibility of the child socialization milieu which is relatively better suited for developing abilities and goal setting. Comparing peasants, blue collar and white collar workers, Habtamu (1986) found that white collar workers had the highest FTO score than the other two groups, where peasants had the lowest FTO score. The existing trend for adolescents coming from different socio-economic groups (households) is not known, for the population of Ethiopia. Therefore, the present study investigates what sort of relationship exists between socio-economic status and FTO of students.

It has been reviewed elsewhere about the relationship between level of education and FTO. For example educational level difference on FTO was found among children, adolescents (Trommsdorff, 1983) and adults (Habtamu, 1986). Moreover, FTO is determined by internal, external and situational variables. One of the external variables can be parents help and support towards educational activities which are presumably linked with positive attitude towards school work

and in a way developing FTO of their children. At least from common sense basis it would be logical that parents who are better educated give guidance about school work of their children than parents with low education level, besides material facilities that can be assumed they would give.

For the adult Ethiopian population it was found that individuals with higher education level were significantly higher in FTO score as compared to people with secondary and elementary education level, as well as illiterates (Habtamu, 1986). The relation between parents (mothers) FTO and FTO of their children was investigated by Trommsdorff (1983). It was found that mothers were more optimistic than adolescents of both sex. However interaction effects were observed, i.e. mothers were more optimistic for their sons than for their daughters' future ($p < .05$). Further research has been suggested as to how both orientations are interdependent.

Taking these findings and suggestions in light of interactionalist theory viz the process of socialization; one can propose the relation between students' FTO and other variables pertaining to parents and teachers. Usually the mediation of socio-economic status of parents to FTO of their children has been investigated in earlier studies. The role of parents' education to the FTO of their children seems

unexplored; in which one of the aim of this study is directed.

The other objective of the present study is to discern FTO pattern for rural and urban students. With regard to dwelling it was found that (Habtamu, 1986) urban dwellers had higher FTO ($P < .001$) than the rural dwellers for the adult population. Data on adolescents may supplement his finding to which this study is directed.

Future time orientation (FTO) is a multi-dimensional concept (Gjesme, 1979) which includes cognitive, motivational and affective aspects of human temporal sequence (Gjesme, 1983; Trommsdorff, 1983; Devolder and Lens, 1982).

The cognitive aspect of FTO is part of cognitive schema (Piaget, cited in Trommsdorff, 1983). Future time orientation as cognitive schema means structuring of future events in terms of their temporal sequence and causal order, which is determined by internal condition rather than external (Trommsdorff, 1983). A cognitive schema that connects prior behavior to present circumstances and present behavior to future outcomes can facilitate recognition to action - outcome sequences and, thereby, influence outcome expectancy (Wolf and Savikas, 1985).

The motivational and affective aspects of FTO include goals, hopes, fears and wishes, which are experienced as more optimistic or pessimistic. These presumably influence individual behavior and should be studied in addition to the cognitive and temporal structuring of the future (Tommsdorff, 1983). The cognitive, motivational and affective aspects of FTO are related to situational (environmental) and personality variables, (Lamm, Schmidt and Trommsdorff, 1976).

The multi-dimensionality of the concept and labels used in the studies of FTO bore the problem of comparability of data. Gjesme (1983) discussed about inconsistent results, stating that the variabilities of the findings stem from: (1) the same label is used for different concepts, (2) measurement of FTO in specific terms which may probably reflect the manifestation of FTO for these particular situations more than the strength of FTO. His position regarding the measurement of FTO (although he accepts the multi- dimensionality of FTO) is to tap the problem in nonspecific terms.

Based on the above arguments and taking the particular situations of the country (economic, political, and social) into consideration, this study will deal with the problem in general terms. Moreover it would be worthwhile to

investigate the pattern of FTO in less supportive environment like Ethiopia.

Most of the studies on FTO were done in developed countries (eg. USA., FRG, Norway) except one study (Habtamu, 1986) here in the country. Habtamu's (1986) study investigated FTO of adult population and its relation with other variables (eg. level of education , occupation, sex, etc.). Data on school children (adolescents) may substantiate his findings. Previous studies which related FTO with school performance used personality variables, while very limited environmental variables were included. Whether different environmental variables mediate achievement of students and the interaction^{of} these variables with personal variables are not well studied. This study may fill this gap.

According to some sources one of the reasons for the decline in the quality of education in Ethiopia is students poor attitude towards school work and their living condition (Tekeste, 1990). The reason for the lack of positive attitudes (among students) presumably be the absence of job opportunities, after finishing high schools. If this happens to be true, are all students affected equally? It would be hasty to make a priori judgement. Items to measure value related judgement of school activity are included in the questionnaire.

1.2. Statement of the Problem

As discussed in the above section, the investigation of FTO in relation to achievement situations is essential. The first part of the study deals with developing locally validated FTO scale, with its sub-dimensions that could emerge.

The study treats also the difference between FTO of high school students and their academic performance (achievement), sex, dwelling, parents' educational level and socio-economic status (SES). These variables (independent) have been chosen based on previous studies and the writer's intuition. The relative and combined affects of the independent variables on FTO are investigated.

In view of this statement the following hypotheses are proposed.

1. There is a relationship between cumulative FTO score and students' achievement (performance) score.
2. There is a difference between male and female students' FTO scores.
3. There is a difference between FTO scores for students from highly educated households and students from low educated households.

4. There is a difference in FTO score between students from high SES households and students from low SES households.
5. There is a difference in FTO score between students from urban and rural areas.
6. There is a difference in FTO score and students' perceived intrinsic instrumentality (PI).

1.3. Significance of the Study

In general terms, future time orientation is an important parameter which serves as an index to investigate planning habits, goal setting, thoughts and persistence on the present as well as cognitively valued future activities of people. Motives and cognitions about school performance can be inferred from FTO, since the motives are bases for the development of FTO (Gjesme, 1979, 1983).

The applicability of this study can be seen in different directions. First the findings may be useful for various educational decisions that would be made specifically the results may assist student guidance services, educational policies and preparation of course or lesson plans. Secondly, future investigations may benefit from the scale developed for this study. The utility of FTO scale is rather

tremendous due to multiple interdependence of the construct with social, political , economic and educational variables. Moreover the scale can be adopted and/or adapted to non-school settings and other grade levels within the educational system.

1.4 Scope of the Study

The study is limited to senior high school students from Addis Ababa and Shewa Provinces, according to the division prior to 1987 (1979 E.C.). The regions selected represent central Ethiopia. Therefore the results of the study will be inferred to students in central Ethiopia. For comparing FTO patterns, between rural and urban students, high-schools located in small towns (less than 2000 inhabitants) were considered as rural, whereas urban high schools are selected from Addis Ababa only. The results may not be applicable for high schools situated in medium towns. Furthermore the data were collected from grades 10 and 11 students, and may not be generalized for all high school students.

1.5. Operational Definition of Terms

Future time orientation (FTO): Subjective value of anticipated goals and long term consequences of the present behavior.

Future time orientation score (FTO-score): a cumulative score based on structured questions which are rated on four point scale and selected through item analysis.

Achievement: Students' performance based on their rank (relative standing) in their respective classes.

High achiever: a student whose rank is above 95th percentile in his class (approximately).

Low achiever: a student whose rank is at the bottom 5th percentile in his class, approximately.

Dwelling: Students' permanent living place. It is either urban area or rural area.

Parents' level of education: the average education level of students' guardians (male and female) rated on six point scale; based on two items prepared for this purpose.

Parents' socio-economic status (SES): SES ~~was~~ measured with the help of 14 items prepared for this purpose. The index includes education, occupation income and major properties of students' parents.

Perceived intrinsic instrumentality (PI): PI is the value of school work as viewed by students. The data is based on 14 items designed to measure PI.



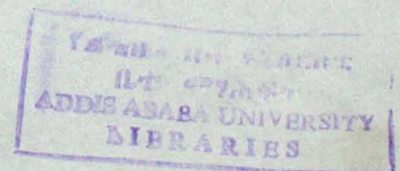
CHAPTER II

Review of Related Literature

2.1. Future Time Orientation - Conceptualization

In psychology perhaps more than in any other biological science an accurate description of the phenomena to be studied is important as an introductory phase of investigation. When this descriptive analysis is neglected essential difference between phenomena may be over - looked and significant variables may remain unexplored (Nuttin, 1964).

Time and space have always been considered the basic dimensions of the framework in which the behavioral as well as other events develop. But with regard to time, one pole of temporal continuum-namely, the demension of the past-seems to have been favored almost exclusively in the experimental study of behavior. The future time perspective, by contrast is considered to be of much less scientific value. And it is easy to understand why. Events, of course, are caused by what is called "preceding conditions ". The future on the contrary, is related to finality. And terms such as finality or teleology sound quite out of place in the vocabulary of experimental science. One usually forgets that the future is cognitively present in the behaving subject (Nuttin, 1964).



According to Toda (1983), human cognition is complex and future time perspective as a characteristic of cognitive system is a real marvel that functions upon things which do not exist, whereas everything that exists in the physical universe must exist in the present tense. Human beings other than lower organisms are endowed with complex cognitive system which enables them to sense and/or react events of the past or future.

Homo-sapiens have an elaborate biological architecture (designed by the nature) in harder frontier niches remolding and/or distructing both the possible and real worlds for the purpose of survival. Survival behavior is future oriented. However there is too much uncertainty because of many novel things it does, tampering its own ecological niche or creating future time perspective (Toda, 1983).

A simple analysis of human behavior calls attention to the fact that man, in his dealing with a given situation is usually directed toward something which is not there, something which is still to come, something different, even something new. For instance the student preparing for his examinations, the vacationist exploring new places,... are all oriented towards something ahead something they are looking for, their behavior is "future-bound" (Nuttin, 1964). The behavioral future as created by need is nothing more than

a vague orientation. The further structuralization of the future is due to more elaborate cognitive functions. This creation of a deeper time perspective is related to the fact that needs develop in men in numerous means-end structure which constitute our behavioral plans, our long term projects, and the tasks we assign to ourselves. Thus, the future time perspective in man is related to the cognitive elaboration of needs in plans, intentions and tasks which have a more or less elaborate temporal structure(Nuttin; 1964).

At first sight, future orientation might be considered as an important goal for educational activities. Research on future orientation gives the impression that well adapted, structured and extended future orientation is a characteristic of a well-adapted personality (Wallace, 1956) and allows activities which are highly valued in [a certain] culture, such as delay of gratification, planning, problem, solving and achievement (*Teahan, 1958*) .

The study of time perspective deals with the content, duration or directionality of the subjective experience of time - of past, present and future. Future time orientation is part of time perspective (Trommsdorff 1983,). In narrow sense future orientation restricts itself to the measure of the extension of time perspective into the future, the



coherence (Wallace, 1956, Agrawal, et al, 1983) or the density of anticipation (Kastenbaum, 1961). Another aspect of cognitive structuring, the judgement of internal versus external causality (Trommsdorff, 1983) have been introduced recently, following Rotter's (1981) distinction of locus of control of events.

These rather different conceptualization of future orientation may be seen as specific cognitive aspects which are part of a general cognitive schema (Piaget; Kelly, cited in Trommsdorff, 1983). Future orientation as a cognitive schema means the structuring of future events in terms of their temporal sequence and causal order.

The future can be experienced as more optimistic or pessimistic (Knapp and Garbutt, 1958; DeVolder, 1982; Beck, et al., 1974; Fuchsle, et al. 1980; Trommsdorff, 1983). This affective quality of future orientation presumably influences individual behavior. The subjective future comprises cognitive, motivational and affective qualities, which are related in a complex ways depending on the situational context and the thematic content of the anticipation which can activate individually relevant goals and motives.



The motivational approach conceives future orientation as central part of the motivated activity (Nuttin, 1964). Human motives are directed towards goals which may be attained in the near or distant future. These goals may be to achieve certain ends and to satisfy certain needs and wishes or they may be directed in avoiding certain fears and undesired events. A situation can be motivating if need satisfaction is expected (Nuttin, 1964) with reference to the kind of consequences of the activity, the judgement of adequate preconditions for success and the probability of success. One's expectations and the value of specific goals should shape future orientation and determine related activities.

The ideas reviewed in the above paragraphs convey different aspects related to future orientation. These conceptualizations stress the multidimensionality of future orientation (Trommsdorff, 1953; Fuchsle et al. 1980) and follow Lewin's (cited in Trommsdorff, 1983) approach to the time perspective. Lewin's discussions on aspirations, hopes, fears, goals and anticipations as part of future time perspective have influenced theoretical work on personality, decision making, achievement motivation, and

social interaction. Modern expectancy-^vvalue theories (Atkinson 1967; Vroom, 1964; Heckhausen, 1980) are leaning on Lewin's ideas and have inspired recent research on future orientation (Raynor, 1970, 1969; Raynor and Entin, 1983).

In sum, future time orientation includes cognitive, motivational and affective aspects of future events (and/or psychological time) as more or less coherent, extended, etc., depending on their value, locus of control (internality/externality) and probability of achieving them at a certain perceived goal distance. Based on this conceptualization specific ^{ist} definition of future time orientation (perspective) would be indispensable.



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2.2. FTO - its Definition

The construct of time perspective as developed by Frank and Lewin (cited in Meade, 1960) is major importance in the study of human motivation. This construct has been defined by Lewin as "the totality of individuals' views of his psychological future and psychological past existing at a given time... (p.75)."

Previous investigators used the concepts of future time perspective and time orientation interchangeably (eg. Le Shan cited in Wallace et al. 1960). But those who used both concepts in a discrete manner were leaning to the theoretical position of Lewin's definition. But Lewin's formulation illustrates some difficulties to the conceptual and methodological approaches with regard to adequacy and ambiguity while the concept of time perspective and time orientation need more precision (for review see Wallace and Rabin, 1960).

Other groups of researchers particularly those who related time perspective with academic achievement relied heavily on Wallace's definition (DeVolder and Lens, 1982) of extension of FTP as " the length of the future time span which is conceptualized." This definition was operationalized in a wide variety of techniques, such as Thematic Aperception

Test (TAT) with respect to the future time span covered in a given story (DeVolder; et al., 1982).

From the preceding paragraphs it is evident that time perspective and time orientation are not distinctly specified despite operationalizing the concepts for various investigations. In this study the definition given by Lamm et al. (1976) has been utilized. These authors define "time perspective as an individual's cognitions concerning the content, placement and unfolding of relevant events of the past, present and future. Specifically future time perspective refers to the cognitive component (ex. density, coherence and extension of future orientation), whereas future time orientation refers to an individual's attitude in particular, his cognitions and feelings toward his future (pp 317-318)."

2.3. Measurement of future time orientation

Studies conducted on FTO used different measures (direct and indirect, personal and impersonal measures, structured questionnaires, tests and projective measures (for review see Trommsdorff, 1983; Gjesme, 1983).

Results of most of the previous findings were inconclusive. The reasons for the contradictory findings

are numerous, including the variability in experimental design and methods of measuring or to draw conclusions of a general nature from them (Gjesme, 1983).

Another reason for the difficulties in reconciling the view-points is due to the variability in terminology and measurements employed in the different ^ustudies, e.g. the lack of distinction between general future time orientation (with specific dimensions) and the arousal and manifestation of FTO (with specific dimensions) in behavior. The manifestation of FTO is probably dependent on the importance or valence of the future task or activity (Gjesme, 1983).

Additional reason for the confusing and conflicting results is due to the confounding of FTO as an experimentally (situationally) induced factor and FTO as personality trait; i.e. the capacity to anticipate and structure the future (Gjesme 1983). Treating time perspectives by the classical level of aspiration experiments has limited its study to highly specific events taking place in a very brief period of time in individual's immediate future. Such studies have not attempted to investigate the implied broader role played by time perspectives in the determination of more complex behaviours extending beyond the immediate future (Meade, 1972).

Considerable attention has been given to more general aspects of temporal experience. This tendency has shown concern with the molar rather than the molacular approach to temporal phenomena... Researchers have become involved in the study of "macro-events" revolving around the relationships between persons' past, present and future within their phenomenological frames of reference (Wallace and Rabin, 1960).

Studies in which time perspectives have been investigated as more or less permanent features of the total personality have been made by Wallace (1956), Kastenbaum (1961,1965) and others. For these studies a projective type assesement was developed in which subjects were asked to write narrative, based on a given opening sentence (Meade, 1972).

By narrowing a FTO measurement to specific situations or events, one can fail to tap an individual's FTO simply because the individual has no value orientation towards some specific situation and consequently his FTO is not directed towards such events regardless of the strength of his FTO (Gjesme 1983).

Studies aimed at investigating the effects of potential future consequences upon present motivation and performance

can roughly be classified in to two types: The experimental type and the ex-post/~~facto~~ type. As to the former type "Psychological distance is limited to the attainability of the present (immediate) goal rather than long-term instrumentality of the activity. The latter is also limited to the perceived importance of the present activity for future goals, since the expected consequences come after activity, there is some future in the activity. The ex-post-facto studies demonstrated the effects of future orientation on present achievement striving probably better than the experimental in that there is a strongest relationship between achievement motivation and achievement under high instrumentality/importance conditions (Gjesme 1983), Presumably due to arousal of motives (manifestation) under high instrumentality condition.

To sum up, it is necessary to differentiate between FTO as personality trait and the arousal and manifestation of FTO capacity to specific tasks or activities. When measurements are related to specific tasks (goals) or events a certain value or/and valence is automatically introduced and the FTO capacities are more or less activated dependent on the individual's value orientation for that specific goal or task (Gjesme, 1983). Since FTO is a multi-dimensional concept (Trommsdorff, 1983, Gjesme 1983) best understanding of different aspects of future time orientation (FTO) and the

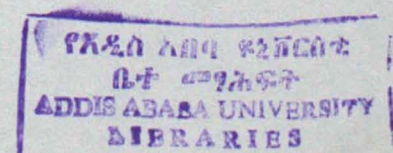
functional significance of these aspects would be achieved when they are measured primarily in non-specific terms (Gjesme, 1983).

2.4. Variables Associated with FTO

FTO Versus ability and achievement

Structuring the future cognitively is dependent on ones ability which in turn might be linked to one's achievement. According to Gjesme (1979) ability to conceptualize the future is a significant component in the development of FTO. Therefore a positive relation between FTO and intellectual ability would be expected.

Lessing (1968) found a positive association between IQ and length of FTO in pupils from different grades. Siegman (1961 a) found a non-significant correlation between individuals' future time perspective and intelligence. The results of Siegman are consistent with the subsequent findings which revealed no relation between intelligence and time orientation (Cottle, 1969; Kastenbaum 1961, 1965; Krauss, Ruiz, Mozdierz and Button, 1967; Teahan, cited in Gjesme 1979). However another investigation of Siegman (1961 b) revealed a significant positive correlation between future time perspective and a test of abstraction with general intelligence. Some studies, on the other hand, have shown



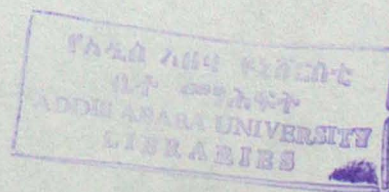
that high ability individuals have less future orientation than low ability individuals (Cottle, 1968).

Gjesme (1979) found that high ability group scored higher than moderate and low ability subjects only in one of the dimensions of his FTO scale, among four dimensions; namely "speed."

Greene (1986) tested future perspective of students with respect to Piaget's Cognitive developmental stages, and found that cognitively advanced subjects projected greater number [density] of future events.

A small positive correlation between the scholastic aptitude test and future time perspective /density/ has been revealed among female students but not among males (Brandenburg, cited in Gjesme, 1979). Levine and Spivack (1957) came up with the result that there is a relationship between time perspective and the ability to achieve scholastically. These authors removed the effect of immediate incentive in their investigations.

Several, other studies reported that students with high grade point average (GPA) were characterized by longer future time perspective (Davis & Sidman, 1962; Epley and Ricks, 1963; Goldrich, 1967; Klineberg, 1967; Lessing, 1968; Teahan,



1958; Vincent and Tyler, 1965). However these results, and particularly the definition of FTP from which the investigations followed, came under heavy criticism from both theoretical and empirical sides. Teahan (1958) reported that children with high academic achievement revealed both greater reference to the future and more extensive future time perspectives than low achievers. Optimism was also related positively to future extension in this study.

In an experimental situation Gjesme (1976) investigated the relationship between performance and future orientation for high and low anxious persons. Interaction effects were observed. Performance decrement was observed for anxious persons in the near future as compared to the distant future. The interpretation given was the future time orientation inhibits immediate performance more for anxious persons.

Following the expectancy-value based version of achievement motivation and its differentiation (Atkinson 1967, Carver, et al., 1979 ; Raynor, 1970; Raynor and Entin, 1983) several authors were able to support theoretically derived hypotheses on the relationship between future time orientation and achievement (Raynor, 1969, 1970; Devolder and Lens, 1982; Gjesme, 1979, 1981). The authors view the individual's perceived physical goal distance in time as situational factor (expectancy), and the individual's

future time orientation [value] which are interacting variables, effecting achievement motives on present activities (Gjesme, 1981).

Based on expectancy - value theory Gjesme (1983) investigated perceived goal distance in relation to performance and achievement motivation. Interaction effects were observed among the variables. Success oriented individuals increased both effort and quality of performance as the goal approached in time. However, failure oriented individuals decreased quality of performance as the goal approached in time, but effort was not significantly influenced.

The functional consequence of FTO on performance is quite different in relation to achievement motivation. For success-oriented individuals to have high FTO increases their vigor and effort in the present activity, since these individuals perceive the future goal as closer in time distance as compared to low FTO. The influence of FTO for the failure-oriented individuals would be the reverse (Gjesme, 1975).

DeVolder and Lens (1982) investigated future time perspective from cognitive-motivational concept. Their results showed that students with high grade point average (GPA) and

high study persistence attached significantly higher valance to goals in the distant future and perceived studying hard as more instrumental for reaching goals in the distant future and at present than students with low GPA and low study persistence.

FTO and gender difference

Possibly sex (gender) is the most inconsistent variable in FTO. The pattern and direction of obtained sex differences in future time perspective is variable (Greene, 1986) and inconclusive (Gjesme, 1983).

Several authors report greater differentiation and extension for males than for females (Cottle and Klineberg, 1974; Cottle and Pleck, 1969; Moerk and Becker, 1971; Slater, 1970), while others report greater extension and realism (i.e. planfulness) for females than males (e.g. Moerk, 1974; Verstraater, 1980) and still others report non-significant sex differences in any dimension of temporal perspective (Gordman and Wesman, 1977); and small to non-significant^a sex differences in future time extension and perspective (Cottle 1969; Davis, Kidder and Reich, 1962; Judson and Tuttle, 1966; Kastenbaum, 1961; Platt & Taylor, 1967; Siegman, 1961 b).

Lessing (1968) came up with the result that boys had longer future time perspective than girls on tests that measure a perspective in years [distant future], whereas no sex difference was found in the same study when short-range future time perspective [near future] was used.

A low relationship has been revealed for future time extension with males than females indicating that males conceptualize a longer future than females (Brandenburg in Gjesme, 1979). The difference between males and females in the length of future conceptualization, according to Brandenburg may be linked theoretically to social learning theory which suggests that males may be encouraged to set goals differently and further into the future than females (Gjesme, 1979).

Horner (cited in Gjesme, 1979) reported that females were higher in fear of success than males. Based on this findings Lens (1975) expected a less positive outlook or attitude towards the personal future among females than males. The results were significant in opposite direction, i.e. female students expressed more positive attitude towards the future than the male students. One study by Lamm, Schmidt and Trommsdorff (1976) on male and female adolescents revealed more differentiation. That is female adolescents manifested fewer occupational but more family related hopes

and fears than do male adolescents, while the latter group manifested more occupational and fewer family related hopes and fears.

FTO and Socio Economic Status

Future time orientation has shown variable results with respect to socio-economic status (SES) in most of previous studies (eg. Lamm, Schmidt and Trommsdorff, 1982) and it is significantly related to occupation.

Though class demarcation and other problems related to socio-economic development of specific country exist, the most commonly used social class categories are: Upper, middle and lower classes. It is also common to classify each class further into subcategories (such as Upper-middle) due to heterogeneous character of each division. Researchers often used two-level model (middle and lower classes) of stratification to conceal the problem (Craft, 1970).

Two-level model argues that most middle class families are more concerned with planning and place higher valuation on the extended education than most working class families. Writing United States traditional view Herriott and StJohn (cited in Craft, 1970) summarize as follows:

The middle family is said to be child-centered, future-oriented and interested

in achievement and mobility. It teaches children to respect property and to value neatness, thrift and punctuality. The lower class family on the other hand, is described as adult centered, present oriented and interested in enjoying life with extended family and peers. It teaches children to admire toughness, physical prowess, generosity, and practicality (p.7).

LeShan (1952) employing a Tell-Me-A-Story technique found that... middle class children were characterized by a longer time perspective than the lower class children. However Hudson and Tuttle (1966) did not find differences in extension of future orientation, but more delay gratification in middle-class as compared to lower class children.

Lamm, Schmidt and Trommsdorff, (1976) using different spheres of life as components of future orientation [generally categorized as public and private domains] found variable results on adolescent population. Middle class adolescents, as compared to the lower-class adolescents; voiced more hopes and fears relating to public life and fewer in private sphere, and they manifested a more extended future orientation in private as well as public spheres. They also judged the distant future more optimistically in two out of three public areas of concern. The lower class girls were more optimistic than the middle class girls in the occupational domain. But the lower class boys voiced more hopes and fears in the occupational domain and manifested a

more extended future orientation than the lower class girls. On the other hand girls of both classes voiced more hopes and fears in the private sphere than the boys of either classes.

Results of social class difference on future time orientation were interpreted in the light of general assumption of cognitive social learning theories. That is parents who give positive reinforcements to their children and who are consistent in their socialization practices induce in their children a general expectancy of positive world, trust in others, belief in own abilities and general optimism (Davis and Phares, 1969; McDonald, 1971, Rotter, 1981). Accordingly, one can assume that children who perceive their parents as loving and supporting should develop a trusting and positive attitude towards the future, believe more in their future success as being a result of own activities, and be more inclined to invest for achievement of future goals than less supported children. Children who perceive little support were less optimistic about their future and less hopeful than children who perceived their parents as highly supporting; children with low support also believed less in their personal future; their future orientation was less structured and extended with regard to the economic and occupational domains (Lamm, et al., 1976; Trommsdorff, 1983).

Agarwal, Tripathi and Srivastava (1983) tested hypotheses concerning socio-economic conditions related with the development, psychological processes and behavioral sequels of time perspective on 249 students of India, 19-23 years of age. Socio-economic condition measured through "Prolonged Deprivation Scale (PDS)" revealed two distinct factors via principal component analysis with varimax rotation. The first factor labeled¹ as "physico-economic deprivation" had very high loadings in areas such as housing conditions, home environment, economic sufficiency, food and clothing,..., and socio-cultural experiences. The second factor had high loadings in such areas as childhood experience, child rearing practice, interaction with parents, motivational and emotional experiences. This factor was labeled¹ as "Experiential Deprivation" factor. The results revealed that deprivation on experiential dimension, significantly and adversely influenced future orientation but physico-economic deprivation did not.

FTO and Dwelling

From both theoretical and empirical knowledge the development and functional consequences of FTO are dependent on endogenous and exogenous variables. Both variables have been treated in various ways, in most of earlier studies.

Besides the variable investigations of exogenous factors, dwelling in particular has been treated in different ways. Some studies matched urban and rural dwellers instead of considering it as an independent variable (eg. Agarwal, et al., 1983). Dwelling has been considered as independent variable in connection to FTO (Habtamu, 1986) and other related variables, such as attitudinal modernity (Bali, et al., 1984, Habtamu, 1986).

Habtamu (1986) found a significant difference in FTO score between urban and rural dwellers ($P < .001$). Urban dwellers of his sample were more future oriented than the rural dwellers.

FTO and Perceived Intrinsic Instrumentality (PI)

FTO has been treated in relation to different variables (endogenous and exogenous), whereas perceived intrinsic instrumentality was studied in relation to achievement and/or performance in most of previous studies. However, confounding results were arrived due to conceptualization and methodologies used. In particular lack of distinction between FTO and the situational variable PI, created a problem in comparing the various findings of earlier studies. Some studies (eg. Raynor, 1970) used FTO and PI enter-changeably, while others conceive them as discrete constructs.

According to DeVolder and Lens (1982) FTO is the sum total of a) the valence of distant goals and b) the anticipation of long term consequences of actual behavior (instrumentality) whereas, Gjesme (1982) conceives FTO as the interaction between psychological distance in time and perceived instrumentality. Nevertheless, in either way of interpretation the role of PI seems crucial for the development of FTO. Earlier studies which related PI with achievement used their causal relationship interchangeably. Some studies used PI as dependent variable and achievement as independent variable (eg. DeVolder and Lens, 1982).

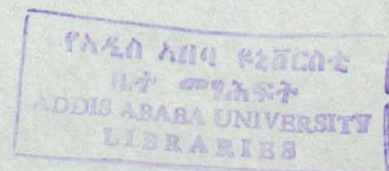
CHAPTER III

Research Design and Methodology-

This chapter deals with the methodology of the study. Information regarding the sample will be given first. Next to this, the description of the instruments used, procedures of data collection and analysis will be explained.

3.1. Sample

The study was carried out with a sample of 506 grade 10 and 11 high school students from central Ethiopia. The sample is stratified by dwelling (urban/rural) and achievement. Four regions from central Ethiopia were selected to represent rural dwellers, whereas Addis Ababa represents urban dwellers. High-schools located in medium towns were not included with the assumption that they may consist of both urban and rural dwellers. High-schools located in small towns (less than 2000 inhabitants) were selected for rural sample. Such high-schools were infrequent. Therefore the sampling procedure was more of purposive than probability sampling. There was no high-school situated in a town less than 2000 population (residents) in eastern Shewa. Thus the remaining three regions namely, north Shewa, south Shewa, and western Shewa were selected. Two high-schools were selected from north



Shewa, whereas one high-school was selected from each of the other regions.

Following the specification of the schools two students were selected from each class depending on their performance in the examination results of 1991/92 first semester: The first and the last ranks (relative standing in their respective classes) were considered to represent high and low achievers, respectively. However high-achievers females were rare, therefore the ranks above five were considered for female students. From the list prepared a random sample of students were selected from each high-school with proportional allocation to the total enrollment. The sampling procedure was the same for the pilot and validation studies. Table 1 shows the distribution of the sample for the pilot and validation studies by dwelling and achievement.

Table 1: The sample for the pilot and validation studies by dwelling and achievement level

| Dwelling | Pilot sample | | Total | Validation | | Total |
|------------------|--------------|-------|-------|------------|-------|-------|
| | Urban | Rural | | Urban | Rural | |
| Achievement High | 55 | 47 | 112 | 164 | 98 | 262 |
| Low | 46 | 65 | 102 | 131 | 92 | 223 |
| Total | 101 | 112 | 213 | 295 | 190 | 485 |

Six individuals from the validation sample didn't complete the questionnaire fully, and were omitted from the analysis. Two individuals from the pilot sample and fifteen from the validation sample were omitted by the computer during item analysis for some missing cells (mostly biographical information). However these subjects will be included for some of the analyses, whenever the data are complete.

Subjects were matched with respect to grade level & sex for each dwelling. The subjects age ranged from 13 years to 21 years, with mean age 16.14 years.

3.2. Instrumentation

A fairly comprehensive information will be given regarding the construction & validation of the instrument and item analysis involved. Information concerning the independent measures, namely, school performance, sex, dwelling, parents' level of education and socio-economic level will also be provided. For the purpose of construct validation an instrument (scale) to measure perceived instrumentality is designed. In the following sections the various instruments and procedures will be discussed.

3.2.1. Measurement of future time Orientation (FTO)

Future time orientation is measured using 69 statements asking about student's hopes, beliefs, and fears related to their future events. The statements are locally prepared by the writer and selected via some steps employed. The procedures of preparation and item selection will be discussed in the following paragraphs and in section 3.3 of this chapter.

At a preliminary stage item writing and logical validity were conducted prior to empirical investigation. Statements related to future time orientation were written in the light of previous studies. Most of the items were adapted from earlier studies (Gjesme, 1979; Wolf and Savickas, 1985; DeVolder and Lens, 1982; Lamm, Schmidt and Trommsdorff, 1976) and some statements were prepared by the writer. These authors state that the measurement of FTO must be in general terms, rather than specific or situationally determined FTO. Some of the writers used statements reflecting general concern (Gjesme 1979; wolf et al., 1985); whereas others used statements directed to specific spheres of life (DeVolder et al., 1982; Lamm et al 1976). For example Lamm et al. (1976) used statements asking about public concern (politics, economy and environment) and private concern (occupation, family and personal development) of adolescents.

Leaning on the suggestion that FTO should be measured in general terms, items reflecting general FTO have been used for this study. Of course statements reflecting different spheres of life are also included. However an attempt has been made to structure them in general terms.

The pool of 105 statements were written and 25 of them were dropped by the investigator, in most of the cases due to semantic overlap and lack of clarity. The remaining items were rated by six experts (graduate students in educational psychology) how far they measure the intended objective. Through the rating, 69 statements were retained.

The 69 statements were translated into Amharic by the writer and two experts (graduate students in TEFL*) from the original English version. The Amharic version was translated back into English by an independent expert to check the consistency of the translation. There was no notable difference between the original and the new English versions; except one item "I need to feel rushed before I really get going," This item was included in the "index" with some modifications. The Amharic version was included in the questionnaire being ready for the pre-test. The procedures of the empirical investigations are discussed in section 3.3 of this chapter.

*Teaching English as a Foreign Language



3.2.2. Students' Achievement (Performance)

The choice of achievement as an independent variable is according to the suggestions of some literature. For example DeVolder et al. (1982) used students' performance as independent variable and FTO as dependent on achievement. Some other studies considered that, achievement is dependent on FTO (eg. Manger and Teigen, 1988). The inconsistency of assigning achievement as dependent and independent variables is presumably due to inverse causality of FTO and achievement.

Achievement in this study is, school marks of the students during the first semester of 1991/92 academic year. As it was already mentioned in section 3.1. of this chapter, students with top rank were considered as high achievers and students with the least rank were considered as low achievers. Dummy coded variables were used for achievement during data analysis, with "1" for high achievers and "0" for low achievers.

Data were obtained from schools record office, regarding achievement for both grade levels. High achieving males and low achieving females were larger in number as compared to their counterparts (i.e. high achieving females and low achieving males); although it was intended to match sex and

achievement. The writer didn't come across whether this trend exists for the (total) population or not, Table 2 shows achievement of the validation sample by sex. -

Table 2: Students achievement by sex for the validation sample (N = 484)

| Achievement | GENDER | | |
|-------------|--------|--------|-------|
| | Male | Female | Total |
| High | 170 | 92 | 262 |
| Low | 88 | 134 | 222 |
| Total | 258 | 226 | 484 |

3.2.3. Sex of Students

Most of the previous studies reviewed considered sex as an important variable in relation to FTO. Dummy coded variables were used for sex, with 1 = males and 0=females in this study.

3.2.4. Dwelling

As indicated in section 3.1. of this chapter students were stratified by dwelling urban students were represented with "0" and rural students were represented with "1" for data analysis.

3.2.5. Parents' level of education

Parents' level of education was collected with the help of two questions. Both questions ask about the level of education for parents. One of them asks about father's (male guardian's) level of education, whereas the other asks about mother's (female guardian's) level of education. The questions were rated on the same six point scale, where 1=illiterate or basic education level, 2=elementary education level, 3= Junior high school level, 4=senior high school level, 5=above high school or diploma level (12+1, 12+2) and 6= professional degree level.

Father's and mother's level of education was averaged to get a single index of parents' level of education. For students coming from single parent households the available ratings were used.

3.2.6. Parents' socio-economic status (SES)

Parents' socio-economic status was measured using 7 indices consisting of 14 items, included in the questionnaire (Appendix A). These indices are education index (EDI), house index (HOI), income index (INI), expenditure index (EPI) economic rating of occupations (OCI), prestige rating of occupations (OCP) and major properties index (MPI).

Education index (EDI) was measured by utilizing the data collected through two items discussed in section 3.2.5. above.

House index (HOI) was measured using 3 items asking about the quality of house (3 point scale), number of rooms (3 point scale) and ownership of the house (private/rental-2 point scale). Maximum score for HOI is 8 and minimum score is 3.

Income index (INI) was measured using one item asking about parents income per month. The item was rated on 6 point scale with 1=upto 100 Birr *, 2=101 - 300 Birr, 3= 301-500 Birr, 4=501-700 Birr, 5=701-1000 Birr, and 6= above 1000 Birr.

Expenditure index (EPI) was measured using five questions asking about eating habit of the family, type of food stuffs and where the family gets water and light. All the items were rated on 3 point scale; with "1" is least score and "3" is the highest. The maximum score for EPI is "15" and the minimum is five.

Both occupation indices (OCI and OCP) were measured using one question, asking about parents' job and responsibility. From the data obtained through the item

mother's (female guardian's) occupation didn't show much variability. Therefore only fathers' (male guardians') level of occupation was considered to measure this index. A list of 70 different occupations frequently observed in the sample was prepared and presented to 6 judges, where the judges rated them on a 6 point scale. A score (rating) of 1 represents the highest value assigned to an occupation related to economic or prestige valuation as perceived by the judges. And a score of 6 represents the least value. However the scale was reversed for data analysis to enable the combination with other indices. The six judges were graduate students from the departments of curriculum (1) psychology (3) and demography (2). The occupations were rated for economic and prestige perception, separately (Appendix E). For each rating of occupations 6 categories were established based on the result of judges. The agreement among judges was measured employing Cohen's Kappa (K) statistics (Hays, 1980; Cohen, 1960). Kappa ranged from .35 to .59 with average value of K being .45 for economic rating. Inter judge agreement was not computed for prestige rating, but there was no variability between economic and prestige ratings. The correlation between OCI and OCP is .9317 (table 3). Therefore the scores were averaged for these indices.



Major property index (MPI) was measured with one open - ended question. The item asks to list major properties parents (guardians) have. All the listed items (properties) were collected and six categories were developed by the writer, through investigation of the content. By this a priori set categories individual list of properties were categorized to a group with scale values 1 upto 6; where 1 is the least score and 6 is the highest.

A single index of SES was obtained by combining the scores of the sub-indices. The intercorrelation among the variables (sub-indices) was highly significant. There was no visible clusters and/or importance observed among the variables; although the highest correlations were observed among OCI, OCP, and MPI indices ($r > .75$). Therefore the SES score was combined by assigning equal weight except OCE and OCP were averaged.

Therefor SES is computed by the formula:

$$SES = EDI + INI + HOI + EPI + \frac{OCI + OCP}{2} + MPI$$

Table 3: The Intercorrelations among the indices of SES (N=493-496)^a

| | EDI(1) | INT(2) | HOI(3) | EPI(4) | OUI(5) | OEP(6) | MPI(7) |
|---|--------|--------|--------|--------|--------|--------|--------|
| 1 | -- | 493 | 494 | 493 | 494 | 494 | 495 |
| 2 | .6998 | -- | 493 | 493 | 493 | 493 | 493 |
| 3 | .5058 | .6298 | -- | 493 | 494 | 494 | 494 |
| 4 | .6859 | .7467 | .5720 | -- | 493 | 493 | 493 |
| 5 | .5664 | .7527 | .5514 | .6230 | -- | 494 | 494 |
| 6 | .6754 | .7795 | .5704 | .7206 | .9317 | -- | 494 |
| 7 | .7049 | .8075 | .6088 | .8051 | .7947 | .8393 | -- |

- Note:**
- 1) All the correlations are significant at $P < .001$
 - 2) Upper portion of the diagonal elements in the table are number of cases and the lower elements are inter correlations

3.2.7. Perceived instrumentality (PI)

Perceived instrumentality is measured with 14 statements. These statements were locally designed and adapted from the study of Gjesme (1982). The items (statements) were rated on four point scale in the same manner to FTO items. An example of an item for PI is "what we learn in school could be useful for our future life " (Appendix A). Pre-test results from the pilot sample showed satisfactory result in terms of discrimination (item-test correlation). The correlations ranged from .33 to .68 with average correlation (r_{it}) is .49 (N=213). These indices are are nearly the same with Gjesme (1982) who reported the range of discriminations from .30 to .35. The data for validation

sample were used without any modification of the PI items. The maximum and minimum possible scores for PI are 52 and 14 respectively.

3.3. Procedures of Data Analysis

3.3.1. Development of the FTO Scale

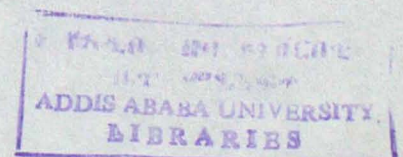
For the development of a new test, the test was administered twice. The object of the first test is to test the reliability of the test and include items that measure the same as the whole test (Bali, Young, Drenth and Van der Flier, 1984). To attain this objective item analyses and selection were conducted from the data of pilot study. Nevertheless item analyses and selection were done from the data of the validation study too. With the latter analyses more reliable items are retained. Procedures of item analyses and selection and factor analytic solutions are presented in the first part of this section. The second part of data analysis deals with the relationship of FTO with other variables.

A). The Pilot study

A 9 page questionnaire consisting of different parts, including FTO statements was administered to 213 sample students from the population in which the study^{is} conducted. FTO statements were rated on four point scale, 1=very true of me to 4= not at all true of me, where the students are directed to make a tick mark below the numbers (Appendix B). Additional instruction was given by the investigator, while an assistant was selected from each school as invigilator. There was no problem of cooperation during data collection. The selected students were gathered to a separate room to complete the questionnaire. The time needed to complete the questionnaire was about 40 minutes on the average.

The data from the pilot sample were coded (tallied) with the help of 3 assistants (3rd year undergraduate students). Negative statements were scored in reverse direction by the writer. Finally the data were processed in SDDPC* in Addis Ababa University P-STAT 8, version 1.26 (Dec. 13, 1986) package was used for data processing.

* *Systems design and data processing centre*



Item data (means, standard deviations, inter correlations and item test correlations) were computed first. The second phase of data analysis (item analysis) was done by generating a principal component analysis, with this some items which were non-significant along the components were omitted, besides item-test correlation (discrimination).

B) Validation study

The former 9 page questionnaire was reduced to 7 page through omission of the items during pre-test. The procedure of data collection, administration and scoring was the same to the pilot study.

Item analyses and selection, too followed the same procedure as it was done for the pilot data. However two stages of factor analytic solutions were done for this data.

3.3.2. FTO and the independent Variables: Predictive and Construct Validation

The new scale developed with the procedures mentioned in the above section, was tested in relation to the various independent variables. A step - wise multiple regression, equation was employed to test a joint and separate effects

of the independent variables in predicting and/or relating FTO score. This equation is of the form $Y = a + b_1 X_1 + b_2 X_2 + b_3 X_3 + b_4 X_4 + b_5 X_5 + b_6 X_6$, where

Y is cumulative FTO score

X_1 is students' achievement

X_2 is sex of students'

X_3 is parents' educational level

X_4 is parents' socio-economic status

X_5 is dwelling

X_6 is perceived instrumentality and

a, b are regression intercepts and slopes respectively.



CHAPTER FOUR

Results

4.1. Treatment of data: development of FTO scale

One of the main purposes of the study was to develop an instrument that measures general future time orientation (FTO as a personality trait). Item analyses and selection was done through item-test correlation and factor analysis. Employing principal component analysis (Fruchter, 1958; Harman, 1976), sub-scales of FTO were also derived. The development of the scale involved a series of steps, the pilot data and two data from the validation sample. The results are discussed below.

4.1.1. The pilot study

For all items, the means, standard deviations, item-test correlations (r_{it} - values), intercorrelations and principal components were computed. Test data regarding reliabilities, skewness & kurtosis were also calculated. For the 69 FTO items, including the row total score a 70x70 matrix was constructed. The correlation between each item and the row total score was utilized for item-test correlation. Omitting the last row and column vectors an iter-item correlation (69x69) matrix was obtained. This matrix was used to generate principal components. Items data are in Table 4.

Table 4: Items data for the pilot sample (N=213)

| Item (I) | Means | SD _s | r _{ii} - values | Varimax loading | New diagonals |
|-----------------|--------|-----------------|--------------------------|-----------------|---------------|
| I ₁ | 1.4455 | 0.6329 | .04 | 63 | 68 |
| I ₂ | 1.6808 | 0.9474 | .04 | 81 | 72 |
| I ₃ | 3.1409 | 1.009 | .17 | 43 | 65 |
| I ₄ | 2.5714 | 1.1889 | .14 | 45 | 56 |
| I ₅ | 2.1981 | 1.3056 | .25 | .73 | 69 |
| I ₆ | 2.3019 | 1.778 | .52 | 63 | 66 |
| I ₇ | 2.3884 | 1.2316 | .38 | 70 | 59 |
| I ₈ | 1.5472 | 0.9085 | .28 | 35 | 68 |
| I ₉ | 1.8660 | 0.9463 | -.17 | 70 | 61 |
| I ₁₀ | 2.5000 | 1.2487 | .29 | 37 | 64 |
| I ₁₁ | 2.5545 | 1.2462 | .28 | 67 | 60 |
| I ₁₂ | 1.3991 | 0.8329 | .40 | 55 | 71 |
| I ₁₃ | 2.7751 | 1.1776 | -.06 | -71 | 62 |
| I ₁₄ | 2.6604 | 1.1428 | -.02 | 54 | 62 |
| I ₁₅ | 1.3460 | 0.7860 | .28 | 58 | 63 |
| I ₁₆ | 1.7406 | 0.9802 | .48 | 66 | 62 |
| I ₁₇ | 2.0047 | 1.0623 | .37 | 75 | 70 |
| I ₁₈ | 1.6699 | .8011 | .26 | 58 | 63 |
| I ₁₉ | 2.2891 | 1.1326 | .38 | 56 | 59 |
| I ₂₀ | 2.4286 | 1.2168 | .23 | 40 | 64 |
| I ₂₁ | 2.7678 | 1.1456 | .38 | 57 | 53 |
| I ₂₂ | 1.6730 | 1.0058 | -.19 | -73 | 65 |
| I ₂₃ | 2.0094 | 1.1519 | .35 | 28 | 60 |
| I ₂₄ | 1.9904 | 1.1393 | .31 | 35 | 67 |
| I ₂₅ | 2.5094 | 1.0553 | .19 | 74 | 70 |
| I ₂₆ | 2.2679 | 1.0941 | .13334 | 81 | 73 |
| I ₂₇ | 1.5933 | 0.7220 | .81 | 56 | 63 |
| I ₂₈ | 1.5094 | 0.7998 | .37 | 62 | 68 |
| I ₂₉ | 1.7028 | 0.9645 | .19 | 74 | 65 |
| I ₃₀ | 2.6114 | 1.1915 | .35 | 71 | 73 |
| I ₃₁ | 2.4834 | 1.0794 | .28 | 47 | 64 |

| Item (I) | Means | SD _s | r _{ii} - Values | Varimax loading | New diagonals |
|--------------------|--------|-----------------|--------------------------|-----------------|---------------|
| I ₃₂ | 1.9857 | 1.1001 | .42 | 41 | 64 |
| I ₃₃ | 1.9104 | 1.1505 | .35 | 68 | 65 |
| I ₃₄ | 1.7747 | .8933 | .44 | 68 | 61 |
| I ₃₅ | 2.6808 | 1.0377 | .42 | 51 | 72 |
| I ₃₆ | 1.8667 | 0.84479 | .40 | 39 | 63 |
| I ₃₇ | 2.0667 | 1.0097 | .40 | 42 | 65 |
| I ₃₈ | 2.9434 | 1.1950 | .31 | 61 | 62 |
| I ₃₉ | 2.3146 | 1.0901 | .32 | 35 | 62 |
| I ₄₀ | 2.6114 | 1.2192 | .42 | 61 | 64 |
| I ₄₁ | 2.3175 | 1.1078 | .48 | 73 | 72 |
| I ₄₁ 42 | 2.0948 | 1.0284 | .38 | 54 | 59 |
| I ₄₂ 43 | 2.2512 | 1.0413 | .17 | 47 | 55 |
| I ₄₃ 44 | 2.2028 | 1.2087 | .48 | 63 | 68 |
| I ₄₄ 45 | 1.9524 | 1.1314 | .32 | 34 | 67 |
| I ₄₅ 46 | 2.0939 | 1.1371 | .43 | 33 | 63 |
| I ₄₆ 47 | 1.8639 | 1.0751 | .35 | 72 | 71 |
| I ₄₇ 48 | 1.6872 | .8656 | .21 | 72 | 67 |
| I ₄₈ 49 | 1.8357 | .8935 | .11 | 60 | 70 |
| I ₄₉ 50 | 2.5305 | 1.1390 | .32 | 46 | 57 |
| I ₅₀ 51 | 1.9953 | 1.0713 | .35 | 50 | 69 |
| I ₅₁ 52 | 1.4880 | .7851 | .19 | 64 | 74 |
| I ₅₂ 53 | 1.8538 | .9892 | .29 | 39 | 64 |
| I ₅₃ 54 | 2.0335 | .9922 | .04 | 75 | 70 |
| I ₅₄ 55 | 1.9437 | .9696 | .36 | 78 | 70 |
| I ₅₅ 56 | 1.8826 | 1.1076 | .23 | 72 | 64 |
| I ₅₆ 57 | 2.0905 | 1.1224 | .43 | 44 | 69 |
| I ₅₇ 58 | 2.1952 | 1.002 | .37 | 43 | 63 |
| I ₅₈ 59 | 1.9279 | 1.1377 | .32 | 49 | 64 |
| I ₅₉ 60 | 2.1106 | 1.2088 | .23 | -57 | 73 |
| I ₆₀ 61 | 2.0948 | 1.0144 | -.02 | 75 | 67 |
| I ₆₁ 62 | 1.8164 | .9579 | .38 | 68 | 73 |
| I ₆₂ 63 | 1.8269 | .9775 | .38 | 58 | 64 |

| Item (I) | Means | SD _s | r _{it} - Values | Varimax loading | New diagonals |
|--------------------|--------|-----------------|--------------------------|-----------------|---------------|
| I ₆₄ 64 | 3.2830 | .8736 | -.04 | -49 | 61 |
| I ₆₅ 65 | 3.4265 | .8497 | .07 | 78 | 68 |
| I ₆₆ 66 | 3.3160 | .9283 | -.05 | 50 | 68 |
| I ₆₇ 67 | 1.6459 | .8655 | .11 | -65 | 69 |
| I ₆₈ 68 | 1.9953 | 1.0819 | .39 | 66 | 70 |
| I ₆₉ 69 | 2.3396 | 1.1134 | .34 | 56 | 71 |

The scale values for the negative items have been reversed for data analysis. Therefore the means and standard deviations can be interpreted in a similar manner, for all items. The means in table 4 are not very low or high for most of the items. Theoretically (hypothetically) a mean lies at about 2.5 for a four point scale. Items having mean values around 2.5 would be desirable if they have considerable standard deviations. The standard deviation of about 1.12 is theoretically expected for the four point scale. Few items have high means (3, ~~63~~, 64, 65, 66) and very few items are below the mean of 2.5 (1, 12 and 15). These items would be satisfactory only if they discriminate quite well.

Item - test correlations (as discrimination index) were calculated for all items. The item test correlations (r_{it} - Values) were computed between the total score (sum of ratings for all items) and the rating of each item for all subjects (Oppenheim, 1966). Most of the correlations were between .13

and .48 (see table 4). Some negative r_{it} - values were also observed, presumably these items measure different things from the whole test. Since high r_{it} - values indicate the extent to which an item measures the same trait as the test as a whole (Bali, et al. 1986), items with negative and non-significant r_{it} values were dropped. However two items with non-significant r_{it} - values were included through subjective evaluation, based on their contribution in earlier studies (Gjesme, 1979; Heimberg, cited in Gjesme, 1979). These items were item 1 and item 2 (Appendix A).

The significance level of each item was specified by the formula:

$$r_{it} = \frac{t_c}{t_c^2 + n - 2}, \text{ where}$$

r_{it} = item - test correlation

t_c = tabled value of t - distribution at
a specified level of significance

n = sample size

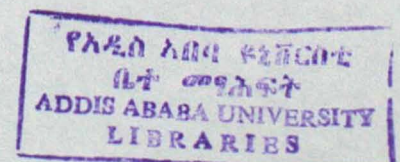
For the present sample (N = 213) a correlation as small as .133 is significant (P<.05). Generally when sample size is large, correlations of small magnitude are significant. Therefore it is common to specify greater values as a cut off score; than the observed level of significance. But values higher than .133 are not specified in this study during the

pilot study, with the intention of further analyses for the validation data. Based on the above criteria items 9, 13, 14, 22, 49, 54, 61, 64, 65, 66, & 67 were dropped.

Statistical data regarding the whole test (mean, SD, median score, maximum and minimum score, reliabilities) and characteristics of the distribution (skewness and kurtosis) were computed. The test deviates from normal distribution for kurtosis (-.5426) although normally distributed for skewness (-.0135). That is the distribution is platykurtic but fairly symmetrical. The mean and median of the test are 146 and 147.88, respectively. The total scores ranged from 99 to 197, whereas the minimum and maximum possible scores are 69 and 276, respectively. These latter data indicate that there is greater discrepancy between the observed and possible maximum scores than the minimum scores.

The reliabilities were estimated according to alpha coefficient and split-half method. In both cases the estimated reliabilities were high; .81 and .87 for alpha coefficient and split-half method, respectively.

Item analysis and selection were made by generating principal component analysis (PCA) with varimax rotation. The application of PCA was to be consistent with previous researches (eg. Gjesme, 1979; Fuchsle et.al., 1980). However



these researchers used different types of rotations in their investigations. Gjesme used oblique rotation, whereas Fuchsle et al applied varimax rotation; because items included in the former study were more homogenous than the latter. Items included in this study are in line with Fuchsle et al, by the fact that they reflect different spheres of life (Private and Public). Therefore Varimax rotation rather than oblique would be justified. The grouping of items along the components (loadings greater than .4) produced clear pattern with varimax rotation than the oblique, as predicted.

There were 23 significant factors using Kaiser criteria of eigen values greater than 1 (Kaiser, 1960). All the factors (components) explained 65.5% of the variance. However the residual variances after the first factor decreased sharply; which would be a problem for interpreting the last factors. Nevertheless distinction has been observed among the beginning factors.

Items which were non-significant beyond the loadings of .4 were eliminated, whenever their discrimination (r_{it} - values) is low. Items 8 and 23 were dropped with this criteria.

The remaining 56 items were rearranged in sequential order and data from validation sample was obtained. Further analyses and item selection was done with this data. The results are presented in the next section.

4.1.2. Validation study: Item analyses and factors

A 57 x 57 matrix was constructed for the items included in the validation study. This matrix consisted of item - test correlation vectors and 56 x 56 intercorrelation matrix. The item - test correlation vectors were established (erected) from the total score of the individuals, where they were deleted (the last row and column) to produce a 56 x 56 intercorrelation matrix. The item - test correlations were used for item-discrimination, while the intercorrelation matrix is used for PCA. Some test data (r_{it} - values, means, SD_s , factor loadings and communalities) are given in Table 5 whereas the intercorrelation matrix is given in Appendix D.



Table 5: Item data for the validation sample (N=483)

| Item | Means | SD _s | r _{it} - Values | Varimax loadings | New diagonals |
|------|---------|-----------------|--------------------------|------------------|---------------|
| 1 | 1.4707 | .7160 | .08 | 66 | 52 |
| 2 | 1.7954 | .9970 | .18 | 71 | 60 |
| 3. | 2.7296 | 1.1596 | .15 | 45 | 55 |
| 4. | 2.35932 | 1.2320 | .23 | 57 | 67 |
| 5. | 2.3229 | 1.2532 | .33 | 67 | 57 |
| 6. | 2.333 | 1.2022 | .41 | 36 | 51 |
| 7. | 1.9534 | 1.1350 | .25 | 72 | 61 |
| 8. | 2.5031 | 1.2447 | .24 | 67 | 53 |
| 9. | 2.5948 | 1.2493 | .26 | 56 | 51 |
| 10. | 1.3563 | .7677 | .37 | 34 | 59 |
| 11. | 1.2998 | .7146 | .32 | 46 | 58 |
| 12 | 1.6905 | .9932 | .49 | 48 | 61 |
| 13 | 1.9414 | 1.0330 | .40 | 45 | 60 |
| 14 | 1.6702 | .8273 | .25 | 60 | 51 |
| 15. | 2.2247 | 1.1054 | .42 | 48 | 54 |
| 16. | 2.4265 | 1.1864 | .25 | 40 | 42 |
| 17. | 2.7437 | 1.1373 | .31 | 69 | 57 |
| 18. | 2.0421 | 1.1694 | .23 | 45 | 58 |
| 19. | 2.5519 | 1.0733 | .24 | 69 | 56 |
| 20. | 2.2041 | 1.0790 | .17 | 69 | 60 |
| 21. | 1.5627 | 0.7617 | .26 | 44 | 57 |
| 22. | 1.4564 | .7697 | .31 | 68 | 53 |
| 23. | 1.6708 | .9087 | .14 | 41 | 57 |
| 24. | 2.5073 | 1.1997 | .24 | 37 | 57 |
| 25 | 2.4854 | 1.0691 | .28 | 50 | 56 |
| 26 | 1.9770 | 1.1014 | .32 | 59 | 51 |
| 27 | 1.7683 | 1.0849 | .38 | 61 | 50 |
| 28 | 1.7158 | .9110 | .40 | 58 | 59 |



| Item | Means | SD _s | r _{it} - Values | Varimax loadings | New diagonals |
|------|--------|-----------------|-----------------------------|---------------------|------------------|
| 29 | 2.5759 | 1.0774 | .43 | 64 | 60 |
| 30 | 1.8764 | .9376 | .39 | 64 | 54 |
| 31 | 1.9979 | .9969 | .38 | 65 | 56 |
| 32 | 2.8566 | 1.2095 | .36 | 53 | 49 |
| 33 | 2.1996 | 1.0818 | .29 | 44 | 52 |
| 34 | 2.4865 | 1.2438 | .40 | 39 | 56 |
| 35 | 2.2949 | 1.1096 | .46 | 63 | 60 |
| 36 | 2.0397 | 1.0646 | .33 | 67 | 54 |
| 37 | 2.3466 | 1.0803 | .21 | 34 | 57 |
| 38 | 2.2464 | 1.1851 | .46 | 56 | 57 |
| 39 | 1.9117 | 1.1085 | .35 | 49 | 68 |
| 40 | 1.9061 | 1.0901 | .38 | 70 | 57 |
| 41 | 1.8506 | 1.0829 | .37 | 70 | 61 |
| 42 | 1.6847 | .8731 | .23 | 68 | 61 |
| 43 | 2.5516 | 1.1208 | .36 | 61 | 52 |
| 44 | 2.0127 | 1.0969 | .41 | 44 | 50 |
| 45 | 1.5844 | .8988 | .24 | 70 | 63 |
| 46 | 1.8792 | 1.0256 | .40 | 43 | 52 |
| 47 | 1.9499 | 1.0091 | .38 | 53 | 56 |
| 48 | 1.8482 | 1.0642 | .28 | 56 | 49 |
| 49 | 2.0021 | 1.0788 | .42 | 36 | 48 |
| 50 | 2.1506 | 1.1149 | .38 | 69 | 58 |
| 51 | 1.9979 | 1.1314 | .39 | 66 | 59 |
| 52 | 1.9535 | 1.1514 | .31 | 44 | 58 |
| 53 | 1.8692 | 1.0061 | .37 | 35 | 42 |
| 54 | 1.8919 | 1.0281 | .42 | 53 | 51 |
| 55 | 1.8694 | 1.0397 | .42 | 61 | 53 |
| 56 | 2.3766 | 1.1739 | .27 | 66 | 52 |

The means and standard deviations of the items show somewhat clearer results. No item is consensually rated as high (above 3) and very few (1,10,11 and 22) were rated below 1.5. However items 10, 11 and 22 agreed with the test in terms of discrimination. From the subjectively added items 1 and 2, the former gave up whereas the latter item has sustained.

Through r_{it} - values items less than .15 were dropped (1,3 and 23). Most of the r_{it} - values were above .2 and no item with negative item - test correlation was observed from the validation data.

The range between the maximum and minimum expected and observed scores was approximately equal, for the whole test; 51 versus 65 and 204 versus 186, respectively. The difference between the mean (115.92) and median (115.8) scores was non-significant ($t_{498} < 1$, SEM = .12) having skewness of .099 and Kurtosis of - .38.

Generating PCA, 17 components were emerged for the 56 items included in the study. Two items (#24 & 37) were excluded by inspecting their loadings; Viz-a-Viz the threshold value specified (.4). However some non-significant items (34,49,53) in terms of their loadings were not abandoned because of high r_{it} -values.

After omitting the above items PCA was produced, yielding 16 significant components. The number of items included were 51. The r_{it} -values were calculated for these items once again. These values increased substantially. Most of the r_{it} -values are greater than .25. Interpretations, including the labelling of the factors is based on these factors (16 factors). According to Johnston^k (1986), the larger the loading of the variable on the component, the more important the variable explaining the component. Therefore labelling the factors was done by inspecting the items having larger loadings on each components. Labels were given through semantic consonance of the items having largest loadings and/or in connection to the generic concept of the labels given in earlier studies; from which the items are adapted (Gjesme, 1979; Lamm et al., 1976; Wolf et al. 1985).

Below are the sixteen significant factors and their labels. Item data are also provided corresponding to each item.

Table 6: Factor analysis of the FTO item from the validation sample (N=483)

| Items and factors | Varimax loadings | r_{it} Values |
|---|------------------|-----------------|
| <p><u>Factor 1: "Socio-political and economic concern".</u> Most of the items deal with general social political and economic concern at national level. They measure ones feeling on public affairs rather than private.</p> | | |
| 36 - It looks that the future will be better regarding human rights, equality among people and freedom. | 74 | 33 |
| 30 - I expect (in the future) good relation among Ethiopia and her neighbours. | 68 | 39 |
| 31 - I reflect that the opportunity for education will be better in the future. | 65 | 35 |
| 35 - Workers lose their motivation for work more and more in the future. | 51 | 47 |
| 13 - I look forward to seeing more good times than bad times | 50 | 42 |
| 15 - It seems that the economy of the country will not improve in the future. | 44 | 45 |
| 32 - It seems for me that the problem of tribal conflict will increase in the future. | 35 | 36 |
| <p><u>Eigenvalue (λ)=6.33</u> <u>% of Variance=12.4</u></p> | | |

Cont'd

| Items and factors | Var. lds. | r _{it} , S |
|--|-----------|---------------------|
| <p><u>Factor 2: "Personal promotion and security".</u> The items indicate ones feeling in private or personal affairs. They deal with family life, occupational promotion and future career success.</p> | | |
| <p>11 - In the future I expect to succeed in what concerns me most.</p> | 67 | 32 |
| <p>28 - It seems for me that I will have a job in my area of interest.</p> | 65 | 39 |
| <p>22 - I will have a happy family life in the future.</p> | 60 | 30 |
| <p>10 - I look forward to the future with hope and enthusiasm.</p> | 44 | 33 |
| <p><u>Eigenvalue=3.2</u> <u>% of variance =6.3</u></p> | | |
| <p><u>Factor 3: "Planfulness."</u> All items under this factor ask about budgeting time, making schedules and programs.</p> | | |
| <p>42 - I work fast and efficiently according to the schedule.</p> | 72 | 22 |
| <p>45 - I make plans before I really do an activity.</p> | 70 | 25 |
| <p>41 - Most of the times I am unprogrammed.</p> | 69 | 37 |
| <p>44 - I waste a lot of time before I finally settle down to business.</p> | 38 | 42 |
| <p><u>Eigenvalue=2.38</u> <u>% of variance =4.7</u></p> | | |
| <p><u>Factor 4: "Occupation - quiescence."</u> The items ask about duration of time, its steadiness or monotony.</p> | | |



Cont'd

| Items and factors | Var: lds.- | r _{it} , S |
|---|---------------|---------------------|
| 50 - Half a year seems to me a long time. | 73 | 39 |
| 51 - It often seems like the day will never end. | 70 | 39 |
| 55 - When I am in class, the lessons seem to me motionless. | 45 | 43 |
| 46 - I had never accomplished my work according to the schedule I set. | 37 | 41 |
| <u>Eigenvalue=1.98</u> <u>% of Variance=3.9</u> | | |
| <u>Factor 5: "Time utilization and anticipation."</u> The items under this factor show the ability to utilize and anticipate the future time. | | |
| 39 - I need to feel rushed before I can really get going. | 69 | 35 |
| 38 - I find it hard to get things without a deadline. | 59 | 46 |
| 43 - I put things off so long that a lot of work must be crowded into a short space of time. | 51 | 35 |
| 47 - After finishing a portion of work, I find it hard to continue the rest part of it. | 43 | 39 |
| 48 - If you can't solve a problem the best thing to do is to leave it for a day or two. | 35 | 29 |
| <u>Eigenvalue=1.75</u> <u>% of Variance=3.4</u> | | |

Cont'd

| Item and factors | Var. lds. - | r _{it} 'S |
|---|---|---|
| <p><u>Factor 6: "Cognitive structuring - the dependability of the future". The items reflect about clarity of the future and structuring of future events.</u></p> <p>17 - One should not trust the future since his hopes and fears are hardly realized.</p> <p>6 - The future seems very vague and uncertain to me.</p> <p>56 - The days I get old are approaching soon.</p> <p>12 - The future seems dark to me .</p> <p>5 - It is really no use worry^ying about the future because what will be will be.</p> <p style="text-align: center;"><u>Eigenvalue=1.425</u> <u>% of Variance=2.8</u></p> | <p>63</p> <p>51</p> <p>50</p> <p>38</p> <p>35</p> | <p>31</p> <p>42</p> <p>26</p> <p>51</p> <p>34</p> |
| <p><u>Factor 7: "Occupation -engagement", The items deal with engagement in an activity or being idle.</u></p> <p>52 - I often find myself looking for ways to kill time.</p> <p>54 - Most of the time I move aimlessly without being occupied in an activity.</p> <p>53 - Most of the time I am engaged in useless activities.</p> <p style="text-align: center;"><u>Eigenvalue=1.34</u> <u>% of Variance=2.6</u></p> | <p>66</p> <p>54</p> <p>47</p> | <p>31</p> <p>43</p> <p>36</p> |

Cont'd

| Item and factors | Var. lds. | r _{it} 'S |
|--|--------------------------------|-------------------------------|
| <p><u>Factor 8: "Long term personal direction". The items measure personal development and directions regarding ones career probability and overall life expected.</u></p> <p>4 - I am not very much concerned about things a little ahead of time.</p> <p>8 - I feel my life is a series of starts and stops, stuck, moving then stuck again.</p> <p>18 - I have never worried about my future career.</p> <p style="text-align: center;"><u>Eigenvalue=1.33</u> <u>% of Variance = 2.6</u></p> | <p>74</p> <p>-44</p> <p>43</p> | <p>23</p> <p>26</p> <p>22</p> |
| <p><u>Factor 9: "Material prosperity ". The items ask about possessions that somebody would attain.</u></p> <p>19 - The opportunity to acquire money and possessions (in the future) seems rather difficult.</p> <p>29 - I feel that the problem of basic needs will be serious in the future.</p> <p style="text-align: center;"><u>Eigenvalue = 1.25</u> <u>% of Variance= 2.4</u></p> | <p>72</p> <p>52</p> | <p>26</p> <p>43</p> |
| <p><u>Factor 10: "Threatened privacy and relational disharmony ". The items reflect inter/intra personal relationship with friends and parents associated with future goals.</u></p> | | |

Cont'd

| Items and factor | Var. lds. | r _{it,s} |
|--|-----------|-------------------|
| 27 - I feel that my relation with parents and friends would be worse after completing my secondary education. | 71 | 39 |
| 26 - It seems that I loose my inner satisfaction after finishing my secondary education. | 58 | 33 |
| 16 - For me every Yesterday is better than today and today is better than tomorrow. | 41 | 24 |
| <u>Eigenvalue=1.22</u> <u>% of Variance= 2.4</u> | | |
| <u>Factor 11: "Operation of plans."</u> The item deal with achieveability and/or materializing probability of future plans. | | |
| 40 - Planning only makes a person unhappy since your plans hardly ever work out anyway. | 70 | 39 |
| <u>Eigenvalue=1.18</u> <u>% of vareance = 2.3</u> | | |
| <u>Factor 12: "Social -motivational factors"</u> All the items reflect ones view towards motivational factors at general (societal) level. | | |
| 34 - I expect large number of abs ^{ent} ism, tardiness and delinquency in thefuture schools. | 69 | 38 |
| 35 - Workers lose their motivation for work more and more in the future. | 49 | 47 |

Cont'd

| Items and factors | Var. lds. | r_{it}, S |
|---|-----------|-------------|
| 33 - I have been thinking a lot about future transportation problem. | 47 | 30 |
| 32 - It seems for me that the problem of tribal conflict will increase in the future. | 34 | 36 |
| <u>Eigenvalue=1.14</u> <u>% of variance = 2.2</u> | | |
| <u>Factor 13: "Material uncertainty factor"</u> . The items measure ones subjective probability of possessing property in the future. | | |
| 25 - I would not claim that I would get material comfort in my future life. | 70 | 28 |
| 14 - I will have a happy family life in the future. | 40 | 27 |
| <u>Factor 14: "Fatalism"</u> . The item measures that the future is beyond one's control, rather dependent on fate. | | |
| 7 - Nowadays with the country conditions the way they are wise person lives for today and lets tomorrow take care of itself. | 62 | 26 |
| <u>Eigenvalue =1.08</u> <u>% of Variance=2.1</u> | | |

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| Items and factors | Var. - lds. | r _{it} 'S |
|--|---|---|
| <p><u>Factor 15: "Benevolence", Both items loading highest under this factor deal with kindness and humanitarian aspect.</u></p> <p>20 - It is more likely (in the future) that I can lead an altruistic life.</p> <p>21 - I will be in a position of helping others in the future.</p> <p style="text-align: center;"><u>Eigenvalue=1.01</u> <u>% of Variance=2.0</u></p> | <p style="text-align: center;">73</p> <p style="text-align: center;">55</p> | <p style="text-align: center;">15</p> <p style="text-align: center;">28</p> |
| <p><u>Factor 16: "Density of involvement."</u> The items deal with depth and intensity of future concern.</p> <p>2 - I think about the future only to a very small extent.</p> <p>18 - I have never worried about my future career.</p> <p style="text-align: center;"><u>Eigenvalue=1.005</u> <u>% of variance=2.0</u></p> | <p style="text-align: center;">72</p> <p style="text-align: center;">47</p> | <p style="text-align: center;">15</p> <p style="text-align: center;">12</p> |

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4.2. Results of the relationship between FTO and the Independent Variables

This section summarizes the results concerning the relationship between FTO scale with other variables, namely, school performance, sex, parents level of education, socio-economic status (SES), dwelling of students and perceived intrinsic instrumentality (PI).

All the analyses of this section are based on the finalized FTO scale consisting of 51 items. The means and standard deviations of the variables will be discussed first (Table 7), followed by intercorrelation matrix, χ^2 analyses and regression analyses.

Table 7: Means and Standard Deviations of the Variables Included in the Study

| Variable | N | Means | Standard deviations |
|----------------|-----|----------|---------------------|
| X ₁ | 485 | .5402 | .4989 |
| X ₂ | 499 | .5351 | .4993 |
| X ₃ | 496 | 2.7319 | 1.6385 |
| X ₄ | 493 | 28.3200 | 10.2021 |
| X ₅ | 500 | .3820 | .8664 |
| X ₉ | 499 | 18.1600 | 4.8527 |
| Y | 500 | 100.5536 | 17.7459 |

From the variables listed in Table 7 X_1 , X_2 , and X_5 are dummy coded, while the rest of the variables are continuous. For a perfect matching of sample characteristics of the dummy coded variables the expected mean and standard deviations should be .5, for both the means and standard deviations. The results in Table 7 differ markedly, only for the mean score of the variable X_5 ; from the theoretical value. It is apparent from the table that the sample consists of 54% high achievers (x_1), 53.5% male subjects (x_2), and 38% of rural dwellers (x_5).

Parents level of education (x_3) has the mean of 2.73 (SD = 1.6385). The maximum and minimum possible scores are 6 and 1 respectively. The observed mean depicts that the sample comes from less educated households. However there is considerable variability in parents level of education, in relation to the observed mean.

The maximum and minimum possible scores for SES (x_4) are 47 and 12, respectively. The observed scores are 46.5 for the maximum and 12.5 for the minimum; with the mean score of 28.32. The mean SES score depicts that the majority of the sample is from low SES group. In fact there is high variability in SES score (SD = 10.2), relative to the mean score.

The mean score of students' perceived intrinsic instrumentality (x_0) departs notably from the expected median value (18.16 versus $Md= 35$), where the maximum and minimum scores are 56 and 14 respectively. Therefore the PI scores are clustered towards the minimum scores, with fairly large variability. Nevertheless along with the scoring direction a low score reflects high value of the construct PI. Thus the students generally perceive school work as important for future success.

Intercorrelations among the independent and dependent variables were computed to examine the way in which the variables are related. The axes of X_0 and Y have been reversed (translated) to compute intercorrelations and subsequent regression equations to enable the interpretation of the correlations directly from the table. The intercorrelations are given in Table 8.

Table 8: Intercorrelations among the variables X₁, X₂, X₃, X₄, X₅, X₉ and Y (N = 493-500)

| Variables | 1 | 2 | 3 | 4 | 5 | 9 | Y |
|--------------------|--------|--------|---------|---------|-------|--------|----|
| 1(X ₁) | -- | | | | | | |
| 2(X ₂) | .25*** | -- | | | | | |
| 3(X ₃) | .03 | -.08 | -- | | | | |
| 4(X ₄) | -.01 | -.13** | .81*** | -- | | | |
| 5(X ₅) | -.04 | .14** | -.56*** | -.69*** | -- | | |
| 9(X ₉) | .23*** | .10* | .00 | .05 | -.10* | -- | |
| Y | .33*** | .06 | -.04 | -.01 | -.08 | .33*** | -- |

* P < .05
 ** P < .01
 *** P < .001

In Table 8 a correlation of about .09 is required to be significant at .05 level of significance. The highest correlations were observed between parents' level of education versus SES, dwelling versus parents' education and SES. That is the urban sample came from high educated and high SES households. The correlations between achievement and sex, PI and achievement, achievement and FTO and PI and FTO are medium. These correlations are positively related, while male subjects are high achievers than female subjects. The correlations between PI versus sex and dwelling are marginally significant ($r = .10$, $df = 497$, $p < .05$). That is in general male subjects and urban residents scored higher in PI than their respective comparison groups.

Chi-Square analysis between FTO and the independent variables

Chi-square of independence was computed between the dependent variable (FTO) and the independent variables. Categorical values were assigned for FTO score with respect to group median score; whereas categories for continuous independent variables X_3 , X_4 and X_9 were made using group mean. Number of cases above the median/mean were considered to be high and below the median/mean as low. Categories for the dummy coded variables X_1 , X_2 and X_5 were in terms of 0 and 1, 1 is for high achievers, males, and rural dwellers and 0 is for others. The results of X^2 analysis are given in Table 9.

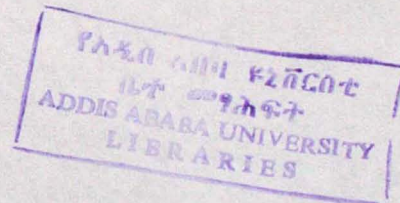


Table 9: Results of χ^2 analyses between high and low FTO group versus the independent variables

| Variable (independent) | | F T O | | | χ^2 | P |
|---------------------------|-------|------------|-------------------------|-------|----------|-----------|
| | | High | Low | Total | | |
| X ₁ | High | 177(150.7) | 85(111.3) | 262 | | |
| | Low | 102(128.3) | 121(94.7) ^{NS} | 223 | | |
| | Total | 279 | 206 | 485 | 23.5 | P<.001 |
| X ₂ | High | 162(152.5) | 105(114.5) | 267 | | |
| | Low | 123(132.5) | 109(99.5) | 232 | | |
| | Total | 285 | 214 | 499 | 2.96 | P>.05(ns) |
| X ₃ | High | 172(165) | 117(124) | 289 | | |
| | Low | 111(118) | 96(89) | 207 | | |
| | Total | 283 | 213 | 496 | 1.7 | P>.05(ns) |
| X ₄ | High | 162(154.5) | 110(117.5) | 272 | | |
| | Low | 118(125.5) | 103(95.5) | 221 | | |
| | Total | 280 | 213 | 493 | 1.88 | P>.05(ns) |
| X ₅ | High | 101(109.3) | 90(81.7) | 191 | | |
| | Low | 185(176.7) | 124(132.3) | 309 | | |
| | Total | 286 | 214 | 500 | 2.38 | P>.05(ns) |
| X ₉ | High | 210(184.5) | 113(138.5) | 323 | | |
| | Low | 75(100.5) | 101(75.5) | 176 | | |
| | Total | 285 | 274 | 499 | 23.3 | P<.001 |

Note: Figures in brackets are expected value
NS = Not significant

In Table 9 we observe that there is a significant χ^2 of independence between FTO and achievement and between FTO and perceived instrumentality.

The number of high achievers with high FTO score and the number of low achievers with low FTO score are greater than the expected number by chance. About 68% of high achievers and 54% of low achievers obtained high and low FTO scores,

respectively. Therefore the observed significance of X^2 is largely due to the discrepancy between observed and expected values of high achievers than the low achievers. Consequently, high achievers have evaluated the future more optimistically while low achievers evaluated more pessimistically than their counter parts.

The number of students with high PI and high FTO and low PI and low FTO exceeds the expected number. These results are greater than the expected by chance. The discrepancy between high FTO and high PI is greater than the discrepancy between low FTO and low PI (65% versus 57%) which contributed greater share for the significance of observed X^2 . Students with high PI were more optimistic than the students with low PI, where the latter group were more pessimistic than the former. However the number of students obtaining high PI were larger than the number of students with high FTO.

Results of regression analyses

Simple regression analyses were done between the dependent variable and independent variables (X_1 , X_2 , X_5 and X_9). Because of small magnitude of correlations with the dependent variable X_3 and X_4 were excluded from the analysis a priori. The results are in Table 10.

Table 10: Results of simple regression analysis (N=500)

| Variable | N | r | bi | est bi | Simple R | Const. | t-value |
|----------------|-----|------|---------|--------|----------|---------|---------|
| X ₁ | 499 | .33 | 11.8007 | 1.5037 | .3318 | 106.928 | .7.85* |
| X ₂ | 499 | -.06 | -2.0075 | 1.5902 | -.0565 | 101.628 | -1.26 |
| X ₅ | 500 | .08 | 2.9346 | 1.6297 | .08004 | 99.4326 | -1.80 |
| X ₉ | 499 | .33 | 1.2161 | .1545 | .3325 | 78.4687 | 7.87* |

* P<.001

The regression equations are

$$\begin{aligned}
 Y(\text{pred}) &= 11.80 x_1 + 106.928 \\
 Y(\text{pred}) &= -2.0075 x_2 + 101.628 \\
 Y(\text{pred}) &= 2.9346 x_5 + 99.4326 \\
 Y(\text{pred}) &= 1.2161 x_9 + 78.4687
 \end{aligned}$$

When the independent variables are taken alone only two variables (x₁ and x₉) are significantly related with the dependent variable (Y).

A multiple regression analysis was made to find out the joint contribution of the independent variables to the variation of the dependent variable. A multiple correlation of $R_y. 123459 = .4358$ was obtained between the dependent variable and independent variables taken as a whole. The percentage of variance of the dependent variable accounted for by the independent variables is significant ($R^2 = .19$, $F_6, 493 = 19.267$, $P<.001$). Data on multiple regression analysis are in Table 11 and summary of the data is given in Table 12.

Table 11 shows the increment of each variable to the prediction of the dependent variables. These increments (ΔR^2) as tested by F test [$F = b^2 / (\text{est } b_i)^2$] are significant for variables X_1, X_5 and X_9 ($P < .001$). The other increments are not significant, although the obtained F - value is high for the variable X_5 .

Table 11: Results of multiple regression analysis

| Variable | R^2 | ΔR^2 | b_i | est b_i | Beta-wt. | F-delete |
|----------|-------|--------------|--------|-----------|----------|-----------|
| X_1 | .110 | - | 9.8922 | 1.5316 | .2781 | 41.714 |
| X_2 | .111 | .001 | 1.3150 | 1.5119 | .0370 | .757 |
| X_3 | .113 | .003 | .8570 | .7585 | .0790 | 1.277 |
| X_4 | .115 | .002 | .0687 | .1387 | .0395 | .245 |
| X_5 | .126 | .010 | 3.948 | 2.0556 | .1082 | 3.689 |
| X_9 | .190 | .064 | .9614 | .1540 | .2629 | 38.989*** |

$\Delta R^2 = \text{change in } R^2$

*** $p < .001$

Constant = 81.9393

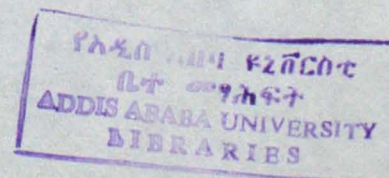
The regression equation is

$$Y(\text{pred.}) = 9.89216 X_1 + 1.31505 X_2 + .857026 X_3 + .0687093 X_4 + 3.94822 X_5 + .96139 X_9 + 81.9393$$

Table 12: Summary of multiple regression analysis

| Source | df | ss | MS | F |
|------------|-----|-----------|---------|-----------|
| Regression | 6 | 29849.29 | 4974.88 | 19.267*** |
| Residual | 493 | 127294.36 | 258.20 | |
| Total | 499 | 157143.65 | -- | |

*** $p < .001$



Stepwise multiple regression analysis was computed to find the relative contribution of the variables (independent) to the variation of the dependent variable. Table 13 shows the results of stepwise regression analysis and summary is given in Table 14.

As it is indicated in Table 1' and 1 only two variables, namely X_0 and X_1 contributed significantly to the prediction of the dependent variable. When all the variables are entered in the regression equation X_0 was chosen in the first step. This variable contributed 11% of the total variance. Variable X_1 is chosen in the second step. The increment in multiple correlation when X_1 is added to X_0 (ΔR^2) was .069. This increment was significant [$F_{(1,499)} = 41.57, p < .001$] to the prediction of Y.

The percentage of variance contributed for by both X_0 and X_1 was 17.9% ($F_{2,497} = 54.268$). This percentage was not significantly different from the percentage obtained by entering all the variables. The increment in multiple correlation (ΔR^2) when all the variables are entered was .011. This increment was not significant when variables X_0 and X_1 are controlled ($F_{4,493} = 1.6738, p > .05$).

Table 13: Results of Stepwise regression analysis

| Step | Variable entered | Multiple R | R ² | Δ R ² | Standard error est. | b _i | est b _i | Beta weight | Simpl e R | F delete |
|-----------------------|------------------|------------|----------------|------------------|---------------------|----------------|--------------------|-------------|-----------|------------------------|
| 1 | X ₉ | .333 | .111 | - | 16.7527 | .9886 | .1527 | .2703 | .3325 | 41.89* |
| 2 | X ₇ | .423 | .179 | .069 | 16.1094 | 9.579 | 1.4857 | .2693 | .3318 | 41.57* |
| All variables entered | | .436 | .190 | .011 | 16.0687 | | | | | 1.67(n s) ^a |

*** p < .001

$${}^a F_{(4,493)} = \frac{R^2_{y.123459} - R^2_{y.12} / k_1 - k_2}{1 - R^2_{y.123459} / N - k_1 - 1} = \frac{.19 - .179/6-2}{1 - .19/500-6-1} = 1.6738$$

Table 14: Summary of stepwise regression results

| Source | df | SS | MS | F |
|------------|-----|-----------|----------|----------|
| Regression | 2 | 28166.29 | 14083.14 | 54.27*** |
| Residual | 497 | 128977.36 | 259.51 | |
| Total | 499 | | | |

*** P < .001

CHAPTER V

Discussion

In this section the results of the study will be discussed in relation to the questions raised earlier.

The relationship between FTO and achievement

Students' achievement (performance) alone contributed significantly to the variation in FTO. The percentage of variance contributed in FTO by achievement was 11% ($R^2 = .109$), as computed from simple regression analysis. Therefore the first hypothesis is confirmed.

The findings of the present study are consistent with the results of DeVolder et.al (1982), Raynor (1969), Teahan (1958), Greene (1986), and Brandenburg (Cited in Gjesme, 1979) who found positive relationship between achievement and future time orientation.

Studies which compared FTO with ability reported variable results. The present findings can be compared with these results if positive relationship between ability and achievement is expected. Of course Cronbach (1960) states that "for most children, a group mental test leads to the same prediction, that a comprehensive achievement test would (p. 225)." Coleman and Cureton (1954) found that among

children having the same achievement [most of] the variance in IQ is attributed to random errors.

In connection with the above argument the results of this study are in the same line with Lessing (1968) who found positive association between IQ tests and length of FTO; and Gjesme (1979) who reported that high ability subjects tended to score high than low ability subjects in one of his sub-dimension of FTO ("speed"). The results of this investigation didn't support the findings of Cottle and Pleck (1969), Kastenbaum (1961, 1965), Krauss, et al (1968), Siegman (1961a) who found a non-significant relationship between intelligence and FTO; and oppose Cottle's (1968) findings who reported that low ability individuals were more future oriented than high ability individuals.

The difference in FTO score for high and low achievers can be viewed in connection with the theoretical reasoning which allows one to specify relations between future orientation (or certain aspects of it) and other person variables, or individual behavior, such as delay capacity, planning, problem solving or achievement which may be desired educational goals (Trommsdorff 1983)..

Seen from attribution theory point of view (Bernstein, Stephen and Davis, 1979) which assumes that in achievement

situation people generally expect and intend to succeed. If these expectations are based on the individuals beliefs that they possess the appropriate skills and -"will" exert sufficient effort, then success will be attributed to the internal factors of ability and effort. Failure on the other hand disconfirms high expectation, weakens the individuals' faith in the internal factors, and leads to external attributions such as luck and task difficulty (Bernstein et al, 1979; p. 1810). If success was experienced during past life, then positive outcomes are expected and the experience of failure reads to negative outcome expectancies which lead decreased persistence. Therefore success experienced by high achievers leads to more optimism [more future oriented] and failure experienced by low achievers leads to pessimism [less future oriented] (Carver, 1979; emphasis added).

A lot of theoretical and/or empirically proved explanations can be given regarding the effect of background variables that link achievement and future time orientation. Besides self expected attributions social cognitions play a considerable role in the development of attitudes which are experienced in school and outside the school. Trommsdorff (1983) has reviewed the relationship between teachers' expectations and self-fulfilling prophecy of students interacting to the development of future time orientation of students. High achievers as compared to low achievers

develop positive attitude on teachers expectations which leads them to assume a certain tendency for self-fulfilling prophecy (Rosenthal, cited in Trommsdorff 1983). The positive experience of success in school in turn contributes to the development of an optimistic self-assured future orientation in these students. Accordingly, one may hypothesize that future optimistic expectations of teachers concerning students' success is related to an optimistic future orientation of these students.

Although the obtained result between achievement and FTO is in expected direction, one of the limitations of the study may be source of achievement data. Achievement data based on teacher made tests would be questionable for their validity and reliability.

FTO and gender difference

The study revealed a non-significant relationship between FTO and gender although male students showed a tendency to obtain higher scores than female students. It was hypothesized that "there is a difference between male and female students' FTO score." The obtained result allows us to reject the stated hypothesis, instead the null hypothesis is accepted. Therefore the proposed statement, i.e. hypothesis 2 is rejected.

The present findings are in line with Cottle and Pleck, (1969), Davis, et al (1962), Judson, et al (1966), Kastenbaum (1961), Platt, et al (1967) and Siegman (1961 b), who found small to non-significant sex difference in measures of time dimensions. And the findings partially support Lessing (1968) who reported that males were characterized with longer FTP than females when long range time perspective was used, but the difference was non-significant in short range time perspective. The results didn't support Lens (1975) who found that females had positive attitude towards the future than males.

Whereas most of the above sex differences can be attributed to the variability of methodological aspects, the method of this study is similar to Gjesme's (1979) and Habtamu's (1986) studies. The result confirmed Habtamu's finding but didn't support that of Gjesme. In particular the results of this study and Habtamu's (1986) agree in that both populations of respective studies come from the same country, Ethiopia. Therefore the non-significant gender difference in FTO is maintained for both adults and adolescents from central Ethiopia.

Possible explanation for the non-significant gender difference may be offered in relation to sex roles. Probably not only enrollment of females but also traditional societal

attitudes and values about their education which were characterized by male chauvinism (Seyoum, 1986) have changed in recent times. Consequently the concern to conquer the future seems in agreement for both sexes.

Another alternative explanation may be the role of education. It has been reviewed elsewhere (cf. Tommsdorff, 1983) that gender difference and/or differentiation in FTO diminishes, when both sexes entertain higher education. The fact that the present sample comes from senior high schools would have exerted equally to their future concerns.

FTO and Parents' Level of Education

With the assumption that parents having better education may assist their children to plan for the future and/or evaluate future possibilities better than less educated. It was hypothesized that "there is a difference between FTO scores for students from high educated households and students from low educated households. However the predicted difference was found to be non-significant; and the obtained relation tended towards opposite direction. Therefore hypothesis 3 is not tenable.

The contribution of parents' level of education to the variation of FTO is different from conventionally assumed.

Moreover the correlation between parents' level of education and perceived intrinsic instrumentality is virtually zero. Whereas PI items measure value judgement of school work rather than general concern (FTO). One may assert that parents level of education influences PI at greater degree while PI is more contingent to school activity than FTO.

The obtained result may not be attributed to the parents' level of education per se. Several factors related to socialization or social cognition might have interfered with the role of parents' education to school work and FTO. At present there is no evidence regarding parents' education and social cognition viz. a viz. school work.

FTO and SES

It was hypothesized that "there is a difference in FTO score between students from high SES and low SES." The observed difference between high and low SES groups was not significant. Therefore hypothesis 4 is not tenable, where the null hypothesis is accepted.

This result is not generally consistent with previous findings by researchers. In general terms children from high SES group are supposed to manifest positive outlook about the future than low SES group. In particular the present finding

didn't support the results of Lamm, et al (1976), Leshan (1952), but it is in line with Judson, et al, (1966). This finding supports also Agarwal et al., (1983) who reported a non-significant effect of social roots, namely "physico-economic deprivation." SES items of this study are in consonance with Agarwal et al's physico-economic dimension.

Incompatibility and failure to reach unequivocal findings in connection to SES and FTO may at least be partly due to a simplified classification of subjects on the basis of nominal variables like societal groups, social class, etc. (Agarwal et al 1983). Socio-economic status was operationalized in a variety of ways in earlier studies. Previous studies made different groupings such as sub-cultural groups (Meade, 1972), occupational groupings (Habtamu, 1986), social class (Lamm, et al., 1976; Schmidt et al 1978; Leshan 1952). Most of these studies reported that in lower social class there is shorter future extension.

Whereas the measurement of SES in this study is along with the theoretical suggestion, i.e. using income, prestige and education (Reiss, 1966); the non-significant result may be attributed to the nature of the present sample. Using the intercorrelation matrix of SES indices cluster analysis was computed as a supplement (data are not produced here). There were not distinct clusters observed. The absence of distinct

clusters, taken together with the mean SES score depicts that the present sample comes predominantly from low SES and fairly homogenous, although there is high variability. With this explanation this study can be related with the findings of Habtamu (1986) who found a non-significant FTO score between peasants and blue collar workers.

Socio-economic data collected from students' report may be susceptible to response sets that have eluded the possible difference in FTO could be taken as one of the limitations of this study.

FTO and dwelling

The predicted difference in FTO between urban and rural dwellers didn't reach significance level ($p > .05$). Accordingly, hypothesis 5 is not tenable, although urban dwellers tended to get higher FTO score than the rural dwellers.

The findings didn't support the results of Habtamu (1986) who found that urban dwellers were significantly higher in FTO score ($p < .001$). However the disagreement between both studies may be ascribed to the difference in level of education of the samples. Whereas the present sample has the same level of education for both urban and rural dwellers, Habtamu's rural sample was peasants who had

lowest education or illiterate while his sample of urban residents was better educated.

Yet another possible explanation may be given in connection to the findings of external variables in this study. Parents' level of education and SES contributed neither separately nor jointly to the variation of FTO, although there was significant difference ($p < .001$) in these variables for urban and rural dwellers. In spite of the presumable differences of school characteristics and social environments associated to dwelling, like other external factors just explained dwelling too didn't account for the difference in FTO.

FTO and PI

The results of simple regression analysis revealed that PI alone contributed 11% ($R^2 = .1089$) of the variance in FTO. This result is significant ($p < .001$). It was hypothesized that "there is a difference in FTO score and students' perceived instrumentality." According to the above finding the proposed statement is accepted (hypothesis 6).

The number of students who perceived school work as important are majority (65%) compared to the discrepancy between high and low FTO groups, as the results of X^2

analysis revealed. Hence, commonly held notion of "poor students' attitude towards school and education" is not supported by this study. Rather, it seems that other factors, presumably external factors affected the quality of education. However low achievers have got negative attitude towards their school work and they are less future oriented. The relationship between achievement and perceived instrumentality is significant ($R^2 = .0529$ $p < .001$).

General discussion

Among the 16 FTO factors derived, the first component contributed about 1/5 of the total variance explained by all factors. This factor deals with social, political and economic concerns of students regarding their country. In general terms, FTO of students' is influenced by public concern rather than private sphere.

Like most of the personality variables FTO is supposed to be stable at adolescence, and adolescents as well as children at formal operation level evaluate the future realistically. However the over optimistic attitude of high achieving students seems that it has been affected by heuristic-biases and inefficiency of evaluating "senarios".

Although scenarios shape the effective evaluation of time perspectives, heuristic-biases are commonly observed in students (See Manger and Tiegen, 1988).

The urban students' and males perceived school activity as more important than rural students, and females; the difference is marginally significant. But the difference in FTO between both groups was not significant. Both urban and male students in general seem in a cognitive dissonance than their counterparts.

The relationship between the FTO scale and the independent variables showed a clear pattern. All personal variables except sex of students were significantly related to FTO, whereas none of the external variables were significant. Therefore the scale measures profitably motivation aspect of students. Meade (1972) using story writing technique (and) with thematic analysis of the narratives came up with a similar result. In particular the present scale measures intrinsic motivation rather than extrinsic.

Supplementary analysis with respect to students' age, grade level and ethnicity showed a non-significant difference in FTO. These results may be attributed to the homogeneity of the characteristics of the sample although ethnic groups

were relatively heterogenous. The ethnic groups included in the study were the Hadyas, the Gurages, the Amharas and the Ormos which show relatively distinct groups. Nevertheless ethnic differences might have been obscured due to response sets associated with the prevalent ethnic ~~strife~~ during data collection. The other shortcoming of ethnic data could be that the data are collected through "mother tongue" may not reflect ethnicity directly.

The validity and reliability of the scale are adequate for reliability and lower for validity. Both split-half and internal consistency (α - coefficient) of the scale are above .80. this magnitude is notably good in relation to the reliabilities evidences for non-cognitive variables, which is usually about .75 (Meherens and Lehman, 1965).

CHAPTER VI

Conclusion and Recommendations

5.1. Conclusion

Future time orientation is a psychological construct related to the various areas of personality. Personologists and researchers involved in the area of social cognition use the construct in different investigations such as motivation, delay of gratification, achievement and persistence in an activity; among others.

Previous studies aimed at investigating FTO were scarcely comparable due to disparities associated to methodologies and research design. In particular, definitional, labelling and selection of variables associated to FTO are not precisely specified. Researchers have suggested to measure the construct in general terms rather than situationally determined FTO, to enable comparison of the various findings.

Based on the above suggestion, the present study focused on two broad objectives. First, the study was aimed at developing an instrument that measures general FTO. Secondly to relate the developed scale with different variables associated with FTO.

Data were collected from grades 10 and 11 high school students in central Ethiopia. The data were collected at two phases using locally developed structured-questionnaire consisting of 69 items. The subjects were stratified with respect to dwelling (urban/rural) and achievement (high/low) during both phases.

The first phase was intended to make a pilot study; i.e. to test the applicability of the test. The try out was conducted to 213 sample population from which some items have been omitted in terms of their validity and reliability.

During the second phase of the study items which came out of the try out have been distributed to 500 sample of students. With the data, employing a principal component analysis and item discrimination 51 items have been selected viz., component loadings and discrimination indices. These items produced 16 components (factors) explaining 55% of the trace. Labels have been given to the factors with reference to previous research findings and subjective evaluation.

With regard to the relationship between FTO and other variables the present study lends some support to the previous findings and disagreed with some other studies. In this study a significant effect on FTO was found due to achievement and perceived instrumentality, whereas the

relationship between FTO versus gender, parents' level of education, SES and dwelling was non-significant. In connection to this it is suggested that the scale measures motivational factors fairly well.

Generally it has been discussed that students from central Ethiopia are more concerned about their country among other life events, as the first factor depicts. They have evaluated their future more optimistically, whereas it seems that they have faced heuristic bias and inefficiently evaluated their scenarios. Moreover students attitude towards their school work was positive which disconfirms the notion held by the society.

5.2. Recommendations

The Germans proverb "Solange Leben da its lebt die Hoffnung*" seems inadequate for a hedonic calculator. A mere wishful thinking reduces if it doesn't elude future perspective. One has to undergo a cognitive simulation in deciding about future events. Adolescents of this study seem unrealistic i.e. overestimated in evaluating their future. In shaping their future orientation, the society particularly parents, teachers, guidance service workers and other welfare organizations have to give assistance.

*There is hope as long as there is life.

People involved in educational activities should change their outlook and sustain some hope with regard to the attitude of adolescents towards their school work. The problem seems to lie on external factors rather than students' motivation. Due attention should be given to improving educational settings.

Like most of other non-cognitive variables the present scale has low validity evidence although it has sufficient reliability. The scale needs further investigations before other applications.

Besides variable methodologies used in previous researches of FTO studies, specification and causal relationship of the related variables are not precisely set. Henceforth a structural Equation Model (path-analysis) may be used to select important variables associated with FTO. This would be the direction for further research.

Further investigations with larger sample are necessary to replicate the present findings. For clearer trend of FTO patterns and to generalize the utility of the instrument (scale) and the findings, a longitudinal and developmental studies are warranted.



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APPENDIX A

A Questionnaire on Various Issues

Appendix A

Addis Ababa University
School of Graduate Studies

A Questionnaire on Various Issues

This questionnaire is designed to collect data on various issues. The findings will be used for educational purpose. The data will be confidential and do not harm the respondents and other related persons. There is no right or wrong answer. After reading each question please answer it based on your general experience. There is no need of writing your name.

Thank you for the cooperation.

PART ONE

Biographical data (Please fill in)

1.1 Grade level _____

1.2 Sex _____

1.3 Age _____

1.4 Roll number _____

1.5 Mother tongue _____

1.6 Place of residence (Please circle the letter)

(A) Country side (B) Urban

1.7 Last semester's GPA _____

PART TWO

Below are several statements. Read each statement at a time and make a tick mark in the space provided at the right side of the statement under the numbers 1 = is very true of you; 2 = is fairly true of you; 3 = is not too true of you, and 4 = is not at all true of you.

| No. | Item | Response | | | |
|-----|--|----------|---|---|---|
| | | 1 | 2 | 3 | 4 |
| 1 | I have been thinking a lot about what I am going to do in the future | | | | |
| 2 | I think about the future only to a very small extent | | | | |
| 3 | I am most concerned about how I feel now in the present | | | | |
| 4 | I am not very much concerned about things a little ahead of time | | | | |
| 5 | It is really no use worrying about the future because what will be will be | | | | |
| | | | | | |

| No | Item | Response | | | |
|----|--|----------|---|---|---|
| | | 1 | 2 | 3 | 4 |
| 24 | My probable failure in my exams worries me a lot | | | | |
| 25 | I would not claim that I would get material comfort in my future life | | | | |
| 26 | It seems that I lose my inner satisfaction after finishing my secondary education | | | | |
| 27 | I feel that my relation with parents and friends would be worse after completing my secondary education. | | | | |
| 28 | It seems for me that I will have a job in my area of interest. | | | | |
| 29 | I feel that the problem of basic needs will be serious in the future. | | | | |
| 30 | I expect (in the future) good relation among Ethiopia and her neighbors. | | | | |
| 31 | I reflect that the opportunity for education will be better in the future. | | | | |
| 32 | It seems for me that the problem of tribal conflict will increase in the future. | | | | |
| 33 | I have been thinking a lot about future transportation problem. | | | | |
| 34 | I expect increasing abscentism, tardiness and delinquency in the future. | | | | |
| 35 | Workers lose their motivation for work more and more in the future. | | | | |
| 36 | It looks that the future will be better regarding human rights, equality among people and freedom. | | | | |
| 37 | I always seem to be doing things at the last moment. | | | | |
| 38 | I find it hard to get things without a deadline. | | | | |
| 39 | I need to feel rushed before I can really get going. | | | | |
| 40 | Planning only makes a person unhappy since your plans hardly ever work out anyway. | | | | |
| 41 | Most of the time I am un programmed. | | | | |

| No. | Item | Response | | | |
|-----|---|----------|---|---|---|
| | | 1 | 2 | 3 | 4 |
| 42 | I work fast and efficiently according to the schedule | | | | |
| 43 | I put things off so long that a lot of work must be crowded into short space of time. | | | | |
| 44 | I waste a lot of time before I finally settle down to business. | | | | |
| 45 | I make plans before I really do an activity. | | | | |
| 46 | I had never accomplished my work according to the schedule I set. | | | | |
| 47 | After finishing a portion of work, I find it hard to continue the rest part of it. | | | | |
| 48 | If you can't solve a problem the best thing to do is to leave it for a day or two. | | | | |
| 49 | It is usually a waste of time to plan for the future since unforeseen events can interfere with the plan. | | | | |
| 50 | Half a year seems to me a long time. | | | | |
| 51 | It often seems like the day will never end. | | | | |
| 52 | I often find myself looking for ways to kill time. | | | | |
| 53 | Most of the time I am engaged with useless activities. | | | | |
| 54 | Most of the time I move aimlessly without being occupied in an activity. | | | | |
| 55 | When I am in class the lessons seem to me motionless. | | | | |
| 56 | The days I get old are approaching soon. | | | | |

PART THREE

Issues related to school activity

Below are statements related to the importance of school work. After reading each statement put a tick "✓" mark under the numbers: 1/ strongly agree, 2/ agree, 3/ disagree, and 4/ strongly disagree.

| No. | Item | Response | | | |
|-----|--|----------|---|---|---|
| | | 1 | 2 | 3 | 4 |
| 1 | It is important for me to perform well at school in order to reach my future goals. | | | | |
| 2 | I think that a good performance at school now (in the present) will be helpful in order to perform well later. | | | | |
| 3 | At school we learn things which can be useful later in life. education. | | | | |
| 4 | I believe that most of what we are doing at school can be useful later in life. | | | | |
| 5 | It is important for me to perform well now so I can get an opportunity to perform well later on as well. | | | | |
| 6 | I believe that achieving high standards now creates greater possibilities for achieving high standards also in the future. | | | | |
| 7 | I feel that my present effort makes me happier in the future. | | | | |
| 8 | I feel that my education will not account to my future. | | | | |
| 9 | I feel that my present activity is rather important for the future. | | | | |
| 10 | My school work is fruitless for my future life, I do it only because I don't have any other alternative. | | | | |
| 11 | If I study hard I will get good grades. | | | | |
| 12 | If I study hard I will get my diploma. | | | | |
| 13 | If I study hard I will acquire good knowledge. | | | | |
| 14 | If I study hard I would not be weak on my subjects. | | | | |

PART FOUR



Issues related to parents

Below are questions related to your parents or guardians. Please indicate the alternative that you think refers to your parent by circling its corresponding number or filling in the blank space.

1. What is your father's (male guardian's) level of education?
 - (1) Illiterate or basic education level
 - (2) Elementary education level
 - (3) Junior high school education level
 - (4) Secondary education level
 - (5) Junior college education
 - (6) Professional degree
 - (7) Other (specify)

2. What is your mother's (female guardian's) level of education.
 - (1) Illiterate or basic education
 - (2) Elementary education
 - (3) Junior high school education
 - (4) Secondary education
 - (5) Junior college education
 - (6) Professional degree
 - (7) Other (specify)

3. What is your parents' job?
 - (1) Father's
 - (2) Mother's

4. What is your parents' responsibility on their job?

(1) Father's _____

(2) Mother's _____

5. What is your parents' monthly income?

/Please circle your estimate, if you don't know exactly/

Note: Monthly income includes salary of both parents including other sources.

(1) Birr 100 and below

(2) 101-300 Birr

(3) 301-500 Birr

(4) 501-700 Birr

(5) 701-1000 Birr

(6) above 1000 Birr

6. How many rooms does your house have, excluding kitchen ?

(1) 1 (2) 2-3 (3) 4 AND ABOVE

7. What is your house type ?

(1) Made of grass or mud plastered and not painted.

(2) Mud covered polished and painted or polished by concrete.

(3) Built of bricks or stone.

8. Is your house

(1) Rental

(2) Private

9. What type of food stuffs does your family eat, frequently.
- (1) "Kita" or "Kocho" with cabbage or "Ingera" with "Shiro".
 - (2) Injera with shiro and vegetables.
 - (3) Different types of food with varieties of flavor.
 - (4) Other (specify)
10. How frequently does your family eat meat?
- (1) Rarely
 - (2) Not more than once a month
 - (3) Once a week or more
11. From where do you get water ?
- (1) Well, Stream or River
 - (2) Public tap
 - (3) Private tap
13. What do you use for light ?
- (1) Kuraz or Wood
 - (2) Lump or Thermoflask
 - (3) Electricity
14. Please list major properties your parents' have, below /eg. car, video, refrigerator etc./

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Thank you again!

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APPENDIX B

The Amharic Version of Appendix A

ክፍል አራት: የወላጅ ወይም ያሳዳጊን ሕይወት በጭላካነት
ከዚህ በታች የወላጅዎን ወይም ያሳዳጊዎን ሕይወት በጭላካነት ጥያቄዎች
ተከተቷል:: በጥያቄዎች ገርጌ ከተከፈተ አጥፊዎች ስለወላጅዎ ወይም አሳዳጊዎ
ይስጡልብኛለሁ የሚገኙትን ቀጥሮ በመክበብ ወይም በተገጠሙ ክፍት ቦታ በመመላት
ይመሰሉ::

1. የአባትዎ ወይም የወንድ አሳዳጊዎ የተምህርት ደረጃ
 1. ያለ ተግባር ወይም መሠረተ ተምህርት የተገኘ
 2. የአገገደኛ ደረጃ ተምህርት /1-6ኛ/ የተገኘ
 3. የመለስ ትኛ ሁለተኛ ደረጃ ተምህርት /7-8ኛ/ የተገኘ
 4. የሁለተኛ ደረጃ ተምህርት የተገኘ /9-12ኛ/
 5. የመለስ ትኛ ስሌጅ /12+1፣ 12+2/ የተገኘ
 6. በዲግሪ የተመረቀ /12+4 እና በላይ/
 7. ሌላ ባለ ይጻፉ _____

2. የእናትዎ ወይም የሴት አሳዳጊዎ የተምህርት ደረጃ
 1. ያለ ተግባር ወይም መሠረተ ተምህርት የተገኘ
 2. የአገገደኛ ደረጃ ተምህርት /1-6ኛ/ የተገኘ
 3. የመለስ ትኛ ሁለተኛ ደረጃ ተምህርት /7-8ኛ/ የተገኘ
 4. የሁለተኛ ደረጃ ተምህርት የተገኘ /9-12ኛ/
 5. የመለስ ትኛ ስሌጅ /12+1፣ 12+2/ የተገኘ
 6. በዲግሪ የተመረቀ /12+4 እና በላይ/
 7. ሌላ ባለ ይጻፉ _____

3. የወላጆቹዎ መሥሪያ ቤት ምንድነው?
 1. የአባት _____
 2. የእናት _____

4. በመሥሪያ ቤታቸው የወላጆቹዎ የሠራ ጎሳ ስነ ምንድነው?
 1. የአባት _____
 2. የእናት _____

5. የወላጆቹዎ የወር ገቢ ምን ያህል ነው? /ተከከለኛውን ባለው ቀን በገምት
ይመሰሉ/

ጥሰባጠቢያ:- የወላጆቹ የወር ገቢ የእናት የአባት ደብዳቤና ከሌሎች
ምንጮች የሚገኘውን ገቢ ያጠቃልላል::

- 1. ከ100 ብርና በታች
- 2. ከ101 እስከ 300 ብር
- 3. ከ301 እስከ 500 ብር
- 4. ከ501 እስከ 700 ብር
- 5. ከ701 እስከ 1000 ብር
- 6. ከ1000 ብር በላይ

6. መኖሪያ ቤታችሁ/ሳርድ ቤትን ሳይጨምር/ ስንተ ክፍል ቤተሰብ?

- 1. 1 ክፍል
- 2. 2-3 ክፍል
- 3. 4 እና ከዚያም በላይ ክፍል

7. መኖሪያ ቤታችሁ ዎን ላይነት ነው?

- 1. የጭቃ ልጥፍ፣ የጭቃ ልሰን ሆኖ ቀለም ያልተቀባ ወይም የሃር
- 2. የጭቃ ልሰን ሆኖ ቀለም የተቀባ፣ አሽቆ ገርፍ
- 3. ከድንገይ ወይም ከሽክላ የተሠራ

8. መኖሪያ ቤታችሁ

- 1. የኪራይ ነው?
- 2. የገለ ነው?

9. የቤተሰባችሁ አመገብ ልምድ አንዲት ነው?

- 1. በቀን አጣጣይ ከሁለት ያበባለጠ
- 2. በአጣጣይ ስንት
- 3. በአጣጣይ ከሶስት ጊዜ በላይ

10. ቤተሰባችሁ ዘወትር የሚመገቡ የምግብ ላይነት ምንድነው?

- 1. የባህ ወይም ጭንቀት በገጠመ ወይም አንጻራ በሽር
- 2. አንጻራ በሽርና አተከላት
- 3. የተለያዩ ጣዕም ያላቸውና ቀባት ያላቸው ምግቦች
- 4. ሌላ ስላይ ይጠቀሱ _____

11. ቤተሰባችሁ ሥጋ ዎን ያህል ጊዜ ያገኛል?

- 1. ከዕለታት አንድ ቀን
- 2. በወር ከአንድ ቀን ያበባለጠ
- 3. በሳምንት አንድ ቀን ወይም ከዚያም በላይ

12. ቤተሰባቸው ውሃ የሚያገኙበት ከየት ነው?

1. ከጉዳጅ፣ ከምንጭ፣ ወይም ከወንዝ
2. ከግንባራ ዩ ቧንቧ
3. ከገላ ቧንቧ

13. ቤተሰባቸው ለመብራት ምን ይጠቀማሉ?

1. ኩራዝ ወይም እገጫት
2. ፋናስ ወይም ጫሽ
3. ኤሌክትሪክ

14. ወላጆቻቸው ያላቸውን ዋና ዋና ንብረት ከዚህ በታች በተሰጠው ቦታ ይዘርዝሩ
(ለምሳሌ፣ ወኪና፣ ሺዲዬ፣ ፍሪድ ወዘተ/

በድጋሚ እናመሰግናለን !

APPENDIX C

Intercorrelation Matrix (69x69) of FTO Items from
the Pilot Sample

| 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 110 | row label |
|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 1.000000 | 0.391080 | -0.121895 | 0.142872 | -0.218617 | -0.177683 | -0.147738 | 0.012506 | 0.091914 | -0.014469 | 11 |
| 0.391080 | 1.000000 | 0.021012 | 0.272203 | 0.006732 | -0.076872 | -0.122466 | -0.006679 | -0.016126 | 0.039504 | 12 |
| -0.121895 | 0.021012 | 1.000000 | -0.120982 | -0.007486 | 0.127990 | 0.062819 | 0.035464 | -0.009298 | 0.097422 | 13 |
| 0.142872 | 0.272203 | -0.120982 | 1.000000 | 0.215450 | -0.052317 | 0.005464 | 0.071799 | -0.008490 | -0.083303 | 14 |
| -0.218617 | 0.006732 | -0.007486 | 0.215450 | 1.000000 | 0.150556 | 0.174169 | 0.118426 | -0.040219 | -0.022415 | 15 |
| -0.177683 | -0.076872 | 0.127990 | -0.052317 | 0.150556 | 1.000000 | 0.208896 | 0.109409 | 0.012784 | 0.293024 | 16 |
| -0.147738 | -0.122466 | 0.062819 | 0.005464 | 0.174169 | 0.208896 | 1.000000 | 0.106346 | -0.130724 | 0.103119 | 17 |
| 0.012506 | -0.006679 | 0.035464 | 0.071799 | 0.118426 | 0.109409 | 0.106346 | 1.000000 | 0.016426 | -0.059377 | 18 |
| 0.091914 | -0.016126 | -0.009298 | -0.008490 | -0.040219 | 0.012784 | -0.130724 | 0.016426 | 1.000000 | 0.129188 | 19 |
| -0.014469 | 0.039504 | 0.097422 | -0.083303 | -0.022415 | 0.293024 | 0.103119 | -0.059377 | 0.129188 | 1.000000 | 110 |
| -0.081958 | -0.042392 | 0.014280 | -0.023640 | 0.217400 | 0.150986 | 0.164186 | 0.188965 | -0.055874 | 0.046486 | 111 |
| 0.155588 | -0.038168 | -0.013287 | 0.052675 | 0.083488 | 0.148774 | 0.131354 | 0.262778 | 0.128996 | 0.152290 | 112 |
| 0.128078 | 0.007539 | -0.188241 | -0.017927 | -0.120866 | -0.196947 | -0.091854 | -0.102381 | -0.090561 | -0.070859 | 113 |
| 0.162137 | 0.023593 | -0.041779 | 0.026304 | -0.048707 | -0.048447 | -0.097209 | -0.060303 | -0.061374 | -0.122263 | 114 |
| -0.005049 | -0.022331 | -0.028194 | -0.039762 | 0.104067 | 0.097172 | 0.042518 | 0.115200 | 0.143620 | 0.120074 | 115 |
| -0.068235 | -0.040255 | 0.106132 | 0.008772 | 0.054892 | 0.445205 | 0.185948 | 0.126488 | 0.224696 | 0.279340 | 116 |
| -0.021177 | -0.069669 | -0.105732 | -0.027984 | -0.038364 | 0.394543 | 0.116445 | 0.122699 | 0.266014 | 0.142947 | 117 |
| 0.033571 | -0.125391 | -0.116151 | -0.005353 | -0.051496 | 0.125209 | 0.022331 | 0.091099 | 0.289710 | 0.098449 | 118 |
| -0.000110 | -0.115002 | 0.072950 | 0.057080 | 0.054729 | 0.270247 | 0.175405 | 0.027020 | 0.130899 | 0.147358 | 119 |
| -0.040054 | 0.004227 | 0.153929 | 0.063358 | 0.158014 | 0.135357 | 0.245875 | -0.060007 | -0.088539 | 0.051005 | 120 |
| -0.128020 | -0.048546 | 0.065916 | -0.009333 | 0.211627 | 0.279879 | 0.313029 | -0.068354 | 0.052181 | 0.156430 | 121 |
| 0.178262 | 0.104387 | -0.049869 | 0.022417 | -0.126384 | -0.044459 | -0.227507 | 0.073064 | 0.011636 | -0.082002 | 122 |
| 0.019024 | 0.132144 | 0.151711 | 0.130654 | 0.241867 | 0.157255 | 0.246710 | 0.036343 | -0.090189 | -0.011586 | 123 |
| 0.183262 | 0.156423 | 0.129297 | 0.271137 | 0.280743 | 0.064627 | 0.183865 | 0.255146 | -0.053107 | -0.011752 | 124 |
| 0.017366 | 0.055853 | 0.030903 | -0.014994 | -0.015791 | 0.217110 | -0.066824 | -0.121856 | 0.004812 | 0.120865 | 125 |
| 0.092016 | -0.031682 | -0.193255 | 0.154663 | 0.037134 | -0.010115 | -0.041399 | 0.178928 | 0.069986 | -0.078207 | 126 |
| 0.097578 | -0.024514 | -0.078748 | -0.016147 | -0.091402 | 0.071414 | -0.071904 | -0.001147 | 0.291797 | 0.095805 | 127 |
| -0.046040 | -0.130760 | 0.045969 | -0.124214 | 0.075891 | 0.123055 | 0.079575 | 0.017766 | 0.134742 | 0.124592 | 128 |
| 0.158859 | 0.055581 | -0.087955 | -0.054414 | 0.010120 | 0.079979 | -0.025666 | -0.032948 | 0.121152 | -0.009445 | 129 |
| -0.090400 | -0.107638 | 0.177649 | -0.125177 | 0.116410 | 0.100676 | 0.011666 | 0.029036 | 0.079357 | 0.044603 | 130 |
| -0.017226 | 0.085236 | -0.039510 | 0.086064 | 0.041143 | 0.085044 | 0.107217 | 0.001021 | 0.019305 | 0.177858 | 131 |
| 0.045378 | -0.053942 | 0.226257 | -0.023765 | 0.115497 | 0.221411 | 0.165548 | 0.180508 | 0.078148 | 0.063308 | 132 |
| -0.048251 | -0.182846 | 0.100403 | -0.003985 | 0.008721 | 0.123926 | 0.193354 | 0.086477 | -0.025227 | 0.072132 | 133 |
| -0.022957 | -0.135772 | 0.097537 | -0.086764 | 0.021160 | 0.253544 | 0.066185 | 0.018557 | 0.080205 | 0.156759 | 134 |
| -0.014210 | 0.097541 | 0.058012 | 0.075477 | 0.058716 | 0.214460 | -0.046057 | 0.107884 | 0.077244 | 0.220756 | 135 |
| 0.082740 | -0.036735 | -0.040326 | 0.003696 | -0.039053 | 0.267724 | 0.066707 | 0.112881 | 0.110716 | 0.151243 | 136 |
| 0.209803 | 0.078454 | -0.129235 | 0.049352 | 0.000273 | 0.240638 | 0.108234 | 0.051482 | 0.178543 | 0.051880 | 137 |
| -0.098238 | -0.042494 | 0.015748 | 0.064504 | 0.009443 | 0.223611 | 0.130996 | -0.005649 | 0.068057 | 0.016095 | 138 |
| -0.182635 | -0.102622 | 0.096977 | -0.017945 | -0.007257 | 0.235104 | 0.202173 | -0.034370 | -0.001984 | 0.206327 | 139 |
| 0.007801 | -0.096564 | -0.001231 | 0.036583 | -0.031455 | 0.208132 | 0.204273 | 0.049850 | 0.078704 | 0.055746 | 140 |
| 0.008393 | -0.079521 | -0.017957 | 0.084323 | 0.015634 | 0.262099 | 0.241041 | 0.075785 | 0.042196 | 0.095813 | 141 |
| -0.002335 | -0.029181 | -0.006518 | 0.005058 | -0.002121 | 0.257013 | 0.087908 | 0.076405 | 0.068245 | 0.088073 | 142 |
| -0.032504 | -0.066115 | 0.008182 | 0.009625 | 0.074367 | 0.050703 | 0.114013 | 0.077991 | -0.095390 | 0.025661 | 143 |
| -0.080621 | -0.102930 | 0.111927 | 0.044015 | 0.185481 | 0.303386 | 0.287459 | 0.145610 | -0.068381 | 0.122142 | 144 |
| -0.018906 | -0.014027 | 0.060673 | -0.027921 | -0.003551 | 0.104334 | 0.148987 | 0.094370 | -0.016230 | 0.119014 | 145 |
| -0.072152 | 0.021601 | 0.102617 | 0.075187 | 0.155609 | 0.203633 | 0.206899 | 0.193247 | 0.082671 | 0.054744 | 146 |
| -0.060723 | 0.098958 | 0.043808 | 0.075993 | 0.089489 | 0.123598 | 0.084493 | 0.159375 | 0.093126 | 0.037035 | 147 |
| 0.080738 | 0.053424 | 0.009018 | -0.071922 | -0.059862 | 0.039363 | -0.038245 | -0.136308 | 0.124657 | 0.040243 | 148 |
| 0.122307 | 0.040201 | 0.128675 | -0.028782 | 0.038384 | -0.042644 | 0.080342 | 0.126063 | -0.034465 | 0.034449 | 149 |
| -0.060791 | -0.045729 | 0.017605 | -0.065166 | 0.121753 | 0.143806 | 0.151723 | 0.095479 | -0.069598 | 0.071708 | 150 |
| -0.110917 | -0.102639 | 0.011816 | -0.008669 | 0.077094 | 0.184067 | 0.173242 | 0.069528 | 0.113872 | 0.082945 | 151 |
| 0.151162 | 0.114197 | -0.040720 | -0.008323 | -0.024551 | -0.026922 | -0.141040 | 0.080591 | 0.139343 | -0.036584 | 152 |

FILE DS

DOUBLE PRECISION CORRELATIONS OF DESAL2 PAGE 2

| 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 110 | row label |
|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| -0.055364 | -0.082588 | -0.006267 | -0.020554 | 0.123273 | 0.080108 | 0.069933 | 0.085591 | -0.071765 | 0.201200 | 153 |
| 0.147793 | 0.064424 | 0.080452 | 0.036889 | -0.010629 | -0.052441 | -0.139375 | 0.128506 | 0.105345 | 0.005167 | 154 |
| 0.089492 | 0.015271 | -0.065499 | 0.035688 | -0.011933 | 0.138936 | 0.103344 | 0.064470 | 0.048796 | 0.058840 | 155 |
| -0.058757 | 0.017423 | 0.054967 | 0.024819 | 0.226962 | 0.102886 | 0.126175 | 0.217396 | 0.009178 | -0.024140 | 156 |
| -0.087358 | 0.006546 | 0.113200 | 0.111530 | 0.217135 | 0.200891 | 0.253620 | 0.076628 | -0.068735 | 0.157499 | 157 |
| 0.028718 | 0.015359 | 0.007713 | 0.091110 | 0.071799 | 0.105968 | 0.176226 | 0.103535 | 0.053719 | 0.003823 | 158 |
| -0.043724 | 0.040075 | 0.075503 | 0.120592 | 0.108064 | 0.162798 | 0.141308 | 0.170470 | 0.011886 | 0.055967 | 159 |
| 0.076889 | -0.056687 | 0.091271 | -0.017099 | -0.126662 | 0.100592 | 0.110799 | 0.059623 | -0.126125 | 0.035614 | 160 |
| 0.099852 | 0.121369 | -0.023445 | 0.145328 | 0.002180 | -0.067631 | -0.148723 | 0.074385 | 0.017566 | -0.122793 | 161 |
| 0.081193 | 0.085521 | 0.077482 | -0.044974 | -0.005977 | 0.063958 | 0.102979 | 0.097890 | 0.011939 | 0.084352 | 162 |
| -0.007151 | -0.015968 | 0.011950 | 0.047672 | 0.164284 | 0.072308 | 0.184921 | 0.078130 | 0.010788 | 0.111724 | 163 |
| -0.183664 | -0.286884 | 0.066155 | -0.215692 | -0.198978 | 0.109836 | -0.006205 | -0.196413 | -0.011878 | 0.000624 | 164 |
| -0.052798 | -0.029139 | 0.040568 | -0.027413 | -0.036642 | 0.175885 | -0.014315 | 0.027172 | -0.067602 | 0.098554 | 165 |
| -0.049881 | 0.061775 | 0.067352 | -0.058921 | -0.113856 | -0.004719 | -0.093228 | -0.014594 | 0.068036 | -0.065620 | 166 |
| 0.046175 | 0.090587 | -0.000507 | -0.047922 | 0.084939 | 0.066763 | 0.055146 | 0.052745 | 0.059602 | -0.091766 | 167 |
| 0.003105 | -0.038094 | 0.089054 | 0.024496 | 0.038767 | 0.171191 | 0.156789 | -0.002623 | -0.004723 | -0.013964 | 168 |
| -0.136951 | -0.122550 | 0.118660 | -0.019016 | -0.003529 | 0.124484 | 0.148974 | 0.058020 | 0.029626 | 0.139836 | 169 |
| 0.041256 | 0.022000 | 0.158198 | 0.134202 | 0.243606 | 0.522646 | 0.383514 | 0.274616 | 0.167803 | 0.286545 | TOTAL |

| 111 | 112 | 113 | 114 | 115 | 116 | 117 | 118 | 119 | 120 | row label |
|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| -0.081958 | 0.155588 | 0.128078 | 0.162137 | -0.005049 | -0.068235 | -0.021177 | 0.033571 | -0.000110 | -0.040054 | 11 |
| -0.042392 | -0.038168 | 0.007539 | 0.023593 | -0.022331 | -0.040255 | -0.069669 | -0.125391 | -0.115002 | 0.004227 | 12 |
| 0.014280 | -0.013287 | -0.188241 | -0.041779 | -0.028194 | 0.106132 | -0.105732 | -0.116151 | 0.072950 | 0.153929 | 13 |
| -0.023640 | 0.052675 | -0.017927 | 0.026304 | -0.039762 | 0.008772 | -0.027984 | -0.005353 | 0.057080 | 0.063358 | 14 |
| 0.217400 | 0.083488 | -0.120866 | -0.048707 | 0.104067 | 0.054892 | -0.038364 | -0.051496 | 0.054729 | 0.158014 | 15 |
| 0.150986 | 0.148774 | -0.196947 | -0.048447 | 0.097172 | 0.445205 | 0.394543 | 0.125209 | 0.270247 | 0.135357 | 16 |
| 0.164186 | 0.131354 | -0.091854 | -0.097209 | 0.042518 | 0.185948 | 0.116445 | 0.022331 | 0.175405 | 0.245875 | 17 |
| 0.188965 | 0.262778 | -0.102381 | -0.060303 | 0.115200 | 0.126488 | 0.122699 | 0.091099 | 0.027020 | -0.060007 | 18 |
| -0.055874 | 0.128996 | -0.090561 | -0.061374 | 0.143620 | 0.224696 | 0.266014 | 0.289710 | 0.130899 | -0.088539 | 19 |
| 0.046486 | 0.152290 | -0.070859 | -0.122263 | 0.120074 | 0.279340 | 0.142947 | 0.098449 | 0.147358 | 0.051005 | 110 |
| 1.000000 | 0.195065 | -0.071081 | -0.011531 | 0.117525 | 0.081527 | 0.104005 | 0.051591 | 0.030446 | 0.154475 | 111 |
| 0.195065 | 1.000000 | -0.066778 | -0.001655 | 0.264893 | 0.238394 | 0.288622 | 0.206753 | 0.218177 | 0.078538 | 112 |
| -0.071081 | -0.066778 | 1.000000 | -0.049447 | -0.131315 | -0.138898 | -0.123590 | -0.087725 | -0.099438 | -0.173333 | 113 |
| -0.011531 | -0.001655 | -0.049447 | 1.000000 | 0.005180 | -0.118918 | -0.075058 | 0.054468 | -0.178117 | 0.064079 | 114 |
| 0.117525 | 0.264893 | -0.131315 | 0.005180 | 1.000000 | 0.154406 | 0.092804 | 0.099604 | 0.014420 | 0.035689 | 115 |
| 0.081527 | 0.238394 | -0.138898 | -0.118918 | 0.154406 | 1.000000 | 0.451668 | 0.268010 | 0.271070 | 0.100492 | 116 |
| 0.104005 | 0.288622 | -0.123590 | -0.075058 | 0.092804 | 0.451668 | 1.000000 | 0.297284 | 0.285505 | 0.014277 | 117 |
| 0.051591 | 0.206753 | -0.087725 | 0.054468 | 0.099604 | 0.268010 | 0.297284 | 1.000000 | 0.161115 | 0.062250 | 118 |
| 0.030446 | 0.218177 | -0.099438 | -0.178117 | 0.014420 | 0.271070 | 0.285505 | 0.161115 | 1.000000 | 0.024810 | 119 |
| 0.154475 | 0.078538 | -0.173333 | 0.064079 | 0.035689 | 0.100492 | 0.014277 | 0.062250 | 0.024810 | 1.000000 | 120 |
| 0.027931 | 0.069079 | -0.140469 | -0.157168 | -0.018419 | 0.265342 | 0.184908 | 0.105885 | 0.269015 | 0.114771 | 121 |
| -0.019813 | 0.012287 | 0.000166 | 0.033826 | 0.054173 | -0.021108 | -0.030947 | 0.008057 | -0.080284 | -0.148760 | 122 |
| 0.162479 | 0.229817 | -0.119601 | -0.069580 | 0.149508 | 0.029779 | 0.081771 | -0.013977 | 0.082177 | 0.095152 | 123 |
| 0.051075 | 0.215634 | -0.109099 | 0.034341 | 0.122526 | 0.070634 | 0.039404 | -0.010391 | 0.127515 | 0.064911 | 124 |
| 0.038105 | -0.179430 | 0.030021 | -0.019415 | 0.063825 | 0.186618 | 0.132632 | -0.040498 | 0.021243 | -0.019721 | 125 |
| 0.055808 | 0.076049 | 0.048202 | 0.097374 | 0.101713 | 0.047712 | 0.040026 | 0.097454 | 0.007662 | -0.131718 | 126 |
| -0.026354 | 0.153298 | 0.049143 | 0.079401 | 0.172190 | 0.244360 | 0.228925 | 0.353163 | 0.171280 | -0.069177 | 127 |
| 0.181117 | 0.373320 | -0.134462 | 0.035997 | 0.205166 | 0.233946 | 0.186921 | 0.317269 | 0.183126 | 0.079964 | 128 |
| 0.039154 | 0.060753 | 0.092126 | 0.194094 | 0.077392 | 0.085836 | 0.106980 | 0.143738 | 0.040121 | 0.037176 | 129 |
| 0.112355 | 0.057224 | -0.018488 | 0.015809 | 0.084720 | 0.058174 | 0.066838 | 0.085995 | -0.044380 | 0.159421 | 130 |
| -0.002360 | -0.027053 | 0.028387 | -0.006391 | -0.031608 | 0.086208 | 0.081404 | 0.206838 | 0.131520 | 0.111828 | 131 |
| 0.194097 | 0.188490 | -0.057564 | -0.006377 | 0.138146 | 0.116630 | 0.116872 | 0.077592 | 0.214410 | 0.230536 | 132 |
| 0.137549 | 0.111594 | -0.120312 | -0.075125 | 0.140906 | 0.190752 | 0.139631 | 0.142583 | 0.127714 | 0.242341 | 133 |
| 0.200818 | 0.169268 | 0.034119 | -0.033950 | 0.223256 | 0.139407 | 0.161584 | 0.214263 | 0.082849 | 0.015345 | 134 |
| 0.097759 | 0.169920 | 0.083110 | -0.073289 | 0.171561 | 0.265648 | 0.218795 | 0.166542 | 0.186455 | 0.063147 | 135 |
| -0.024322 | 0.191539 | 0.096330 | 0.036415 | 0.096304 | 0.224245 | 0.310144 | 0.214214 | 0.279970 | -0.163140 | 136 |
| -0.119491 | 0.264166 | 0.049563 | 0.064629 | -0.027904 | 0.208276 | 0.316224 | 0.172548 | 0.221436 | -0.057289 | 137 |
| -0.051359 | 0.059545 | 0.030700 | -0.078796 | -0.044169 | 0.210749 | 0.144735 | 0.068272 | 0.312716 | -0.048460 | 138 |
| 0.095074 | 0.023132 | -0.043879 | -0.033332 | 0.111355 | 0.225541 | 0.191623 | 0.135619 | 0.235681 | 0.148411 | 139 |
| 0.073850 | 0.143678 | -0.013014 | 0.009224 | 0.043854 | 0.150391 | 0.057276 | 0.006574 | 0.232119 | 0.119695 | 140 |
| 0.124467 | 0.250168 | -0.113690 | -0.047478 | 0.174219 | 0.187635 | 0.280788 | 0.107347 | 0.370029 | 0.081624 | 141 |
| -0.070707 | 0.238476 | 0.013387 | -0.044725 | 0.112907 | 0.272582 | 0.319730 | 0.221581 | 0.307695 | -0.014180 | 142 |
| 0.070983 | -0.043784 | -0.032461 | -0.073389 | -0.080464 | 0.011296 | -0.142232 | -0.070972 | -0.007531 | 0.111298 | 143 |
| 0.113287 | 0.161400 | -0.036757 | -0.087327 | 0.061997 | 0.150263 | 0.034724 | 0.032722 | 0.071175 | 0.175658 | 144 |
| 0.101065 | 0.102525 | 0.014923 | -0.180610 | 0.108399 | 0.058595 | 0.028423 | 0.081396 | 0.068722 | 0.048415 | 145 |
| 0.086703 | 0.273013 | -0.125305 | -0.033048 | 0.176603 | 0.183591 | 0.265259 | 0.202790 | 0.269531 | 0.081388 | 146 |
| 0.004329 | 0.053659 | 0.055502 | -0.210019 | 0.157453 | 0.148234 | 0.082940 | 0.090784 | 0.125718 | -0.113771 | 147 |
| -0.087029 | -0.043327 | 0.105914 | -0.052656 | 0.007778 | 0.046460 | 0.065359 | 0.036979 | 0.079909 | -0.190011 | 148 |
| -0.049582 | -0.010522 | 0.059213 | 0.041921 | -0.074682 | -0.071571 | -0.086070 | -0.036647 | -0.076957 | 0.041425 | 149 |
| 0.017346 | 0.004496 | 0.107330 | 0.034435 | -0.063834 | 0.125468 | -0.003921 | -0.051809 | 0.017120 | -0.030939 | 150 |
| 0.039119 | 0.048636 | -0.080431 | -0.115146 | 0.104916 | 0.112413 | 0.099597 | -0.007326 | 0.102490 | -0.124170 | 151 |
| -0.015755 | 0.211856 | 0.087079 | 0.030089 | 0.136976 | -0.004763 | 0.028703 | 0.102518 | 0.129837 | -0.130749 | 152 |

FILE DS

DOUBLE PRECISION CORRELATIONS OF DESAL2 PAGE 2

| 111 | 112 | 113 | 114 | 115 | 116 | 117 | 118 | 119 | 120 | row label |
|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| -0.004082 | -0.047031 | 0.041983 | -0.011867 | 0.151210 | 0.058225 | -0.063355 | 0.046912 | -0.064988 | 0.046313 | 153 |
| -0.024978 | 0.000163 | -0.098440 | 0.122901 | 0.092044 | -0.000423 | -0.022177 | -0.118083 | -0.074526 | -0.104490 | 154 |
| 0.065586 | 0.041013 | 0.037588 | -0.009612 | 0.009118 | 0.110989 | 0.087629 | 0.032932 | -0.031394 | -0.037620 | 155 |
| 0.226223 | 0.169044 | -0.022962 | -0.099179 | 0.027432 | 0.057589 | -0.040546 | -0.002036 | 0.065658 | 0.120682 | 156 |
| 0.166676 | 0.165876 | -0.198277 | -0.115970 | 0.072929 | 0.166138 | 0.007630 | -0.004764 | 0.185797 | 0.215285 | 157 |
| 0.181876 | 0.124761 | -0.016695 | 0.035280 | 0.001448 | 0.117439 | 0.039231 | 0.036555 | -0.069449 | 0.086879 | 158 |
| 0.019593 | 0.021795 | -0.051419 | -0.002695 | 0.094064 | 0.154806 | -0.032032 | -0.069710 | -0.063235 | 0.053626 | 159 |
| 0.167378 | 0.040565 | -0.023120 | 0.053303 | 0.075472 | 0.035724 | -0.004597 | -0.075746 | 0.007728 | 0.043857 | 160 |
| -0.078027 | -0.026154 | 0.001382 | 0.239536 | -0.001734 | 0.022707 | -0.057431 | 0.063318 | -0.022652 | 0.042041 | 161 |
| 0.107665 | -0.035959 | 0.001589 | -0.115350 | 0.079753 | 0.042337 | -0.059707 | 0.044408 | -0.022756 | -0.002367 | 162 |
| 0.177991 | 0.143355 | -0.059066 | 0.039120 | 0.118956 | 0.147239 | -0.019217 | -0.002248 | 0.028239 | -0.017445 | 163 |
| -0.136152 | -0.093821 | -0.051964 | -0.013927 | -0.017618 | 0.034584 | 0.038646 | -0.012414 | 0.097993 | 0.023765 | 164 |
| -0.063188 | 0.003810 | 0.039539 | -0.067808 | -0.043396 | 0.023252 | 0.069295 | -0.111438 | 0.128852 | -0.039894 | 165 |
| -0.050859 | -0.106891 | 0.025100 | -0.176654 | -0.193319 | 0.021974 | 0.019248 | -0.037235 | -0.002579 | -0.002049 | 166 |
| 0.097268 | -0.016655 | -0.025209 | 0.022295 | -0.102813 | 0.046232 | 0.138340 | 0.060451 | -0.041373 | 0.079397 | 167 |
| 0.089023 | 0.188829 | 0.009081 | 0.102297 | 0.181088 | 0.127703 | 0.081957 | -0.064175 | 0.026326 | 0.065635 | 168 |
| -0.061320 | 0.051509 | 0.011336 | -0.058174 | 0.064536 | 0.206362 | 0.130436 | 0.063285 | 0.122090 | 0.175676 | 169 |
| 0.271422 | 0.399174 | -0.071659 | -0.024354 | 0.275988 | 0.494415 | 0.375212 | 0.266393 | 0.384362 | 0.218098 | TOTAL |

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| 121 | 122 | 123 | 124 | 125 | 126 | 127 | 128 | 129 | 130 | row label |
|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| -0.128020 | 0.178262 | 0.019024 | 0.183262 | 0.017366 | 0.092016 | 0.097578 | -0.046040 | 0.158859 | -0.090400 | 11 |
| -0.048546 | 0.104387 | 0.132144 | 0.156423 | 0.055853 | -0.031682 | -0.024514 | -0.130760 | 0.055581 | -0.107638 | 12 |
| 0.065916 | -0.049869 | 0.151711 | 0.129297 | 0.030903 | -0.193255 | -0.078748 | 0.045969 | -0.087955 | 0.177649 | 13 |
| -0.009333 | 0.022417 | 0.130654 | 0.271137 | -0.014994 | 0.154663 | -0.016147 | -0.124214 | -0.054414 | -0.125177 | 14 |
| 0.211627 | -0.126384 | 0.241867 | 0.280743 | -0.015791 | 0.037134 | -0.091402 | 0.075891 | 0.010120 | 0.116410 | 15 |
| 0.279879 | -0.044459 | 0.157255 | 0.064627 | 0.217110 | -0.010115 | 0.071414 | 0.123055 | 0.079979 | 0.100676 | 16 |
| 0.313029 | -0.227507 | 0.246710 | 0.183865 | -0.066824 | 0.041399 | -0.071904 | 0.079575 | -0.025666 | 0.011666 | 17 |
| -0.068354 | 0.073064 | 0.036343 | 0.255146 | -0.121856 | 0.178928 | -0.001147 | 0.017766 | -0.032948 | 0.029036 | 18 |
| 0.052181 | 0.011636 | -0.090189 | -0.053107 | 0.004812 | 0.069986 | 0.291797 | 0.134742 | 0.121152 | 0.079357 | 19 |
| 0.156430 | -0.082002 | -0.011586 | -0.011752 | 0.120865 | -0.078207 | 0.095805 | 0.124592 | -0.009445 | 0.044603 | 110 |
| 0.027931 | -0.019813 | 0.162479 | 0.051075 | 0.038105 | 0.055808 | -0.026354 | 0.181117 | 0.039154 | 0.112355 | 111 |
| 0.069079 | 0.012287 | 0.229817 | 0.215634 | -0.179430 | 0.076049 | 0.153298 | 0.373320 | 0.060753 | 0.057224 | 112 |
| -0.140469 | 0.000166 | -0.119601 | -0.109099 | 0.030021 | 0.048202 | 0.049143 | -0.134462 | 0.092126 | -0.018488 | 113 |
| -0.157168 | 0.033826 | -0.069580 | 0.034341 | -0.019415 | 0.097374 | 0.079401 | 0.035997 | 0.194094 | 0.015809 | 114 |
| -0.018419 | 0.054173 | 0.149508 | 0.122526 | 0.063825 | 0.101713 | 0.172190 | 0.205166 | 0.077392 | 0.084720 | 115 |
| 0.265342 | -0.021108 | 0.029779 | 0.070634 | 0.186618 | 0.047712 | 0.244360 | 0.233946 | 0.085836 | 0.058174 | 116 |
| 0.184908 | -0.030947 | 0.081771 | 0.039404 | 0.132632 | 0.040026 | 0.228925 | 0.186921 | 0.106980 | 0.066838 | 117 |
| 0.105885 | 0.008057 | -0.013977 | -0.010391 | -0.040498 | 0.097454 | 0.353163 | 0.317269 | 0.143738 | 0.085995 | 118 |
| 0.269015 | -0.080284 | 0.082177 | 0.127515 | -0.021243 | 0.007662 | 0.171280 | 0.183126 | 0.040121 | -0.044380 | 119 |
| 0.114771 | -0.148760 | 0.095152 | 0.064911 | -0.019721 | -0.131718 | -0.069177 | 0.079964 | 0.037176 | 0.159421 | 120 |
| 1.000000 | -0.239116 | 0.156052 | 0.200955 | 0.064404 | -0.088570 | 0.026811 | 0.102124 | -0.020732 | 0.107108 | 121 |
| -0.239116 | 1.000000 | -0.110651 | -0.056030 | -0.088605 | 0.095596 | 0.105449 | -0.130260 | 0.046687 | -0.401651 | 122 |
| 0.156052 | -0.110651 | 1.000000 | 0.301504 | -0.003875 | 0.076729 | -0.094425 | 0.183596 | 0.055607 | 0.059546 | 123 |
| 0.200955 | -0.056030 | 0.301504 | 1.000000 | -0.100258 | 0.228362 | -0.035088 | 0.047011 | 0.010453 | -0.033918 | 124 |
| 0.064404 | -0.088605 | -0.003875 | -0.100258 | 1.000000 | -0.091907 | 0.062402 | 0.068473 | 0.032350 | 0.065102 | 125 |
| -0.088570 | 0.095596 | 0.076729 | 0.228362 | -0.091907 | 1.000000 | 0.194741 | 0.068073 | 0.109066 | -0.023631 | 126 |
| 0.026811 | 0.105449 | -0.094425 | -0.035088 | 0.062402 | 0.194741 | 1.000000 | 0.303980 | 0.220471 | -0.003743 | 127 |
| 0.102124 | -0.130260 | 0.183596 | 0.047011 | 0.068473 | 0.068073 | 0.303980 | 1.000000 | 0.205769 | 0.233334 | 128 |
| -0.020732 | 0.046687 | 0.055607 | 0.010453 | 0.032350 | 0.109066 | 0.220471 | 0.205769 | 1.000000 | 0.031369 | 129 |
| 0.107108 | -0.401651 | 0.059546 | -0.033918 | 0.065102 | -0.023631 | -0.003743 | 0.233334 | 0.031369 | 1.000000 | 130 |
| 0.128298 | -0.132347 | 0.055936 | 0.097497 | 0.090088 | 0.095078 | 0.176723 | 0.116606 | 0.018401 | 0.054107 | 131 |
| 0.072904 | -0.051307 | 0.130683 | 0.173130 | 0.002076 | -0.043783 | 0.041038 | 0.192404 | 0.153892 | 0.148760 | 132 |
| 0.175962 | -0.201942 | 0.219326 | 0.191169 | 0.027033 | 0.002108 | -0.006855 | 0.265458 | 0.117179 | 0.171020 | 133 |
| 0.138861 | -0.069170 | 0.120525 | 0.005910 | 0.060722 | 0.105486 | 0.229047 | 0.407245 | 0.051183 | 0.217570 | 134 |
| 0.113249 | -0.026849 | 0.010636 | -0.015871 | 0.236453 | 0.034252 | 0.256047 | 0.298037 | 0.000682 | 0.203918 | 135 |
| 0.099010 | -0.046834 | 0.130878 | 0.116507 | 0.106152 | 0.138025 | 0.193592 | 0.177403 | 0.238528 | -0.033677 | 136 |
| 0.150272 | -0.048983 | -0.011131 | 0.084059 | 0.010837 | 0.112537 | 0.170659 | 0.104604 | 0.210771 | -0.079238 | 137 |
| 0.151903 | -0.010829 | 0.024063 | 0.009389 | 0.193018 | -0.112835 | 0.110933 | 0.076891 | 0.103528 | -0.089705 | 138 |
| 0.238080 | -0.114078 | 0.125873 | -0.042078 | 0.051071 | -0.107343 | 0.058132 | 0.098541 | -0.014612 | 0.103287 | 139 |
| 0.160597 | -0.122246 | 0.021493 | 0.018990 | 0.082101 | 0.075240 | 0.120427 | 0.129265 | 0.134327 | 0.118731 | 140 |
| 0.124383 | -0.134759 | 0.110594 | 0.092348 | 0.133829 | 0.068862 | 0.090032 | 0.152321 | 0.091776 | 0.111131 | 141 |
| 0.193530 | 0.048293 | 0.003964 | 0.034834 | 0.188531 | -0.004476 | 0.198770 | 0.225717 | 0.145491 | -0.014975 | 142 |
| 0.054619 | -0.083494 | 0.075913 | 0.059320 | -0.044297 | 0.015837 | -0.021976 | -0.135986 | -0.068560 | 0.181135 | 143 |
| 0.139349 | -0.126988 | 0.206007 | 0.209775 | 0.143909 | -0.032054 | -0.098573 | 0.152916 | 0.042198 | 0.166684 | 144 |
| 0.059799 | -0.142291 | 0.117391 | 0.080880 | -0.005240 | 0.123810 | -0.028363 | 0.166011 | -0.089860 | 0.221176 | 145 |
| 0.124422 | -0.173300 | 0.188350 | 0.143157 | 0.013682 | 0.120846 | 0.020086 | 0.162642 | -0.110061 | 0.233972 | 146 |
| 0.147352 | 0.037885 | 0.180179 | 0.091268 | 0.095582 | 0.108776 | 0.010840 | 0.039272 | -0.052432 | 0.072504 | 147 |
| 0.115862 | 0.033603 | -0.031896 | -0.059339 | 0.107745 | 0.000871 | 0.086791 | 0.022752 | 0.010414 | 0.081305 | 148 |
| 0.067436 | 0.024111 | 0.017975 | 0.167751 | 0.043126 | -0.121313 | -0.029332 | -0.002188 | -0.000390 | -0.047874 | 149 |
| 0.161224 | -0.272475 | 0.016357 | 0.024038 | 0.027508 | -0.092747 | 0.001235 | 0.049415 | -0.031967 | 0.183725 | 150 |
| 0.139326 | 0.068171 | 0.065521 | -0.061888 | 0.114362 | -0.039477 | -0.028512 | 0.030280 | 0.004621 | 0.061765 | 151 |
| 0.027365 | 0.138698 | 0.029080 | 0.058946 | -0.014175 | -0.084431 | 0.067743 | 0.083731 | 0.054288 | -0.038465 | 152 |

FILE DS

DOUBLE PRECISION CORRELATIONS OF DESAL2 PAGE 2

| 121 | 122 | 123 | 124 | 125 | 126 | 127 | 128 | 129 | 130 | row label |
|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 0.113941 | -0.140894 | 0.092301 | 0.070524 | 0.091939 | -0.014951 | -0.117990 | -0.091799 | -0.085527 | 0.077939 | 153 |
| -0.054750 | 0.123941 | 0.079266 | 0.151268 | -0.047334 | 0.055946 | -0.005385 | -0.137613 | -0.105812 | -0.012226 | 154 |
| 0.079214 | -0.086245 | 0.089576 | 0.007933 | 0.171006 | 0.114466 | 0.021997 | 0.055403 | 0.012769 | 0.217020 | 155 |
| 0.078294 | -0.117857 | 0.146081 | 0.134723 | -0.008126 | -0.085444 | -0.154447 | 0.032962 | -0.037378 | 0.041406 | 156 |
| 0.183142 | -0.327415 | 0.254324 | 0.201218 | -0.016833 | -0.038981 | -0.225714 | 0.160715 | 0.007269 | 0.231663 | 157 |
| 0.127255 | -0.174902 | 0.080309 | 0.058035 | 0.004095 | 0.063977 | -0.083699 | 0.027100 | -0.060933 | 0.180506 | 158 |
| 0.113999 | -0.168456 | 0.154461 | 0.084461 | 0.103391 | -0.088048 | -0.160359 | -0.083933 | -0.031982 | 0.269994 | 159 |
| 0.034854 | -0.099475 | -0.029557 | -0.026669 | 0.052469 | 0.024664 | 0.030276 | 0.059958 | -0.061307 | 0.127606 | 160 |
| -0.069642 | 0.098136 | -0.094532 | 0.050385 | -0.039843 | -0.004524 | 0.068258 | -0.032793 | 0.059681 | -0.119476 | 161 |
| 0.102274 | -0.056635 | 0.206231 | 0.056837 | 0.087976 | 0.077851 | -0.018286 | 0.113104 | 0.002425 | 0.185848 | 162 |
| 0.100946 | -0.018064 | 0.137850 | 0.143527 | 0.054606 | -0.028348 | -0.030901 | 0.132805 | 0.011649 | 0.151224 | 163 |
| 0.066867 | -0.075682 | -0.208037 | -0.355377 | 0.028853 | -0.239918 | 0.020100 | -0.074056 | -0.005216 | 0.094830 | 164 |
| 0.106004 | 0.023582 | -0.004363 | -0.095775 | 0.036947 | -0.036585 | 0.008589 | -0.097889 | 0.040886 | -0.077596 | 165 |
| -0.012661 | 0.062956 | -0.245320 | -0.239763 | 0.050474 | -0.130667 | 0.086921 | -0.127556 | 0.044360 | 0.052970 | 166 |
| -0.088246 | -0.028498 | 0.056326 | 0.200050 | -0.062500 | 0.241088 | 0.153412 | 0.158952 | 0.057898 | 0.066483 | 167 |
| 0.133944 | -0.080660 | 0.121661 | 0.183993 | -0.002035 | 0.034548 | -0.028249 | 0.171371 | 0.168738 | 0.082900 | 168 |
| 0.158961 | -0.191560 | 0.052903 | -0.003715 | 0.068766 | -0.050241 | -0.002782 | -0.022500 | -0.085681 | 0.177474 | 169 |
| 0.386334 | -0.179568 | 0.337797 | 0.319734 | 0.201297 | 0.128139 | 0.203944 | 0.363811 | 0.182512 | 0.316954 | TOTAL |

| | 131 | 132 | 133 | 134 | 135 | 136 | 137 | 138 | 139 | 140 | row label |
|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----|--------------|
| -0.017226 | 0.045378 | -0.048251 | -0.022957 | -0.014210 | 0.082740 | 0.209803 | -0.098238 | -0.182635 | 0.007801 | 11 | |
| 0.085236 | -0.053942 | -0.182846 | -0.135772 | 0.097541 | -0.036735 | 0.078454 | -0.042494 | -0.102622 | -0.096564 | 12 | |
| -0.039510 | 0.226257 | 0.100403 | 0.097537 | 0.058012 | -0.040326 | -0.129235 | 0.015748 | 0.096977 | -0.001231 | 13 | |
| 0.086064 | -0.023765 | -0.003985 | -0.086764 | 0.075477 | 0.003696 | 0.049352 | 0.064504 | -0.017945 | 0.036583 | 14 | |
| 0.041143 | 0.115497 | 0.008721 | 0.021160 | 0.058716 | -0.039053 | 0.000273 | 0.009443 | -0.007257 | -0.031455 | 15 | |
| 0.085044 | 0.221411 | 0.123926 | 0.253544 | 0.214460 | 0.267724 | 0.240638 | 0.223611 | 0.235104 | 0.208132 | 16 | |
| 0.107217 | 0.165548 | 0.193354 | 0.066185 | -0.046057 | 0.066707 | 0.108234 | 0.130996 | 0.202173 | 0.204273 | 17 | |
| 0.001021 | 0.180508 | 0.086477 | 0.018557 | 0.107884 | 0.112881 | 0.051482 | -0.005649 | -0.034370 | 0.049850 | 18 | |
| 0.019305 | 0.078148 | -0.025227 | 0.080205 | 0.077244 | 0.110716 | 0.178543 | 0.068057 | -0.001984 | 0.078704 | 19 | |
| 0.177858 | 0.063308 | 0.072132 | 0.156759 | 0.220756 | 0.151243 | 0.051880 | 0.016095 | 0.206327 | 0.055746 | 110 | |
| -0.002360 | 0.194097 | 0.137549 | 0.200818 | 0.097759 | -0.024322 | -0.119491 | -0.051359 | 0.095074 | 0.073850 | 111 | |
| -0.027053 | 0.188490 | 0.111594 | 0.169268 | 0.169920 | 0.191539 | 0.264166 | 0.059545 | 0.023132 | 0.143678 | 112 | |
| 0.028387 | -0.057564 | -0.120312 | 0.034119 | 0.083110 | 0.098330 | 0.049563 | 0.030700 | -0.043879 | -0.013014 | 113 | |
| -0.006391 | -0.006377 | -0.075125 | -0.033950 | -0.073289 | 0.036415 | 0.064629 | -0.078796 | -0.033332 | 0.009224 | 114 | |
| -0.031608 | 0.138146 | 0.140906 | 0.223256 | 0.171561 | 0.096304 | -0.027904 | -0.044169 | 0.111355 | 0.043854 | 115 | |
| 0.086208 | 0.116630 | 0.190752 | 0.139407 | 0.265648 | 0.224245 | 0.208276 | 0.210749 | 0.225541 | 0.150391 | 116 | |
| 0.081404 | 0.116872 | 0.139631 | 0.161584 | 0.218795 | 0.310144 | 0.316224 | 0.144735 | 0.191623 | 0.057276 | 117 | |
| 0.206838 | 0.077592 | 0.142583 | 0.214263 | 0.166542 | 0.214214 | 0.172548 | 0.068272 | 0.135619 | 0.006574 | 118 | |
| 0.131520 | 0.214410 | 0.127714 | 0.082849 | 0.186455 | 0.279970 | 0.221436 | 0.312716 | 0.235681 | 0.232119 | 119 | |
| 0.111828 | 0.230536 | 0.242341 | 0.015345 | 0.063147 | -0.163140 | -0.057289 | -0.048460 | 0.148411 | 0.119695 | 120 | |
| 0.128298 | 0.072904 | 0.175962 | 0.138861 | 0.113249 | 0.099010 | 0.150272 | 0.151903 | 0.238080 | 0.160597 | 121 | |
| -0.132347 | -0.051307 | -0.201942 | -0.069170 | -0.026834 | -0.046834 | -0.048983 | -0.010829 | -0.114078 | -0.122246 | 122 | |
| 0.055936 | 0.130683 | 0.219326 | 0.120525 | 0.010636 | 0.130878 | -0.011131 | 0.024063 | 0.125873 | 0.021493 | 123 | |
| 0.097497 | 0.173130 | 0.191169 | 0.005910 | -0.015871 | 0.116507 | 0.084059 | 0.009389 | -0.042078 | 0.018990 | 124 | |
| 0.090088 | 0.002076 | 0.027033 | 0.060722 | 0.236453 | 0.106152 | 0.010837 | 0.193018 | 0.051071 | 0.082101 | 125 | |
| 0.095078 | -0.043783 | 0.002108 | 0.105486 | 0.034252 | 0.138025 | 0.112537 | -0.112835 | -0.107343 | 0.075240 | 126 | |
| 0.176723 | 0.041038 | -0.006855 | 0.229047 | 0.256047 | 0.193592 | 0.170659 | 0.110933 | 0.058132 | 0.120427 | 127 | |
| 0.116606 | 0.192404 | 0.265458 | 0.407245 | 0.298037 | 0.177403 | 0.104604 | 0.076891 | 0.098541 | 0.129265 | 128 | |
| 0.018401 | 0.153892 | 0.117179 | 0.051183 | 0.000682 | 0.238528 | 0.210771 | 0.103528 | -0.014612 | 0.134327 | 129 | |
| 0.054107 | 0.148760 | 0.171020 | 0.217570 | 0.203918 | -0.033677 | -0.079238 | -0.089705 | 0.103287 | 0.118731 | 130 | |
| 1.000000 | 0.064252 | 0.067966 | 0.179025 | 0.261745 | 0.167416 | 0.184269 | 0.107577 | 0.140187 | 0.155566 | 131 | |
| 0.064252 | 1.000000 | 0.257968 | 0.172749 | 0.225912 | 0.135437 | 0.186326 | 0.139704 | 0.164721 | 0.237610 | 132 | |
| 0.067966 | 0.257968 | 1.000000 | 0.114289 | 0.062636 | 0.061141 | -0.032529 | 0.061612 | 0.168368 | 0.156561 | 133 | |
| 0.179025 | 0.172749 | 0.114289 | 1.000000 | 0.292425 | 0.252552 | 0.130715 | 0.092019 | 0.006487 | 0.114294 | 134 | |
| 0.261745 | 0.225912 | 0.062636 | 0.292425 | 1.000000 | 0.224118 | 0.146646 | 0.221706 | 0.122521 | 0.126090 | 135 | |
| 0.167416 | 0.135437 | 0.061141 | 0.252552 | 0.224118 | 1.000000 | 0.371583 | 0.196493 | 0.032246 | 0.221235 | 136 | |
| 0.184269 | 0.186326 | -0.032529 | 0.130715 | 0.146646 | 0.371583 | 1.000000 | 0.261269 | 0.042380 | 0.246275 | 137 | |
| 0.107577 | 0.139704 | 0.061612 | 0.092019 | 0.221706 | 0.196493 | 0.261269 | 1.000000 | 0.206315 | 0.246770 | 138 | |
| 0.140187 | 0.164721 | 0.168368 | 0.006487 | 0.122521 | 0.032246 | 0.042380 | 0.206315 | 1.000000 | 0.267540 | 139 | |
| 0.155566 | 0.237610 | 0.156561 | 0.114294 | 0.126090 | 0.221235 | 0.246275 | 0.246770 | 0.267540 | 1.000000 | 140 | |
| 0.188717 | 0.252401 | 0.131868 | 0.235695 | 0.217204 | 0.298477 | 0.291435 | 0.313477 | 0.267240 | 0.438584 | 141 | |
| 0.083546 | 0.143577 | 0.118260 | 0.203869 | 0.304368 | 0.328459 | 0.349120 | 0.355368 | 0.201891 | 0.178467 | 142 | |
| -0.024054 | 0.051614 | 0.001843 | 0.019663 | -0.140178 | -0.029775 | 0.073955 | -0.077500 | 0.027690 | 0.069813 | 143 | |
| 0.080944 | 0.144311 | 0.245323 | 0.164788 | 0.035384 | -0.026578 | 0.131286 | 0.114525 | 0.139779 | 0.230256 | 144 | |
| 0.019597 | 0.096184 | 0.128635 | 0.255013 | 0.127900 | 0.119860 | -0.023912 | -0.047952 | 0.089786 | 0.055245 | 145 | |
| 0.049710 | 0.133667 | 0.122007 | 0.177153 | 0.144920 | 0.090550 | 0.115016 | 0.149487 | 0.162727 | 0.048337 | 146 | |
| 0.000078 | -0.065939 | -0.009263 | 0.131052 | 0.089178 | 0.068575 | 0.086420 | 0.073810 | -0.030530 | -0.079848 | 147 | |
| -0.039415 | -0.087537 | -0.033611 | 0.111023 | 0.091807 | 0.081773 | 0.144808 | 0.024894 | 0.064773 | 0.007355 | 148 | |
| -0.073323 | 0.060533 | -0.062234 | 0.069244 | -0.018057 | 0.028109 | 0.109050 | -0.055940 | -0.167934 | -0.054440 | 149 | |
| 0.094528 | 0.043018 | 0.099871 | 0.150141 | 0.102015 | 0.109607 | 0.118953 | 0.128838 | 0.112438 | 0.103351 | 150 | |
| 0.020830 | 0.051567 | 0.035441 | 0.077314 | 0.155230 | 0.208661 | 0.120732 | 0.037280 | 0.044766 | 0.044766 | 151 | |
| -0.041193 | -0.057460 | 0.023214 | 0.066421 | 0.058725 | 0.139369 | 0.139325 | 0.105494 | 0.013500 | 0.048755 | 152 | |

FILE DS

DOUBLE PRECISION CORRELATIONS OF DESAL2 PAGE 2

| 131 | 132 | 133 | 134 | 135 | 136 | 137 | 138 | 139 | 140 | row label |
|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 0.063794 | 0.024463 | -0.002678 | 0.119648 | 0.039668 | 0.047156 | 0.033351 | 0.031145 | 0.095777 | 0.040018 | 153 |
| -0.084493 | -0.043700 | 0.028999 | -0.046581 | -0.104442 | 0.076488 | 0.072199 | -0.066046 | -0.143666 | -0.116466 | 154 |
| 0.049687 | 0.097904 | 0.090230 | 0.141924 | 0.248676 | 0.073230 | 0.057851 | -0.026863 | -0.017880 | 0.089333 | 155 |
| 0.034548 | 0.032540 | 0.081107 | -0.002265 | -0.060525 | 0.056180 | -0.031610 | -0.020474 | 0.008312 | 0.128295 | 156 |
| -0.009152 | 0.212667 | 0.278633 | 0.116745 | 0.052210 | -0.115354 | -0.021336 | 0.028820 | 0.129625 | 0.143619 | 157 |
| 0.116247 | 0.039087 | 0.083814 | 0.101169 | 0.100975 | 0.090499 | 0.119021 | -0.029312 | 0.057101 | 0.146550 | 158 |
| 0.119138 | 0.069229 | 0.087213 | -0.025664 | 0.023579 | 0.069783 | 0.000335 | -0.072379 | 0.061201 | 0.164825 | 159 |
| 0.051680 | -0.019159 | 0.005649 | 0.236847 | 0.016720 | 0.071244 | 0.039224 | -0.065224 | 0.064674 | 0.219113 | 160 |
| -0.097840 | -0.014507 | -0.095311 | -0.103516 | -0.021998 | 0.005756 | 0.069882 | 0.035643 | -0.020418 | -0.012522 | 161 |
| 0.178273 | 0.130642 | 0.195553 | 0.180357 | 0.251724 | 0.141999 | -0.035333 | -0.011952 | -0.087512 | 0.174119 | 162 |
| 0.064867 | 0.039105 | 0.099324 | 0.147325 | 0.012088 | 0.051232 | 0.052918 | 0.058557 | -0.033393 | 0.060377 | 163 |
| -0.076356 | 0.058030 | 0.043771 | 0.047051 | -0.008968 | -0.069371 | -0.059038 | 0.128588 | 0.212227 | 0.078651 | 164 |
| -0.002756 | 0.040520 | -0.058852 | -0.015749 | 0.022913 | -0.015424 | 0.145828 | 0.160549 | 0.100084 | 0.126139 | 165 |
| -0.035410 | -0.024127 | -0.050101 | -0.066505 | 0.051497 | -0.104886 | 0.000924 | 0.066407 | -0.047795 | 0.014914 | 166 |
| 0.077848 | 0.074270 | 0.060876 | 0.100258 | 0.038995 | -0.006001 | 0.154140 | -0.119036 | -0.212040 | -0.052653 | 167 |
| 0.091873 | 0.180589 | 0.148011 | 0.169889 | 0.111443 | 0.183520 | 0.204838 | 0.047794 | 0.116943 | 0.175738 | 168 |
| 0.160626 | 0.226797 | 0.236010 | 0.025325 | 0.178059 | 0.049713 | 0.105370 | 0.213784 | 0.339629 | 0.188493 | 169 |
| 0.286966 | 0.413694 | 0.352640 | 0.420020 | 0.427601 | 0.397956 | 0.399097 | 0.301855 | 0.322662 | 0.419498 | TOTAL |

| 141 | 142 | 143 | 144 | 145 | 146 | 147 | 148 | 149 | 150 | row label |
|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 0.008393 | -0.002335 | -0.032504 | -0.080621 | -0.018906 | -0.072152 | -0.060723 | 0.080738 | 0.122307 | -0.060791 | 11 |
| -0.079521 | -0.029181 | -0.066115 | -0.102930 | -0.014027 | 0.021601 | 0.098958 | 0.053424 | 0.040201 | -0.045729 | 12 |
| -0.017957 | -0.006518 | 0.008182 | 0.111927 | 0.060673 | 0.102617 | 0.043808 | 0.009018 | 0.128675 | 0.017605 | 13 |
| 0.084323 | 0.005058 | 0.009625 | 0.044015 | -0.027921 | 0.075187 | 0.075993 | -0.071922 | -0.028782 | -0.065166 | 14 |
| 0.015634 | -0.002121 | 0.074367 | 0.185481 | -0.003551 | 0.155609 | 0.089489 | -0.059862 | 0.038384 | 0.121753 | 15 |
| 0.262099 | 0.257013 | 0.050703 | 0.303386 | 0.104334 | 0.203633 | 0.123598 | 0.039363 | -0.042644 | 0.143806 | 16 |
| 0.241041 | 0.087908 | 0.114013 | 0.287459 | 0.148987 | 0.206899 | 0.084493 | -0.038245 | 0.080342 | 0.151723 | 17 |
| 0.075785 | 0.076405 | 0.077991 | 0.145610 | 0.094370 | 0.193247 | 0.159375 | -0.136308 | 0.126063 | 0.095479 | 18 |
| 0.042196 | 0.068245 | -0.095390 | -0.068381 | -0.016230 | 0.082671 | 0.093126 | 0.124657 | -0.034465 | -0.069598 | 19 |
| 0.095813 | 0.088073 | 0.025661 | 0.122142 | 0.119014 | 0.054744 | 0.037035 | 0.040243 | 0.034449 | 0.071708 | 110 |
| 0.124467 | -0.070707 | 0.070983 | 0.113287 | 0.101065 | 0.086703 | 0.004329 | -0.087029 | -0.049582 | 0.017346 | 111 |
| 0.250168 | 0.238476 | -0.043784 | 0.161400 | 0.102525 | 0.273013 | 0.053669 | -0.043327 | -0.010522 | 0.004496 | 112 |
| -0.113690 | 0.013387 | -0.032461 | -0.036757 | 0.104923 | -0.125305 | 0.055502 | 0.105914 | 0.059213 | 0.107330 | 113 |
| -0.047478 | -0.044725 | -0.073389 | -0.087327 | -0.180610 | -0.033048 | -0.210019 | -0.052656 | 0.041921 | 0.034435 | 114 |
| 0.174219 | 0.112907 | -0.080464 | 0.061997 | 0.108399 | 0.176603 | 0.157453 | 0.007778 | -0.074682 | -0.063834 | 115 |
| 0.187635 | 0.272582 | 0.011296 | 0.150263 | 0.058595 | 0.183591 | 0.148234 | 0.046460 | -0.071571 | 0.125468 | 116 |
| 0.280788 | 0.319730 | -0.142232 | 0.034724 | 0.028423 | 0.265259 | 0.082940 | 0.065359 | -0.086070 | -0.003921 | 117 |
| 0.107347 | 0.221581 | -0.070972 | 0.032722 | 0.081396 | 0.202790 | 0.090784 | 0.036979 | -0.036647 | -0.051809 | 118 |
| 0.370029 | 0.307695 | -0.007531 | 0.071175 | 0.068722 | 0.269531 | 0.125718 | 0.079909 | -0.076957 | 0.017120 | 119 |
| 0.081624 | -0.014180 | 0.111298 | 0.175658 | 0.048415 | 0.081388 | -0.113771 | -0.190011 | 0.041425 | -0.030939 | 120 |
| 0.124383 | 0.193530 | 0.054619 | 0.139349 | 0.059799 | 0.124422 | 0.147352 | 0.115862 | 0.067436 | 0.161224 | 121 |
| -0.134759 | 0.048293 | -0.083494 | -0.126988 | -0.142291 | -0.173300 | 0.037885 | 0.033603 | 0.024111 | -0.272475 | 122 |
| 0.110594 | 0.003964 | 0.075913 | 0.206007 | 0.117391 | 0.188350 | 0.180179 | -0.031896 | 0.017975 | 0.016357 | 123 |
| 0.092348 | 0.034834 | 0.059320 | 0.209775 | 0.080880 | 0.143157 | 0.091268 | -0.059339 | 0.167751 | 0.024038 | 124 |
| 0.133829 | 0.188531 | -0.044297 | 0.143909 | -0.005240 | 0.013682 | 0.095582 | 0.107745 | 0.043126 | 0.027508 | 125 |
| 0.068862 | -0.004476 | 0.015837 | -0.032054 | 0.123810 | 0.120846 | 0.108776 | 0.000871 | -0.121313 | -0.092747 | 126 |
| 0.090032 | 0.198770 | -0.021976 | -0.098573 | -0.028363 | 0.020086 | 0.010840 | 0.086791 | -0.029332 | 0.001235 | 127 |
| 0.152321 | 0.225717 | -0.135986 | 0.152916 | 0.166011 | 0.162642 | 0.039272 | 0.022752 | -0.002188 | 0.049415 | 128 |
| 0.091776 | 0.145491 | -0.068560 | 0.042198 | -0.089860 | -0.110061 | -0.052432 | 0.010414 | -0.000390 | -0.031967 | 129 |
| 0.111131 | -0.014975 | 0.181135 | 0.166684 | 0.221176 | 0.233972 | 0.072504 | 0.081305 | -0.047874 | 0.183725 | 130 |
| 0.188717 | 0.083546 | -0.024054 | 0.080944 | 0.019597 | 0.049710 | 0.000078 | -0.039415 | -0.073323 | 0.094528 | 131 |
| 0.252401 | 0.143577 | 0.051614 | 0.144311 | 0.096184 | 0.133667 | -0.065939 | -0.087537 | 0.060533 | 0.043018 | 132 |
| 0.131868 | 0.118260 | 0.001843 | 0.245323 | 0.128635 | 0.122007 | -0.009263 | -0.033611 | -0.062234 | 0.099871 | 133 |
| 0.235695 | 0.203869 | 0.019663 | 0.164788 | 0.255013 | 0.177153 | 0.131052 | 0.111023 | 0.069244 | 0.150141 | 134 |
| 0.217204 | 0.304368 | -0.140178 | 0.035384 | 0.127900 | 0.144920 | 0.089178 | 0.091807 | -0.018057 | 0.102015 | 135 |
| 0.298477 | 0.328459 | -0.029775 | -0.026578 | 0.119860 | 0.090550 | 0.068575 | 0.081773 | 0.028109 | 0.109607 | 136 |
| 0.291435 | 0.349120 | 0.073955 | 0.131286 | -0.023912 | 0.115016 | 0.086420 | 0.144808 | 0.109050 | 0.118953 | 137 |
| 0.313477 | 0.355368 | -0.077500 | 0.114525 | -0.047952 | 0.149487 | 0.073810 | 0.024894 | -0.055940 | 0.128838 | 138 |
| 0.267240 | 0.201891 | 0.027690 | 0.139779 | 0.089786 | 0.162727 | -0.030530 | 0.064773 | -0.167934 | 0.112438 | 139 |
| 0.438584 | 0.178467 | 0.069813 | 0.230256 | 0.055245 | 0.048337 | -0.079848 | 0.007355 | -0.054440 | 0.103351 | 140 |
| 1.000000 | 0.338499 | 0.081483 | 0.234555 | 0.136906 | 0.211445 | 0.039536 | 0.068404 | -0.055171 | 0.107638 | 141 |
| 0.338499 | 1.000000 | -0.093020 | 0.081490 | 0.040379 | 0.151875 | 0.135483 | 0.083278 | -0.025649 | 0.111700 | 142 |
| 0.081483 | -0.093020 | 1.000000 | 0.216617 | 0.027872 | 0.039541 | 0.160179 | 0.030322 | 0.063430 | 0.143267 | 143 |
| 0.234555 | 0.081490 | 0.216617 | 1.000000 | 0.328024 | 0.239731 | 0.209430 | -0.028446 | 0.219322 | 0.224984 | 144 |
| 0.136906 | 0.040379 | 0.027872 | 0.328024 | 1.000000 | 0.199462 | 0.213745 | 0.179468 | 0.105822 | 0.187751 | 145 |
| 0.211445 | 0.151875 | 0.039541 | 0.239731 | 0.199462 | 1.000000 | 0.329680 | 0.172898 | -0.035816 | 0.101425 | 146 |
| 0.039536 | 0.135483 | 0.160179 | 0.209430 | 0.213745 | 0.329680 | 1.000000 | 0.356231 | 0.126263 | 0.132355 | 147 |
| 0.068404 | 0.083278 | 0.030322 | -0.028446 | 0.179468 | 0.172898 | 0.356231 | 1.000000 | 0.190841 | 0.162657 | 148 |
| -0.055171 | -0.025649 | 0.063430 | 0.219322 | 0.105822 | -0.035816 | 0.126263 | 0.190841 | 1.000000 | 0.062625 | 149 |
| 0.107638 | 0.111700 | 0.143267 | 0.224984 | 0.187751 | 0.101425 | 0.132355 | 0.162657 | 0.062625 | 1.000000 | 150 |
| 0.109961 | 0.084371 | 0.172293 | 0.196215 | 0.055438 | 0.103367 | 0.349272 | 0.310634 | 0.166770 | 0.135574 | 151 |
| 0.065553 | 0.171310 | -0.016820 | -0.033028 | -0.027882 | 0.056524 | 0.318184 | 0.378064 | 0.191442 | 0.044246 | 152 |

| 141 | 142 | 143 | 144 | 145 | 146 | 147 | 148 | 149 | 150 | row label |
|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|--------------|
| 0.042415 | -0.026029 | 0.104861 | 0.200284 | 0.142695 | 0.097345 | 0.198632 | 0.127763 | 0.205669 | 0.149734 | 153 |
| -0.185522 | -0.021362 | -0.016764 | 0.047939 | -0.096341 | 0.008295 | 0.160616 | 0.054475 | 0.218709 | -0.092447 | 154 |
| -0.082605 | 0.094428 | 0.097266 | 0.190577 | 0.198235 | 0.106785 | 0.053192 | 0.151719 | 0.001722 | 0.120826 | 155 |
| -0.009716 | -0.042405 | 0.128561 | 0.269615 | 0.094218 | 0.069773 | -0.018206 | -0.157715 | 0.060762 | 0.104783 | 156 |
| 0.159062 | 0.032712 | 0.088601 | 0.233501 | 0.172416 | 0.277651 | 0.103860 | 0.090199 | -0.042815 | 0.196526 | 157 |
| 0.116463 | -0.020318 | 0.171306 | 0.157135 | 0.090097 | 0.210945 | 0.123420 | 0.030731 | 0.027575 | 0.228836 | 158 |
| 0.075206 | -0.059188 | 0.177183 | 0.173551 | 0.072604 | 0.156533 | 0.109796 | -0.048736 | 0.074503 | 0.205560 | 159 |
| 0.173317 | 0.008905 | 0.069176 | 0.100011 | 0.182002 | -0.012536 | -0.002835 | 0.056674 | -0.049330 | 0.049201 | 160 |
| -0.212191 | -0.074818 | -0.025616 | -0.147427 | -0.117269 | 0.008281 | -0.002480 | -0.008420 | 0.065166 | -0.155913 | 161 |
| 0.075044 | 0.001225 | 0.079525 | 0.139191 | 0.206618 | 0.050750 | 0.184263 | 0.190912 | 0.052810 | 0.162529 | 162 |
| 0.115052 | 0.001910 | 0.161828 | 0.209093 | 0.065424 | 0.061725 | 0.156528 | 0.067388 | 0.007878 | 0.231543 | 163 |
| 0.035151 | -0.024091 | -0.005807 | -0.051619 | -0.145528 | -0.182189 | -0.097519 | 0.008946 | -0.048742 | 0.003032 | 164 |
| 0.111971 | 0.042126 | 0.053758 | 0.013066 | -0.041292 | -0.030707 | -0.015768 | -0.034048 | -0.075979 | -0.010484 | 165 |
| 0.043192 | 0.052726 | -0.083497 | -0.109660 | -0.004526 | -0.158766 | 0.063355 | 0.094162 | -0.041190 | -0.058087 | 166 |
| -0.035867 | 0.079637 | 0.051485 | 0.001735 | 0.017480 | -0.008066 | 0.126936 | 0.016508 | 0.063663 | -0.009510 | 167 |
| 0.084833 | -0.043381 | 0.064089 | 0.179443 | 0.074640 | 0.105821 | 0.029470 | 0.050271 | 0.095586 | 0.118578 | 168 |
| 0.098499 | 0.019534 | -0.089184 | 0.117477 | 0.128865 | 0.179362 | 0.058638 | -0.066690 | -0.069319 | 0.155973 | 169 |
| 0.478792 | 0.379850 | 0.163388 | 0.476765 | 0.315695 | 0.435047 | 0.355416 | 0.206306 | 0.132736 | 0.310900 | TOTAL |

| 151 | 152 | 153 | 154 | 155 | 156 | 157 | 158 | 159 | 160 | row label |
|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| -0.110917 | 0.151162 | -0.055364 | 0.147793 | 0.089492 | -0.058757 | -0.087358 | 0.028718 | -0.043724 | 0.076889 | 11 |
| -0.102639 | 0.114197 | -0.082588 | 0.064424 | 0.015271 | 0.017423 | 0.006546 | 0.015359 | 0.040075 | -0.056687 | 12 |
| 0.011816 | -0.040720 | -0.006267 | 0.080452 | -0.065499 | 0.054967 | 0.113200 | 0.007713 | 0.075503 | 0.091271 | 13 |
| -0.008669 | -0.008323 | -0.020554 | 0.036889 | 0.035688 | 0.024819 | 0.111530 | 0.091110 | 0.120592 | -0.017099 | 14 |
| 0.077094 | -0.024551 | 0.123273 | -0.010629 | -0.011933 | 0.226962 | 0.217135 | 0.071799 | 0.108064 | -0.126662 | 15 |
| 0.184067 | -0.026922 | 0.080108 | -0.052441 | 0.138936 | 0.102886 | 0.200891 | 0.105968 | 0.162798 | 0.100592 | 16 |
| 0.173242 | -0.141040 | 0.069933 | -0.139375 | 0.103344 | 0.126175 | 0.253620 | 0.176226 | 0.141308 | 0.110799 | 17 |
| 0.069528 | 0.080591 | 0.085591 | 0.128506 | 0.064470 | 0.217396 | 0.076628 | 0.103535 | 0.170470 | 0.059623 | 18 |
| 0.113872 | 0.139343 | -0.071765 | 0.105345 | 0.048796 | 0.009178 | -0.068735 | 0.053719 | 0.011886 | -0.126125 | 19 |
| 0.082945 | -0.036584 | 0.201200 | 0.005167 | 0.058840 | -0.024140 | 0.157499 | 0.003823 | 0.055967 | 0.035614 | 110 |
| 0.039119 | -0.015755 | -0.004082 | -0.024978 | 0.065586 | 0.226223 | 0.166676 | 0.181876 | 0.019593 | 0.167378 | 111 |
| 0.048636 | 0.211856 | -0.047031 | 0.000163 | 0.041013 | 0.169044 | 0.165876 | 0.124761 | 0.021795 | 0.040565 | 112 |
| -0.080431 | 0.087079 | 0.041983 | -0.098440 | 0.037588 | -0.022962 | -0.198277 | -0.016695 | -0.051419 | -0.023120 | 113 |
| -0.115146 | 0.030089 | -0.011867 | 0.122901 | -0.009612 | -0.099179 | -0.115970 | 0.035280 | -0.002695 | 0.053303 | 114 |
| 0.104916 | 0.136976 | 0.151210 | 0.092044 | 0.009118 | 0.027432 | 0.072929 | 0.001448 | 0.094064 | 0.075472 | 115 |
| 0.112413 | -0.004763 | 0.058225 | -0.000423 | 0.110989 | 0.057589 | 0.166138 | 0.117439 | 0.154806 | 0.035724 | 116 |
| 0.099597 | 0.028703 | -0.063355 | -0.022177 | 0.087629 | -0.040546 | 0.007630 | 0.039231 | -0.032032 | -0.004597 | 117 |
| -0.007326 | 0.102518 | 0.046912 | -0.118083 | 0.032932 | -0.002036 | -0.004764 | 0.036555 | -0.069710 | -0.075746 | 118 |
| 0.102490 | 0.129837 | -0.064988 | -0.074526 | -0.031394 | 0.065658 | 0.185797 | -0.069449 | -0.063235 | 0.007728 | 119 |
| -0.124170 | -0.130749 | 0.046313 | -0.104490 | -0.037620 | 0.120682 | 0.215285 | 0.086879 | 0.053626 | 0.043857 | 120 |
| 0.139326 | 0.027365 | 0.113941 | -0.054750 | 0.079214 | 0.078294 | 0.183142 | 0.127255 | 0.113999 | 0.034854 | 121 |
| 0.068171 | 0.138698 | -0.140894 | 0.123941 | -0.086245 | -0.117857 | -0.327415 | -0.174902 | -0.168456 | -0.099475 | 122 |
| 0.065521 | 0.029080 | 0.092301 | 0.079266 | 0.089576 | 0.146081 | 0.254324 | 0.080309 | 0.154461 | -0.029557 | 123 |
| -0.061888 | 0.058946 | 0.070524 | 0.151268 | 0.007933 | 0.134723 | 0.201218 | 0.058035 | 0.084461 | -0.026669 | 124 |
| 0.114362 | -0.014175 | 0.091939 | -0.047334 | 0.171006 | -0.008126 | -0.016833 | 0.004095 | 0.103391 | 0.052469 | 125 |
| -0.039477 | -0.084431 | -0.014951 | 0.055946 | 0.114466 | -0.085444 | -0.038981 | 0.063977 | -0.088048 | 0.024664 | 126 |
| -0.028512 | 0.067743 | -0.117990 | -0.005385 | 0.021997 | -0.154447 | -0.225714 | -0.083699 | -0.160359 | 0.030276 | 127 |
| 0.030280 | 0.083731 | -0.091799 | -0.137613 | 0.055403 | 0.032962 | 0.160715 | 0.027100 | -0.083933 | 0.059958 | 128 |
| 0.004621 | 0.054288 | -0.085527 | -0.105812 | 0.012769 | -0.037378 | 0.007269 | -0.060933 | -0.031982 | -0.061307 | 129 |
| 0.061765 | -0.038465 | 0.077939 | -0.012226 | 0.217020 | 0.041406 | 0.231663 | 0.180506 | 0.269994 | 0.127606 | 130 |
| 0.020830 | -0.041193 | 0.063794 | -0.084493 | 0.049687 | 0.034548 | -0.009152 | 0.116247 | 0.119138 | 0.051680 | 131 |
| 0.051567 | -0.057460 | 0.024463 | -0.043700 | 0.097904 | 0.032540 | 0.212667 | 0.039087 | 0.069229 | -0.019159 | 132 |
| 0.035441 | 0.023214 | -0.002678 | 0.028999 | 0.090230 | 0.081107 | 0.278633 | 0.083814 | 0.087213 | 0.005649 | 133 |
| 0.077314 | 0.066421 | 0.119648 | -0.046581 | 0.141924 | -0.002265 | 0.116745 | 0.101169 | -0.025664 | 0.236847 | 134 |
| 0.155230 | 0.058725 | 0.039668 | -0.104442 | 0.248676 | -0.060525 | 0.052210 | 0.100975 | 0.023579 | 0.016720 | 135 |
| 0.208661 | 0.139369 | 0.047156 | 0.076488 | 0.073230 | 0.056180 | -0.115354 | 0.090499 | 0.069783 | 0.071244 | 136 |
| 0.120732 | 0.139325 | 0.033351 | 0.072199 | 0.057851 | -0.031610 | -0.021336 | 0.119021 | 0.000335 | 0.039224 | 137 |
| 0.037280 | 0.105494 | 0.031145 | -0.066046 | -0.026863 | -0.020474 | 0.028820 | -0.029312 | -0.072379 | -0.065224 | 138 |
| 0.045879 | 0.013500 | 0.095777 | -0.143666 | -0.017880 | 0.008312 | 0.129625 | 0.057101 | 0.061201 | 0.064674 | 139 |
| 0.044766 | 0.048755 | 0.040018 | -0.116466 | 0.089333 | 0.128295 | 0.143619 | 0.146550 | 0.164825 | 0.219113 | 140 |
| 0.109961 | 0.065553 | 0.042415 | -0.185522 | 0.082605 | -0.009716 | 0.159062 | 0.116463 | 0.075206 | 0.173317 | 141 |
| 0.084371 | 0.171310 | -0.026029 | -0.021362 | 0.094428 | -0.042405 | 0.032712 | -0.020318 | -0.059188 | 0.008905 | 142 |
| 0.172293 | -0.016820 | 0.104861 | -0.016764 | 0.097266 | 0.128561 | 0.088601 | 0.171306 | 0.177183 | 0.069176 | 143 |
| 0.196215 | -0.033028 | 0.200284 | 0.047939 | 0.190577 | 0.269615 | 0.233501 | 0.157135 | 0.173551 | 0.100011 | 144 |
| 0.055438 | -0.027882 | 0.142695 | -0.096341 | 0.198235 | 0.094218 | 0.172416 | 0.090097 | 0.072604 | 0.182002 | 145 |
| 0.103367 | 0.056524 | 0.097345 | 0.008295 | 0.106785 | 0.069773 | 0.277651 | 0.210945 | 0.156533 | -0.012536 | 146 |
| 0.349272 | 0.318184 | 0.198632 | 0.160616 | 0.053192 | -0.018206 | 0.103860 | 0.123420 | 0.109796 | -0.002835 | 147 |
| 0.310634 | 0.378064 | 0.127763 | 0.054475 | 0.151719 | -0.157715 | 0.090199 | 0.030731 | -0.048736 | 0.056674 | 148 |
| 0.166770 | 0.191442 | 0.205669 | 0.218709 | 0.001722 | 0.060762 | -0.042815 | 0.027575 | 0.074503 | -0.049330 | 149 |
| 0.135574 | 0.044246 | 0.149734 | -0.092447 | 0.120826 | 0.104783 | 0.196526 | 0.228836 | 0.205560 | 0.049201 | 150 |
| 1.000000 | 0.132950 | 0.214510 | 0.115033 | 0.269230 | 0.117159 | 0.130246 | 0.234927 | 0.270307 | 0.014356 | 151 |
| 0.132950 | 1.000000 | 0.069807 | 0.217091 | -0.028861 | -0.083886 | 0.029335 | 0.012280 | -0.076084 | -0.019821 | 152 |

| 151 | 152 | 153 | 154 | 155 | 156 | 157 | 158 | 159 | 160 | row label |
|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 0.214510 | 0.069807 | 1.000000 | 0.126542 | 0.229437 | 0.022164 | 0.179172 | 0.206781 | 0.254343 | 0.107154 | 153 |
| 0.115033 | 0.217091 | 0.126542 | 1.000000 | 0.081940 | -0.081052 | -0.150680 | 0.019205 | 0.082621 | 0.059086 | 154 |
| 0.269230 | -0.028861 | 0.229437 | 0.081940 | 1.000000 | 0.105624 | 0.253141 | 0.296054 | 0.206331 | 0.153259 | 155 |
| 0.117159 | -0.083886 | 0.022164 | -0.081052 | 0.105624 | 1.000000 | 0.189356 | 0.127770 | 0.136105 | 0.069032 | 156 |
| 0.130246 | 0.029335 | 0.179172 | -0.150680 | 0.253141 | 0.189356 | 1.000000 | 0.287898 | 0.279352 | 0.069288 | 157 |
| 0.234927 | 0.012280 | 0.206781 | 0.019205 | 0.296054 | 0.127770 | 0.287898 | 1.000000 | 0.364049 | 0.154015 | 158 |
| 0.270307 | -0.076084 | 0.254343 | 0.082621 | 0.206331 | 0.136105 | 0.279352 | 0.364049 | 1.000000 | 0.121539 | 159 |
| 0.014356 | -0.019821 | 0.107154 | 0.059086 | 0.153259 | 0.069032 | 0.069288 | 0.154015 | 0.121539 | 1.000000 | 160 |
| -0.044777 | 0.097621 | -0.030484 | 0.160699 | -0.025165 | -0.074898 | -0.091054 | -0.050383 | 0.038050 | 0.013817 | 161 |
| 0.269222 | 0.049944 | 0.219866 | 0.057168 | 0.461544 | 0.191388 | 0.267173 | 0.224608 | 0.135898 | 0.207031 | 162 |
| 0.227771 | 0.098620 | 0.202915 | 0.049652 | 0.361208 | 0.214728 | 0.298633 | 0.241450 | 0.158861 | 0.200417 | 163 |
| 0.112912 | -0.074441 | 0.020947 | -0.194849 | -0.041496 | -0.032092 | 0.049392 | -0.057963 | -0.022707 | -0.048900 | 164 |
| 0.013271 | -0.072043 | -0.019476 | -0.116998 | -0.019427 | 0.080359 | 0.034866 | -0.159555 | -0.070551 | -0.006398 | 165 |
| -0.009489 | 0.113544 | -0.114216 | -0.156191 | 0.019733 | -0.045998 | -0.081365 | -0.123433 | -0.205816 | 0.103519 | 166 |
| -0.059918 | 0.023014 | -0.064303 | 0.098404 | 0.022422 | -0.006072 | -0.018254 | 0.043312 | -0.079696 | 0.061858 | 167 |
| 0.218656 | 0.025333 | 0.004505 | -0.057141 | 0.099428 | 0.123726 | 0.139047 | 0.264832 | 0.213010 | 0.097972 | 168 |
| 0.068453 | -0.023222 | 0.092619 | -0.088888 | 0.081887 | 0.066535 | 0.161649 | 0.083268 | 0.101416 | 0.026258 | 169 |
| 0.364994 | 0.192189 | 0.272778 | 0.042344 | 0.369697 | 0.238109 | 0.417816 | 0.368251 | 0.321061 | 0.231093 | TOTAL |

| 161 | 162 | 163 | 164 | 165 | 166 | 167 | 168 | 169 | TOTAL | row label |
|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 0.099852 | 0.081193 | -0.007151 | -0.183664 | -0.052798 | -0.049881 | 0.046175 | 0.003105 | -0.136951 | 0.041256 | 11 |
| 0.121369 | 0.085521 | -0.015968 | -0.286884 | -0.029139 | 0.061775 | 0.090587 | -0.038094 | -0.122550 | 0.022000 | 12 |
| -0.023445 | 0.077482 | 0.011950 | 0.066155 | 0.040568 | 0.067352 | -0.000507 | 0.089054 | 0.118660 | 0.158198 | 13 |
| 0.145328 | -0.044974 | 0.047672 | -0.215692 | -0.027413 | -0.058921 | -0.047922 | 0.024496 | -0.019016 | 0.134202 | 14 |
| 0.002180 | -0.005977 | 0.164284 | -0.198978 | -0.036642 | -0.113856 | 0.084939 | 0.038767 | -0.003529 | 0.243606 | 15 |
| -0.067631 | 0.063958 | 0.072308 | 0.109836 | 0.175885 | -0.004719 | 0.066763 | 0.171191 | 0.124484 | 0.522646 | 16 |
| -0.148723 | 0.102979 | 0.184921 | -0.006205 | -0.014315 | -0.093228 | 0.055146 | 0.156789 | 0.148974 | 0.383514 | 17 |
| 0.074385 | 0.097890 | 0.078130 | -0.196413 | 0.027172 | -0.014594 | 0.052745 | -0.002623 | 0.058020 | 0.274616 | 18 v |
| 0.017566 | 0.011939 | 0.010788 | -0.011878 | -0.067602 | 0.068036 | 0.059602 | -0.004723 | 0.029626 | 0.167803 | 19 x |
| -0.122793 | 0.084352 | 0.111724 | 0.000624 | 0.098554 | -0.065620 | -0.091766 | -0.013964 | 0.139836 | 0.286545 | 110 |
| -0.078027 | 0.107665 | 0.177991 | -0.136152 | -0.063188 | -0.050859 | 0.097268 | 0.089023 | -0.061320 | 0.271422 | 111 |
| -0.026154 | -0.035959 | 0.143355 | -0.093821 | 0.003810 | -0.106891 | -0.016655 | 0.188829 | 0.051509 | 0.399174 | 112 |
| 0.001382 | 0.001589 | -0.059066 | -0.051964 | 0.039539 | 0.025100 | -0.025209 | 0.009081 | 0.011336 | -0.071659 | 113 |
| 0.239536 | -0.115350 | 0.039120 | -0.013927 | -0.067808 | -0.176654 | 0.022295 | 0.102297 | -0.058174 | -0.024354 | 114 |
| -0.001734 | 0.079753 | 0.118956 | -0.017618 | -0.043396 | -0.193319 | -0.102813 | 0.181088 | 0.064536 | 0.275988 | 115 |
| 0.022707 | 0.042337 | 0.147239 | 0.034584 | 0.023252 | 0.021974 | 0.046232 | 0.127703 | 0.206362 | 0.494415 | 116 |
| -0.057431 | -0.059707 | -0.019217 | 0.038646 | 0.069295 | 0.019248 | 0.138340 | 0.081957 | 0.130436 | 0.375212 | 117 |
| 0.063318 | 0.044408 | -0.002248 | -0.012414 | -0.111438 | -0.037235 | 0.060451 | -0.064175 | 0.063285 | 0.266393 | 118 |
| -0.022652 | -0.022756 | 0.028239 | 0.097993 | 0.128852 | -0.002579 | -0.041373 | 0.026326 | 0.122090 | 0.384362 | 119 |
| 0.042041 | -0.002367 | -0.017445 | 0.023765 | -0.039894 | -0.002049 | 0.079397 | 0.065635 | 0.175676 | 0.218098 | 120 |
| -0.069642 | 0.102274 | 0.100946 | 0.066867 | 0.106004 | -0.012661 | -0.088246 | 0.133944 | 0.158961 | 0.386334 | 121 |
| 0.098136 | -0.056635 | -0.018064 | -0.075682 | 0.023582 | 0.062956 | -0.028498 | -0.080660 | -0.191560 | -0.179568 | 122 |
| -0.094532 | 0.206231 | 0.137850 | -0.208037 | -0.004363 | -0.245320 | 0.056326 | 0.121661 | 0.052903 | 0.337797 | 123 |
| 0.050385 | 0.056837 | 0.143527 | -0.355377 | -0.095775 | -0.239763 | 0.200050 | 0.183993 | -0.003715 | 0.319734 | 124 |
| -0.039843 | 0.087976 | 0.054606 | 0.028853 | 0.036947 | 0.050474 | -0.062500 | -0.002035 | 0.068766 | 0.201297 | 125 |
| -0.004524 | 0.077851 | -0.028348 | -0.239918 | -0.036585 | -0.130667 | 0.241088 | -0.034548 | -0.050241 | 0.128139 | 126 |
| 0.068258 | -0.018286 | -0.030901 | 0.020100 | 0.008589 | 0.086921 | 0.153412 | -0.028249 | -0.002782 | 0.203944 | 127 |
| -0.032793 | 0.113104 | 0.132805 | -0.074056 | -0.097889 | -0.127556 | 0.158952 | 0.171371 | -0.022500 | 0.363811 | 128 |
| 0.059681 | 0.002425 | 0.011649 | -0.005216 | 0.040886 | 0.044360 | 0.057898 | 0.168738 | -0.085681 | 0.182512 | 129 |
| -0.119476 | 0.185848 | 0.151224 | 0.094830 | -0.077596 | 0.052970 | 0.066483 | 0.082900 | 0.177474 | 0.316954 | 130 |
| -0.097840 | 0.178273 | 0.064867 | -0.076356 | -0.002756 | -0.035410 | 0.077848 | 0.091873 | 0.160626 | 0.286966 | 131 |
| -0.014507 | 0.130642 | 0.039105 | 0.058030 | 0.040520 | -0.024127 | 0.074270 | 0.180589 | 0.226797 | 0.413694 | 132 |
| -0.095311 | 0.195553 | 0.099324 | 0.043771 | -0.058852 | -0.050101 | 0.060876 | 0.148011 | 0.236010 | 0.352640 | 133 |
| -0.103516 | 0.180357 | 0.147325 | 0.047051 | -0.015749 | -0.066505 | 0.100258 | 0.169889 | 0.025325 | 0.420020 | 134 |
| 0.021998 | 0.251724 | 0.012088 | -0.008968 | 0.022913 | 0.051497 | 0.038995 | 0.111443 | 0.178059 | 0.427601 | 135 |
| 0.005756 | 0.141999 | 0.051232 | -0.069371 | -0.015424 | -0.104886 | -0.006001 | 0.183520 | 0.049713 | 0.397956 | 136 |
| 0.069882 | -0.035333 | 0.052918 | -0.059038 | 0.145828 | 0.000924 | 0.154140 | 0.204838 | 0.105370 | 0.399097 | 137 |
| 0.035643 | -0.011952 | 0.058557 | 0.128588 | 0.160549 | 0.066407 | -0.119036 | 0.047794 | 0.213784 | 0.301855 | 138 |
| -0.020418 | -0.087512 | -0.033393 | 0.212227 | 0.100084 | -0.047795 | -0.212040 | 0.116943 | 0.339629 | 0.322662 | 139 |
| -0.012522 | 0.174119 | 0.060377 | 0.078651 | 0.126139 | 0.014914 | -0.052653 | 0.175738 | 0.188493 | 0.419498 | 140 |
| -0.212191 | 0.075044 | 0.115052 | 0.035151 | 0.111971 | 0.043192 | -0.035867 | 0.084833 | 0.098499 | 0.478792 | 141 |
| -0.074818 | 0.001225 | 0.001910 | -0.024091 | 0.042126 | 0.052726 | 0.079637 | -0.043381 | 0.019534 | 0.379850 | 142 |
| -0.025616 | 0.079525 | 0.161828 | -0.005807 | 0.053758 | -0.083497 | 0.051485 | 0.064089 | -0.089184 | 0.163388 | 143 |
| -0.147427 | 0.139191 | 0.209093 | -0.051619 | 0.013066 | -0.109660 | 0.001735 | 0.179443 | 0.117477 | 0.476765 | 144 |
| -0.117269 | 0.206618 | 0.065424 | -0.145528 | -0.041292 | -0.004526 | 0.017480 | 0.074640 | 0.128865 | 0.315695 | 145 |
| 0.008281 | 0.050750 | 0.061725 | -0.182189 | -0.030707 | -0.158766 | -0.008066 | 0.105821 | 0.179362 | 0.435047 | 146 |
| -0.002480 | 0.184263 | 0.156528 | -0.097519 | -0.015768 | 0.063355 | 0.126936 | 0.029470 | 0.058638 | 0.355416 | 147 |
| -0.008420 | 0.190912 | 0.067388 | 0.008946 | -0.034048 | 0.094162 | 0.016508 | 0.050271 | -0.066690 | 0.206306 | 148 |
| 0.065166 | 0.052810 | 0.007878 | -0.048742 | -0.075979 | -0.041190 | 0.063663 | 0.095586 | -0.069319 | 0.132736 | 149 x |
| -0.155913 | 0.162529 | 0.231543 | 0.003032 | -0.010484 | -0.058087 | -0.009510 | 0.118578 | 0.155973 | 0.310900 | 150 |
| -0.044777 | 0.269222 | 0.227771 | 0.112912 | 0.013271 | -0.059949 | -0.059918 | 0.218656 | 0.068453 | 0.364994 | 151 |
| 0.097621 | 0.049944 | 0.098620 | -0.074441 | -0.072043 | 0.113544 | 0.023014 | 0.025333 | -0.023222 | 0.192189 | 152 |

APPENDIX D

**Intercorrelation Matrix (56x56)
of FTO Items from the
Validation Sample**

NRSTAT

S.B.D.P.C.

| A09 | A10 | A11 | A12 | A13 | A14 | A15 | A16 | A17 | A18 | A19 |
|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 1.000000 | 0.236151 | 0.102788 | 0.002760 | 0.003745 | -0.050782 | 0.086061 | -0.052383 | 0.019674 | 0.102553 | 0.052099 |
| 0.236151 | 1.000000 | 0.190327 | 0.072763 | 0.070906 | 0.019334 | 0.088011 | 0.057019 | 0.057517 | -0.013228 | 0.073729 |
| 0.102788 | 0.190327 | 1.000000 | 0.170535 | -0.020506 | 0.050853 | 0.101837 | -0.033312 | 0.044195 | 0.055181 | -0.051370 |
| 0.002760 | 0.072763 | 0.170535 | 1.000000 | 0.224808 | 0.050260 | 0.189587 | -0.075819 | 0.141859 | 0.041533 | 0.072160 |
| 0.003745 | 0.070906 | -0.020506 | 0.224808 | 1.000000 | 0.120553 | 0.150599 | 0.123267 | 0.094220 | 0.053822 | 0.024855 |
| 0.050782 | 0.019334 | 0.050853 | 0.189587 | 0.120553 | 1.000000 | 0.126472 | 0.147440 | 0.155301 | 0.139311 | 0.055154 |
| 0.086061 | 0.088011 | 0.101837 | 0.189587 | 0.150599 | 0.126472 | 1.000000 | 0.011724 | 0.099319 | 0.143226 | 0.075213 |
| 0.057019 | 0.057517 | -0.013228 | -0.075819 | 0.123267 | 0.147440 | 0.011724 | 1.000000 | 0.026349 | 0.075440 | 0.075440 |
| 0.019674 | 0.057617 | 0.044195 | 0.141859 | 0.094220 | 0.155301 | 0.026349 | 0.026349 | 1.000000 | 0.113265 | 0.076951 |
| 0.102553 | -0.013228 | 0.055181 | 0.041533 | 0.053822 | 0.139311 | 0.140226 | 0.076480 | 0.113265 | 1.000000 | 0.311663 |
| 0.052099 | 0.073729 | -0.051370 | 0.072160 | 0.024855 | 0.024855 | 0.024855 | 0.024855 | 0.024855 | 0.024855 | 1.000000 |
| 0.003282 | 0.037499 | 0.026057 | 0.012936 | 0.109316 | 0.294551 | 0.130435 | 0.209249 | 0.115679 | 0.274431 | 0.276874 |
| 0.003223 | -0.040023 | -0.048466 | -0.054773 | 0.129938 | 0.195757 | 0.032808 | 0.049436 | 0.055133 | 0.351341 | 0.153859 |
| 0.063077 | -0.001317 | -0.069878 | -0.037727 | 0.011615 | 0.041977 | 0.034953 | 0.056135 | 0.008869 | 0.154303 | 0.173591 |
| 0.047081 | -0.008798 | 0.039612 | 0.034317 | 0.122203 | 0.202203 | 0.048526 | 0.057775 | 0.008517 | 0.186170 | 0.048292 |
| 0.044612 | 0.057284 | 0.073273 | 0.155817 | 0.121432 | 0.171345 | 0.013599 | 0.090324 | 0.122129 | 0.002720 | 0.017444 |
| 0.027201 | 0.009624 | 0.085167 | 0.119963 | 0.148579 | 0.236759 | 0.024210 | 0.058061 | 0.031380 | 0.033002 | -0.057570 |
| 0.172369 | 0.209150 | 0.129941 | 0.272194 | 0.150799 | 0.047490 | 0.165238 | -0.078940 | 0.034391 | 0.077001 | 0.086021 |
| 0.001279 | 0.057324 | 0.007276 | 0.004802 | 0.092879 | 0.047758 | 0.012987 | 0.034563 | 0.075952 | -0.015530 | 0.026545 |
| 0.112436 | 0.029561 | 0.051619 | 0.023395 | -0.020188 | 0.095341 | 0.023365 | -0.058710 | 0.010276 | 0.033340 | 0.112579 |
| 0.055745 | 0.007426 | 0.012549 | -0.054319 | -0.007443 | 0.049983 | 0.013635 | 0.130509 | 0.026322 | 0.192779 | 0.219472 |
| 0.074150 | -0.054782 | -0.035374 | 0.039285 | 0.045287 | 0.103136 | 0.033292 | 0.047651 | 0.097565 | 0.284383 | 0.228273 |
| 0.050724 | 0.024617 | -0.112460 | -0.034880 | 0.051723 | 0.024350 | -0.035275 | 0.034800 | 0.052041 | 0.120905 | 0.146956 |
| -0.054710 | 0.055241 | -0.024617 | 0.103136 | 0.097652 | 0.047452 | 0.096757 | 0.055932 | 0.152767 | 0.034032 | 0.010734 |
| -0.001788 | 0.013160 | 0.024617 | 0.034880 | -0.031517 | 0.110597 | 0.035279 | 0.070775 | 0.057504 | 0.050392 | -0.015077 |
| -0.026233 | -0.000499 | -0.063071 | 0.027034 | 0.068941 | 0.008320 | 0.144133 | 0.057673 | 0.132313 | 0.209177 | 0.123574 |
| -0.013673 | -0.037810 | -0.023093 | -0.018711 | 0.100641 | 0.170580 | 0.036255 | 0.104530 | 0.080330 | 0.132799 | 0.147975 |
| 0.017653 | 0.012331 | -0.069896 | 0.041772 | 0.132101 | 0.087107 | 0.016547 | 0.077759 | 0.139443 | 0.134472 | 0.035471 |
| -0.058945 | 0.075717 | 0.015992 | 0.024256 | 0.081416 | 0.120753 | 0.077207 | 0.150157 | 0.079860 | 0.181250 | 0.163809 |
| 0.076308 | -0.039754 | 0.017460 | 0.024917 | 0.101503 | 0.113144 | 0.033002 | 0.054304 | 0.008846 | 0.221317 | 0.180792 |
| 0.085814 | 0.042990 | 0.033015 | 0.044529 | 0.105163 | 0.147703 | -0.003735 | 0.026758 | -0.084955 | 0.217078 | 0.039410 |
| -0.087517 | -0.006386 | 0.068349 | 0.000867 | 0.071137 | 0.139347 | 0.062540 | 0.033591 | 0.010588 | 0.097514 | -0.003193 |
| -0.129395 | -0.053323 | -0.004300 | -0.116905 | 0.046942 | 0.197358 | 0.017540 | 0.147614 | 0.041443 | 0.102364 | 0.059373 |
| 0.039937 | -0.002874 | 0.050737 | -0.033981 | 0.060572 | 0.190734 | 0.002374 | 0.053343 | 0.054417 | 0.158306 | 0.079273 |
| 0.021044 | -0.009807 | 0.055747 | 0.050523 | 0.093185 | 0.204595 | 0.089247 | 0.042532 | -0.000950 | 0.155397 | 0.146953 |
| 0.020881 | -0.046679 | -0.021409 | -0.038156 | 0.078893 | 0.142527 | 0.003198 | -0.008011 | -0.105198 | 0.194386 | 0.126206 |
| 0.025525 | 0.022253 | 0.024712 | 0.012747 | -0.005216 | 0.075585 | 0.064295 | 0.020323 | -0.001441 | -0.037775 | -0.013545 |
| -0.004313 | -0.006950 | 0.074569 | 0.099782 | -0.166347 | 0.163325 | 0.142023 | -0.115543 | 0.144777 | 0.150392 | -0.070829 |
| 0.010707 | 0.100141 | 0.071632 | 0.055730 | 0.092514 | 0.122185 | 0.052368 | 0.142015 | 0.123595 | 0.028359 | 0.079097 |
| -0.005260 | 0.051315 | 0.012249 | 0.053239 | 0.099091 | 0.153218 | 0.065087 | 0.055407 | 0.103427 | 0.247530 | 0.156414 |
| 0.023497 | 0.119272 | 0.021393 | 0.052105 | 0.047518 | 0.054554 | 0.024525 | -0.001310 | 0.048443 | 0.073755 | 0.142577 |
| 0.058575 | 0.039684 | -0.034924 | -0.019776 | -0.022279 | -0.035425 | -0.122211 | -0.021564 | -0.055976 | 0.028518 | -0.034759 |
| 0.003944 | 0.052591 | 0.015331 | 0.077263 | 0.109720 | 0.106291 | 0.100639 | 0.073342 | 0.046553 | -0.054278 | -0.003017 |
| 0.030063 | 0.039599 | 0.008858 | 0.058163 | 0.160014 | 0.144133 | 0.082212 | 0.059788 | 0.051194 | 0.093283 | -0.145301 |
| 0.076436 | 0.081679 | 0.009870 | 0.001222 | -0.013534 | -0.032300 | -0.058405 | -0.057447 | 0.008151 | 0.201596 | 0.157417 |
| 0.018957 | 0.134083 | 0.056936 | 0.105886 | 0.109129 | 0.072132 | 0.059707 | 0.113865 | 0.040215 | 0.030440 | 0.190345 |
| 0.043594 | 0.081247 | 0.060400 | 0.043845 | 0.142875 | 0.070287 | 0.083184 | 0.072226 | 0.129071 | 0.048720 | 0.016414 |
| 0.017473 | 0.015380 | 0.025717 | 0.158441 | 0.070545 | 0.088499 | 0.120629 | 0.035596 | -0.150434 | 0.112122 | 0.067723 |
| 0.042654 | 0.040127 | 0.071760 | 0.170583 | 0.143202 | 0.190345 | 0.067765 | 0.052526 | 0.141261 | 0.158723 | 0.101726 |
| 0.007865 | 0.074657 | 0.055643 | 0.057039 | 0.069061 | 0.098714 | 0.079072 | 0.013678 | 0.135867 | -0.003178 | -0.008489 |
| 0.001663 | 0.098939 | 0.088682 | 0.047510 | 0.108223 | 0.156370 | 0.176100 | 0.054514 | 0.062450 | 0.040979 | 0.050552 |
| 0.040134 | -0.000980 | -0.012158 | -0.042542 | -0.118394 | 0.128944 | 0.063904 | 0.079514 | 0.057298 | 0.055013 | 0.076481 |
| 0.017268 | 0.083380 | 0.040753 | 0.022419 | 0.040097 | 0.097534 | 0.092354 | 0.116335 | 0.064568 | -0.000325 | 0.074294 |
| 0.005581 | 0.120323 | 0.020396 | 0.143939 | 0.027356 | 0.104994 | 0.066968 | 0.056288 | 0.099708 | 0.124542 | 0.130188 |
| 0.029353 | 0.052730 | 0.025367 | 0.052304 | 0.150266 | 0.163189 | 0.028307 | 0.036020 | 0.037456 | 0.172971 | 0.174173 |

YCRPSTAT

S.O.D.P.L.

| A09 | A10 | A11 | A12 | A13 | A14 | A15 | A16 | A17 | A18 | A19 |
|-----------|-----------|----------|-----------|----------|----------|----------|----------|----------|----------|----------|
| -0.050638 | -0.044335 | 0.059109 | -0.001963 | 0.070971 | 0.127543 | 0.047987 | 0.095377 | 0.031007 | 0.021994 | 0.053737 |
| 0.076337 | 0.181296 | 0.154690 | 0.273863 | 0.325924 | 0.411107 | 0.248442 | 0.237401 | 0.260709 | 0.373565 | 0.321579 |

NRSTAT

510.0000

| A20 | A21 | A22 | A23 | A24 | A25 | A26 | A27 | A28 | A29 | A30 |
|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| -0.003282 | -0.003223 | 0.063077 | -0.047881 | -0.044112 | -0.027201 | 0.172349 | 0.091279 | 0.112436 | 0.055745 | 0.076159 |
| 0.037499 | -0.040023 | -0.001317 | -0.008283 | 0.002233 | 0.004524 | 0.207150 | 0.057224 | 0.029561 | 0.007426 | -0.004732 |
| 0.026057 | -0.048466 | -0.069823 | 0.037612 | 0.078273 | 0.001519 | 0.180741 | 0.007276 | 0.051519 | 0.012857 | -0.035374 |
| 0.012936 | -0.054773 | -0.037926 | 0.034217 | 0.104217 | 0.104683 | 0.272104 | 0.004102 | 0.003155 | -0.004314 | 0.001155 |
| 0.102316 | 0.129938 | 0.011616 | 0.102316 | 0.101431 | 0.101431 | 0.150799 | 0.002179 | -0.020188 | -0.002443 | 0.005000 |
| 0.204581 | 0.126757 | 0.041977 | 0.204581 | 0.101431 | 0.101431 | 0.204581 | 0.002179 | 0.005041 | 0.101431 | 0.101431 |
| 0.130435 | 0.032803 | 0.034953 | 0.034953 | 0.034953 | 0.034953 | 0.101431 | 0.012117 | 0.023365 | 0.011435 | 0.001155 |
| 0.209249 | 0.049436 | 0.061135 | 0.061135 | 0.061135 | 0.061135 | -0.073949 | 0.004360 | -0.008710 | 0.130435 | 0.001155 |
| 0.115679 | 0.055133 | 0.003869 | 0.003869 | 0.102129 | 0.031303 | 0.034391 | 0.005652 | 0.010275 | 0.025322 | 0.007965 |
| 0.294431 | 0.0351341 | 0.154808 | 0.136170 | 0.002720 | 0.033502 | 0.077301 | -0.016330 | 0.008940 | 0.179279 | 0.204943 |
| 0.276824 | 0.153859 | 0.173591 | 0.040292 | 0.017442 | -0.057573 | 0.086021 | 0.028543 | 0.112577 | 0.219472 | 0.228223 |
| 1.000000 | 0.331925 | 0.164988 | 0.238877 | 0.125145 | 0.137748 | -0.059329 | 0.155125 | 0.020328 | 0.273507 | 0.165750 |
| 0.381975 | 1.000000 | 0.326512 | 0.301421 | -0.039744 | 0.077700 | 0.005411 | 0.152272 | 0.054518 | 0.239470 | 0.206950 |
| 0.14938 | 0.326512 | 1.000000 | 0.156328 | -0.004234 | 0.107357 | -0.016939 | 0.019516 | 0.120706 | 0.286415 | 0.277502 |
| 0.238277 | 0.301421 | 0.156396 | 1.000000 | 0.074927 | 0.163385 | 0.104708 | 0.121192 | -0.015010 | 0.008468 | 0.112452 |
| 0.125246 | -0.039744 | -0.004234 | 0.076977 | 1.000000 | 0.107357 | 0.055483 | 0.047465 | -0.043001 | -0.016388 | 0.028264 |
| 0.137748 | 0.077700 | 0.107357 | 0.158285 | 0.107357 | 1.000000 | 0.078724 | 0.005032 | -0.040458 | 0.035243 | 0.074907 |
| -0.069329 | 0.005411 | -0.016939 | 0.104708 | 0.055483 | 0.078724 | 1.000000 | -0.008143 | 0.148272 | 0.006493 | 0.001162 |
| 0.145525 | 0.150272 | 0.019616 | 0.121192 | 0.047465 | 0.005032 | -0.008143 | 1.000000 | -0.007353 | 0.025310 | -0.011712 |
| 0.008468 | 0.054618 | 0.120706 | -0.015010 | -0.043001 | -0.009358 | 0.148272 | -0.007353 | 1.000000 | 0.199721 | 0.009233 |
| 0.273507 | 0.238415 | 0.286415 | 0.008468 | -0.016388 | 0.006493 | 0.199721 | 0.026310 | 0.199721 | 1.000000 | 0.273507 |
| 0.206950 | 0.206950 | 0.297807 | 0.112452 | 0.028264 | 0.073907 | 0.040162 | -0.011712 | 0.059230 | 0.274324 | 1.000000 |
| 0.001155 | 0.101431 | 0.217685 | -0.004314 | 0.011435 | 0.001568 | -0.001668 | -0.011712 | 0.031791 | 0.193261 | 0.244794 |
| 0.101431 | 0.115741 | 0.057546 | -0.004314 | 0.147177 | 0.001568 | 0.001568 | 0.001568 | 0.030587 | 0.127099 | 0.001155 |
| 0.001155 | 0.117674 | 0.151537 | 0.101431 | 0.047465 | 0.219375 | 0.018449 | 0.101431 | 0.023404 | 0.121710 | 0.115780 |
| 0.101431 | 0.072205 | 0.075059 | 0.101431 | 0.101431 | 0.001155 | 0.002528 | 0.004333 | 0.007966 | 0.004918 | 0.101431 |
| 0.112452 | 0.135672 | 0.076561 | 0.101431 | 0.101431 | 0.101431 | 0.099570 | 0.005510 | 0.013472 | 0.070457 | 0.174327 |
| 0.175268 | 0.155099 | 0.245426 | 0.033709 | 0.045748 | 0.104797 | 0.003075 | 0.007440 | 0.156058 | 0.231932 | 0.170106 |
| 0.200824 | 0.232933 | 0.163957 | 0.223321 | 0.069923 | 0.101950 | -0.059087 | 0.201894 | -0.007783 | 0.223981 | 0.200824 |
| 0.140832 | 0.313560 | 0.193425 | -0.259214 | -0.030051 | 0.005831 | 0.080132 | 0.006507 | 0.139466 | 0.155779 | 0.150670 |
| 0.201154 | 0.302079 | 0.166060 | 0.297741 | -0.024873 | 0.112581 | 0.022355 | 0.046543 | 0.036446 | 0.182535 | 0.133501 |
| 0.242504 | 0.037122 | 0.077987 | 0.337254 | 0.003422 | 0.144327 | -0.019751 | 0.157359 | -0.014176 | 0.133729 | 0.007937 |
| 0.109432 | 0.187937 | 0.132305 | -0.224785 | 0.095246 | 0.107117 | -0.017869 | 0.055565 | -0.096832 | 0.082774 | 0.105293 |
| 0.150567 | 0.127608 | 0.033346 | -0.214232 | 0.057352 | 0.102518 | 0.008509 | 0.106380 | 0.078056 | 0.171576 | 0.077308 |
| 0.204399 | 0.247355 | 0.095106 | 0.341792 | 0.131687 | 0.075503 | 0.094604 | -0.152777 | 0.049578 | 0.045511 | 0.170309 |
| 0.150607 | 0.047284 | 0.187294 | 0.002537 | -0.029236 | 0.104327 | 0.021988 | 0.005256 | 0.022845 | 0.100406 | 0.174277 |
| 0.054741 | -0.080858 | -0.059971 | 0.040498 | 0.049148 | 0.005185 | 0.032832 | -0.019562 | 0.024557 | -0.039107 | -0.003485 |
| 0.159436 | 0.054369 | 0.061200 | 0.076540 | 0.100286 | 0.005450 | 0.071534 | 0.005252 | 0.026539 | 0.029662 | 0.101059 |
| 0.066450 | 0.001943 | 0.006766 | 0.006572 | 0.103522 | 0.009201 | 0.073454 | 0.004538 | 0.034912 | 0.053125 | 0.077625 |
| 0.142010 | 0.136433 | 0.094875 | 0.112584 | 0.044085 | 0.067548 | 0.119714 | 0.048433 | 0.105867 | 0.050539 | 0.073889 |
| 0.105443 | 0.138339 | 0.036741 | -0.173215 | -0.050230 | 0.005539 | 0.057650 | 0.005168 | 0.075866 | 0.081928 | 0.019369 |
| 0.086757 | 0.134196 | -0.009424 | 0.087727 | -0.135331 | 0.005756 | -0.052320 | 0.115392 | -0.002452 | 0.072049 | 0.003563 |
| 0.122620 | 0.061478 | 0.011442 | 0.006424 | 0.050351 | 0.128742 | 0.028437 | -0.022738 | -0.012117 | 0.062795 | 0.002575 |
| 0.191275 | 0.086366 | -0.005247 | 0.102549 | -0.071565 | 0.104359 | -0.029579 | 0.090129 | 0.035455 | 0.048309 | 0.055994 |
| 0.078397 | 0.093621 | 0.068033 | 0.117867 | -0.085310 | -0.002532 | -0.015894 | 0.025969 | -0.016054 | 0.090562 | 0.017981 |
| 0.085389 | 0.003639 | -0.016205 | 0.045593 | 0.056499 | 0.003746 | 0.118962 | 0.005285 | 0.030344 | -0.036543 | -0.026759 |
| 0.131881 | 0.097906 | -0.001469 | 0.001427 | 0.078872 | 0.006413 | 0.035318 | 0.117249 | 0.077063 | 0.045777 | 0.042859 |
| 0.089954 | 0.012710 | -0.003214 | 0.118100 | 0.121059 | 0.002373 | 0.055998 | 0.012718 | 0.002771 | -0.044770 | 0.059535 |
| 0.157244 | 0.070850 | 0.013947 | 0.185551 | 0.157237 | 0.166577 | 0.192465 | 0.009071 | 0.033499 | -0.040708 | 0.105139 |
| 0.122629 | 0.019910 | -0.006630 | 0.008780 | 0.122731 | 0.040135 | 0.080471 | 0.002941 | 0.044060 | 0.017911 | 0.006305 |
| 0.105364 | 0.031528 | -0.005186 | 0.071307 | 0.126394 | 0.089876 | 0.061722 | 0.059974 | -0.003840 | -0.028306 | -0.019067 |
| 0.067056 | 0.037685 | -0.051607 | 0.119626 | 0.075843 | 0.039922 | -0.029303 | 0.044474 | 0.102255 | 0.023760 | 0.022677 |
| 0.132314 | -0.014635 | 0.035395 | 0.088138 | 0.119313 | 0.065565 | 0.004351 | 0.003924 | 0.035710 | 0.043367 | 0.066180 |
| 0.154614 | 0.041786 | 0.042300 | 0.005068 | 0.077247 | 0.004739 | 0.073508 | 0.000558 | 0.009224 | 0.074343 | 0.091574 |
| 0.176832 | 0.113803 | 0.031597 | 0.127927 | 0.094703 | 0.090558 | 0.151864 | 0.006231 | 0.029732 | 0.034104 | 0.144687 |

STAT

S.D.P.C.

| A20 | A21 | A22 | A23 | A24 | A25 | A26 | A27 | A28 | A29 | A30 |
|----------|----------|----------|----------|----------|----------|-----------|----------|-----------|----------|----------|
| 0.154227 | 0.103366 | 0.046292 | 0.052136 | 0.140217 | 0.163449 | -0.051773 | 0.024144 | -0.057543 | 0.237959 | 0.033970 |
| 0.493443 | 0.400954 | 0.248307 | 0.422012 | 0.250894 | 0.312000 | 0.227399 | 0.238956 | 0.168424 | 0.275925 | 0.304978 |

VCRSTAT

0.0.0.0.0.

| A31 | A32 | A33 | A34 | A35 | A36 | A37 | A38 | A39 | A40 | A41 |
|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 0.060324 | -0.054010 | -0.003705 | -0.026848 | -0.038573 | 0.037553 | -0.059785 | 0.075108 | 0.085838 | -0.057517 | -0.129205 |
| 0.024617 | 0.045241 | 0.013360 | -0.020499 | -0.047810 | 0.012331 | 0.075717 | -0.037754 | 0.042970 | -0.006186 | -0.003120 |
| -0.112460 | -0.024056 | 0.072494 | -0.052631 | -0.058508 | -0.069575 | 0.015797 | 0.017459 | 0.033515 | 0.088347 | -0.104400 |
| -0.048186 | 0.130880 | 0.021470 | 0.072263 | -0.014713 | 0.041772 | 0.027756 | 0.024117 | 0.044529 | 0.010467 | -0.178000 |
| 0.051720 | 0.037987 | -0.031817 | 0.000941 | 0.109541 | 0.100141 | 0.081416 | 0.101503 | 0.105163 | 0.071147 | 0.000000 |
| 0.024450 | 0.047452 | 0.110567 | 0.039310 | 0.177440 | 0.057147 | 0.127753 | 0.113144 | 0.147703 | 0.147347 | 0.100000 |
| -0.035275 | 0.026757 | 0.035239 | 0.144133 | 0.036755 | 0.016544 | 0.027207 | 0.033002 | -0.033936 | 0.052340 | 0.100000 |
| 0.034850 | 0.044938 | 0.079525 | 0.036323 | 0.107500 | 0.077759 | 0.150157 | 0.054104 | 0.026758 | 0.038511 | 0.100000 |
| 0.052041 | 0.152767 | 0.057804 | 0.132313 | 0.030330 | 0.139443 | 0.079960 | 0.038346 | -0.034755 | 0.010588 | 0.041444 |
| 0.120905 | 0.034042 | 0.050392 | 0.209127 | 0.135299 | 0.194472 | 0.191250 | 0.221317 | 0.217078 | 0.087414 | 0.100000 |
| 0.148456 | 0.038934 | -0.015997 | 0.128074 | 0.147975 | 0.035473 | 0.153369 | 0.039792 | 0.039410 | -0.003193 | 0.089373 |
| 0.052617 | 0.156188 | 0.095300 | 0.152208 | 0.132270 | 0.175758 | 0.280324 | 0.187332 | 0.201154 | 0.241504 | 0.100000 |
| 0.106408 | 0.115741 | 0.137674 | 0.097205 | 0.135672 | 0.155797 | 0.232733 | 0.313560 | 0.302079 | 0.237122 | 0.137417 |
| 0.217685 | 0.067546 | 0.161537 | 0.095050 | 0.076561 | 0.245426 | 0.163957 | 0.133425 | 0.156360 | 0.077787 | 0.132000 |
| -0.006355 | -0.009332 | 0.173841 | 0.131383 | 0.175951 | 0.083703 | 0.223391 | 0.259214 | 0.207741 | 0.237064 | 0.224700 |
| 0.011645 | 0.147172 | 0.048344 | 0.154171 | 0.164268 | 0.045756 | 0.059723 | -0.030553 | -0.029073 | 0.008428 | 0.000000 |
| 0.025505 | 0.059342 | 0.210975 | 0.033314 | 0.110352 | 0.104797 | 0.111360 | 0.055831 | 0.112581 | 0.144927 | 0.137117 |
| -0.001668 | 0.012335 | 0.018447 | 0.022528 | 0.099370 | 0.030175 | -0.059787 | 0.030132 | 0.022855 | -0.019751 | -0.017000 |
| -0.017549 | 0.075428 | 0.133057 | 0.084303 | 0.035510 | 0.087749 | 0.291194 | 0.096507 | 0.046543 | 0.157357 | 0.055500 |
| 0.031791 | 0.080582 | 0.023404 | 0.057965 | 0.013472 | 0.156058 | -0.007783 | 0.139466 | 0.096446 | -0.014176 | -0.006117 |
| 0.193261 | 0.127099 | 0.151710 | 0.054918 | 0.070457 | 0.231732 | 0.223181 | 0.155779 | 0.152535 | 0.133927 | 0.082776 |
| 0.044944 | 0.081675 | 0.215722 | 0.150495 | 0.174322 | 0.170106 | 0.295144 | 0.151529 | 0.133501 | 0.067317 | 0.100000 |
| 1.000000 | 0.027000 | 0.026819 | 0.035147 | 0.129358 | 0.167762 | -0.029561 | 0.177333 | 0.294519 | -0.013546 | 0.017000 |
| 0.002000 | 1.000000 | 0.044161 | 0.100077 | 0.156098 | 0.107422 | 0.215000 | 0.019342 | 0.014758 | 0.001000 | 0.100000 |
| 0.005819 | 0.044161 | 1.000000 | 0.036913 | 0.070550 | 0.007197 | 0.313511 | 0.037000 | 0.143969 | 0.136581 | 0.100000 |
| 0.005147 | 0.100000 | 0.036913 | 1.000000 | 0.251138 | 0.210000 | 0.140000 | 0.055032 | 0.098249 | 0.105041 | 0.100000 |
| 0.129358 | 0.156098 | 0.070550 | 0.251138 | 1.000000 | 0.093331 | 0.074273 | 0.129352 | 0.085283 | 0.152577 | 0.129358 |
| 0.147262 | 0.157832 | 0.096197 | 0.212902 | 0.093331 | 1.000000 | 0.215000 | 0.233528 | 0.197453 | 0.071555 | 0.047000 |
| -0.029561 | 0.215862 | 0.313419 | 0.146007 | 0.074273 | 0.215000 | 1.000000 | 0.185362 | 0.161444 | 0.253557 | 0.170000 |
| 0.177383 | 0.019342 | 0.037566 | 0.056032 | 0.129352 | 0.233528 | 0.185362 | 1.000000 | 0.414285 | 0.261774 | 0.059207 |
| 0.204619 | 0.014758 | 0.143969 | 0.098249 | 0.085283 | 0.177383 | 0.161444 | 0.414285 | 1.000000 | 0.276305 | 0.100000 |
| 0.013846 | 0.011956 | 0.136680 | 0.135041 | 0.152477 | 0.071955 | 0.253557 | 0.251974 | 0.276305 | 1.000000 | 0.100000 |
| 0.017734 | 0.102287 | 0.189931 | 0.158028 | 0.123099 | 0.039562 | 0.176025 | 0.039267 | 0.108121 | 0.190097 | 1.000000 |
| 0.049659 | 0.133516 | 0.180379 | 0.116473 | 0.139394 | 0.100000 | 0.199453 | 0.127492 | 0.226737 | 0.259442 | 0.250000 |
| 0.071680 | 0.060705 | 0.135271 | 0.157526 | 0.148016 | 0.159738 | 0.137564 | 0.290517 | 0.291282 | 0.249314 | 0.255219 |
| 0.118617 | 0.008706 | 0.057077 | 0.027284 | 0.122659 | 0.127054 | 0.160713 | 0.411576 | 0.351981 | 0.282119 | 0.154700 |
| -0.041082 | 0.104763 | 0.019115 | 0.071311 | 0.067501 | 0.031769 | -0.034142 | -0.056230 | 0.008374 | -0.023404 | -0.024787 |
| 0.024085 | 0.118752 | 0.074036 | 0.137494 | 0.241344 | 0.093487 | 0.075726 | 0.027007 | 0.032094 | -0.107573 | -0.101631 |
| -0.019181 | 0.144962 | -0.024315 | 0.074919 | 0.101238 | 0.137773 | 0.049284 | 0.103350 | 0.000848 | -0.052770 | 0.009238 |
| -0.030205 | 0.149387 | 0.051131 | 0.091161 | 0.096627 | 0.093974 | 0.135020 | 0.058241 | 0.077581 | -0.128392 | 0.117496 |
| -0.024752 | 0.061440 | -0.000271 | -0.015356 | 0.106110 | 0.146138 | 0.121918 | 0.122066 | 0.149516 | 0.076293 | -0.045753 |
| 0.004822 | 0.074212 | 0.005292 | -0.013289 | 0.031945 | 0.094001 | 0.116396 | 0.159945 | 0.144563 | 0.050764 | 0.002703 |
| -0.022574 | 0.151235 | 0.082693 | 0.072740 | 0.140313 | 0.112183 | 0.090286 | 0.044084 | 0.074649 | 0.091733 | 0.100000 |
| 0.018694 | 0.052220 | 0.003987 | 0.043173 | 0.058512 | 0.133235 | 0.087260 | 0.125438 | 0.154980 | 0.078396 | 0.003100 |
| 0.022731 | -0.032656 | -0.000913 | -0.037497 | 0.060488 | 0.072183 | 0.107438 | 0.199591 | 0.155980 | 0.153225 | -0.024000 |
| -0.033974 | 0.117608 | 0.024453 | 0.046231 | 0.062251 | 0.171090 | 0.061116 | 0.116044 | 0.057060 | 0.058136 | 0.057000 |
| -0.007458 | 0.215315 | 0.010704 | 0.021586 | 0.053904 | 0.049517 | 0.134169 | 0.052712 | 0.051045 | 0.026562 | -0.008586 |
| -0.032349 | 0.051224 | 0.025797 | 0.051390 | 0.068849 | 0.040591 | -0.007655 | 0.063895 | -0.000003 | 0.025428 | -0.000487 |
| 0.046579 | 0.161087 | 0.075594 | 0.178129 | 0.212313 | 0.171579 | 0.097430 | 0.087959 | 0.082955 | -0.053143 | 0.101552 |
| -0.093182 | 0.151792 | 0.069606 | 0.053069 | 0.120572 | 0.077243 | 0.108300 | 0.041038 | 0.093514 | -0.024409 | 0.022672 |
| -0.079346 | 0.181887 | 0.080608 | 0.094902 | 0.118976 | 0.001441 | 0.086796 | 0.036215 | -0.016559 | -0.001309 | 0.058501 |
| -0.048345 | 0.096892 | 0.019258 | 0.072809 | 0.111165 | 0.151383 | 0.099194 | 0.047113 | 0.030315 | -0.006787 | 0.030000 |
| 0.040068 | 0.141804 | 0.114981 | 0.071164 | 0.134544 | 0.133739 | 0.208666 | 0.079662 | -0.002508 | 0.075901 | -0.000100 |
| 0.025991 | 0.126772 | 0.047435 | 0.045546 | 0.106866 | 0.143320 | 0.052161 | 0.055195 | 0.010591 | 0.056144 | -0.051410 |
| 0.114051 | 0.085581 | 0.075861 | 0.070820 | 0.172889 | 0.172503 | 0.141593 | 0.148622 | 0.171705 | -0.002512 | 0.049707 |

VCRPSTAT

S.O.F.P.C.

| A31 | A32 | A33 | A34 | A35 | A36 | A37 | A38 | A39 | A40 | A41 |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 0.055594 | 0.107172 | 0.075371 | 0.096669 | 0.125798 | 0.088352 | 0.111324 | 0.019947 | 0.065155 | 0.144094 | 0.177874 |
| 0.143848 | 0.351664 | 0.294129 | 0.326312 | 0.375343 | 0.396913 | 0.476114 | 0.371191 | 0.328202 | 0.356191 | 0.295494 |

NCR STAT

S.S.O.P.C.

| A42 | A43 | A44 | A45 | A46 | A47 | A48 | A49 | A50 | A51 | A52 |
|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 0.018037 | 0.021044 | 0.020881 | -0.025575 | -0.004313 | 0.010797 | -0.005260 | 0.023497 | 0.058575 | -0.003774 | -0.031053 |
| -0.002874 | -0.009807 | -0.046579 | 0.022253 | -0.001350 | 0.131141 | 0.061315 | 0.119272 | 0.039584 | 0.052571 | 0.039579 |
| 0.050737 | 0.055749 | -0.021409 | 0.024712 | 0.074569 | 0.071532 | 0.012249 | 0.021393 | -0.034924 | 0.015331 | 0.008858 |
| -0.003081 | 0.059523 | -0.034350 | 0.012747 | 0.009782 | 0.155730 | 0.053237 | 0.052105 | -0.019776 | 0.077263 | 0.051651 |
| 0.060672 | 0.033185 | 0.078898 | -0.005216 | 0.160347 | 0.002514 | 0.079091 | 0.047513 | -0.027279 | 0.109719 | 0.140114 |
| 0.190734 | 0.204546 | 0.142527 | 0.075185 | 0.140327 | 0.122115 | 0.153213 | 0.054584 | -0.033426 | 0.105771 | 0.144112 |
| 0.002374 | 0.039247 | 0.003193 | 0.054295 | 0.142173 | 0.052367 | 0.055937 | 0.024825 | -0.122211 | 0.100517 | 0.022122 |
| 0.063348 | 0.042832 | -0.003511 | 0.023023 | 0.115493 | 0.142715 | 0.055407 | -0.001310 | -0.021564 | 0.075342 | 0.159785 |
| 0.054417 | -0.000950 | -0.105198 | -0.001441 | 0.144777 | 0.123595 | 0.103427 | 0.048443 | -0.055976 | 0.046553 | 0.051194 |
| 0.158306 | 0.165397 | 0.194386 | -0.037775 | 0.150792 | 0.028457 | 0.247530 | 0.073755 | 0.028518 | -0.054272 | 0.073233 |
| 0.079273 | 0.146953 | 0.120206 | -0.010845 | 0.099829 | 0.079097 | 0.156414 | 0.145277 | 0.034759 | -0.003317 | 0.145301 |
| 0.150567 | 0.204399 | 0.165503 | 0.054741 | 0.168434 | 0.066450 | 0.142910 | 0.135443 | 0.036757 | 0.122520 | 0.191225 |
| 0.127606 | 0.247355 | 0.347284 | -0.080358 | 0.064369 | 0.001743 | 0.186433 | 0.138339 | 0.134196 | 0.061478 | 0.086365 |
| 0.038346 | 0.075102 | 0.187294 | -0.059771 | 0.061700 | 0.005765 | 0.094875 | 0.036741 | -0.009424 | 0.011442 | -0.005247 |
| 0.214382 | 0.341792 | 0.302637 | 0.040498 | 0.076549 | 0.035572 | 0.192584 | 0.173215 | 0.037927 | 0.056424 | 0.102547 |
| 0.057862 | 0.131667 | -0.020936 | 0.049148 | 0.109734 | 0.193522 | 0.044055 | -0.050200 | -0.135381 | 0.050351 | -0.071965 |
| 0.132618 | 0.075603 | 0.134427 | 0.055185 | 0.065560 | 0.074791 | 0.067548 | 0.055539 | 0.005756 | 0.128747 | 0.106359 |
| 0.008509 | 0.094604 | 0.021988 | 0.032832 | 0.071534 | 0.073454 | 0.119714 | 0.057550 | -0.052820 | 0.062437 | -0.029579 |
| 0.106080 | 0.162977 | 0.035265 | -0.019562 | 0.055262 | 0.008338 | 0.048433 | 0.053568 | 0.116392 | 0.022738 | 0.001277 |
| 0.078056 | 0.049578 | 0.022845 | 0.024557 | 0.026539 | 0.084712 | 0.105867 | 0.075356 | -0.002452 | -0.012117 | 0.035455 |
| 0.171676 | 0.045511 | 0.100406 | -0.009107 | 0.029682 | 0.053125 | 0.050595 | 0.081928 | 0.072049 | 0.052795 | 0.048319 |
| 0.077308 | 0.100900 | 0.174279 | -0.003485 | 0.101359 | 0.077525 | 0.073989 | 0.019359 | 0.003563 | 0.042576 | 0.059074 |
| 0.049659 | 0.021630 | 0.114217 | -0.041332 | 0.029085 | -0.019181 | -0.030205 | -0.024752 | 0.004322 | -0.022574 | 0.013674 |
| 0.133516 | 0.000709 | 0.001786 | 0.134743 | 0.111782 | 0.134662 | 0.149327 | 0.051440 | 0.074212 | 0.161215 | 0.052077 |
| 0.149179 | 0.152771 | 0.057027 | 0.019115 | 0.074016 | -0.024415 | 0.051131 | -0.000271 | 0.005292 | 0.042597 | 0.008797 |
| 0.116473 | 0.057528 | -0.027086 | 0.071111 | 0.074074 | 0.074717 | 0.091161 | -0.013356 | -0.013289 | 0.07274 | 0.143171 |
| 0.139094 | 0.143016 | 0.127055 | 0.057591 | 0.241384 | 0.101238 | 0.096827 | 0.156110 | 0.031945 | 0.140311 | 0.050727 |
| 0.193069 | 0.150938 | 0.127054 | 0.033769 | 0.098637 | 0.137773 | 0.083774 | 0.146138 | 0.074001 | 0.112183 | 0.133719 |
| 0.199453 | 0.187664 | 0.169721 | -0.034142 | 0.076776 | 0.047234 | 0.135020 | 0.121918 | 0.116896 | 0.090286 | 0.037777 |
| 0.127492 | 0.290617 | 0.411576 | -0.023230 | 0.027097 | 0.103850 | 0.058241 | 0.122056 | 0.159945 | 0.044044 | 0.125413 |
| 0.226737 | 0.241282 | 0.361991 | 0.008374 | 0.002094 | 0.002348 | 0.077591 | 0.147616 | 0.144563 | 0.074547 | 0.154750 |
| 0.257842 | 0.259314 | 0.282338 | -0.023404 | 0.102573 | -0.052770 | 0.128392 | 0.096293 | 0.050764 | 0.091735 | 0.078376 |
| 0.250408 | 0.245219 | 0.154978 | -0.023187 | 0.101631 | 0.002088 | 0.117496 | -0.046958 | 0.002093 | 0.100301 | 0.003145 |
| 1.000000 | 0.300767 | 0.097783 | 0.079720 | 0.137053 | 0.059791 | 0.095920 | 0.053421 | 0.098237 | 0.052873 | 0.052183 |
| 0.340767 | 1.000000 | 0.350194 | 0.077407 | 0.158480 | 0.085468 | 0.128940 | 0.135905 | 0.093330 | 0.070370 | 0.101754 |
| 0.097788 | 0.050194 | 1.000000 | 0.113356 | 0.052556 | 0.001342 | 0.112522 | 0.143530 | 0.087594 | 0.110474 | 0.095465 |
| 0.079720 | 0.077407 | 0.013356 | 1.000000 | 0.190825 | 0.023542 | 0.071267 | 0.187115 | 0.070552 | 0.178304 | 0.156330 |
| 0.137053 | 0.158430 | 0.062556 | 0.173025 | 1.000000 | 0.310695 | 0.173658 | 0.141254 | 0.042286 | 0.302072 | 0.233132 |
| 0.069991 | 0.046468 | 0.003342 | 0.028642 | 0.010696 | 1.000000 | 0.185831 | 0.192983 | 0.159640 | 0.219224 | 0.170116 |
| 0.095920 | 0.128940 | 0.112522 | 0.071267 | 0.173658 | 0.185831 | 1.000000 | 0.278937 | 0.142717 | 0.049327 | 0.104981 |
| 0.058421 | 0.136905 | 0.143580 | 0.137115 | 0.141254 | 0.192983 | 0.278937 | 1.000000 | 0.408008 | 0.133561 | 0.003469 |
| 0.098237 | 0.033330 | 0.087594 | 0.070552 | 0.042286 | 0.159640 | 0.142717 | 0.408008 | 1.000000 | 0.114259 | 0.270795 |
| 0.052873 | 0.070370 | 0.110474 | 0.178304 | 0.302072 | 0.219224 | 0.049327 | 0.133561 | 0.114259 | 1.000000 | 0.202413 |
| 0.082183 | 0.191954 | 0.090465 | 0.156330 | 0.233132 | 0.170116 | 0.104981 | 0.003469 | 0.270795 | 0.202413 | 1.000000 |
| 0.131226 | 0.059342 | 0.165700 | 0.059393 | 0.017987 | 0.007245 | 0.074507 | 0.357461 | 0.384718 | 0.034799 | 0.229185 |
| 0.103894 | 0.158673 | 0.065814 | 0.155993 | 0.194985 | 0.171527 | 0.112047 | 0.281870 | 0.218158 | 0.198855 | 0.311254 |
| 0.056306 | 0.075096 | 0.036676 | 0.152142 | 0.296951 | 0.239520 | 0.114649 | 0.084174 | 0.113509 | 0.197378 | 0.283568 |
| 0.043944 | 0.027967 | 0.027574 | 0.105564 | 0.223981 | 0.159335 | 0.083507 | 0.010663 | -0.082483 | 0.120182 | 0.190227 |
| 0.113662 | 0.159340 | 0.063009 | 0.049313 | 0.139967 | 0.149346 | 0.223733 | 0.124307 | 0.057391 | -0.179728 | 0.110448 |
| 0.106447 | 0.128404 | 0.012491 | 0.102211 | 0.180223 | 0.110071 | 0.144764 | 0.166671 | 0.059028 | 0.203092 | 0.242620 |
| 0.100999 | 0.038978 | 0.015571 | 0.146063 | 0.239832 | 0.122414 | 0.167301 | 0.146812 | 0.017569 | 0.232490 | 0.232233 |
| 0.166040 | 0.136214 | 0.019603 | 0.135413 | 0.164793 | 0.182598 | 0.074089 | 0.082276 | 0.054460 | 0.074006 | 0.140282 |
| 0.166771 | 0.065439 | 0.006297 | 0.109770 | 0.186659 | 0.178315 | 0.062213 | 0.155526 | 0.159984 | 0.119586 | 0.208352 |
| 0.076153 | 0.076108 | 0.008153 | 0.153312 | 0.247216 | 0.167133 | 0.105343 | 0.189960 | 0.159824 | 0.177580 | 0.273193 |
| 0.116372 | 0.097827 | 0.051467 | 0.071067 | 0.187205 | 0.167454 | 0.163297 | 0.077940 | 0.047020 | 0.153231 | 0.243176 |

NIRSTAT

S.O.P.O.

| A42 | A43 | A44 | A45 | A46 | A47 | A48 | A49 | A50 | A51 | A52 |
|----------|----------|----------|----------|----------|----------|----------|----------|-----------|----------|---------|
| 0.02844 | 0.05204 | 0.031135 | 0.09080 | 0.151574 | 0.033121 | 0.055552 | 0.041085 | -0.041564 | 0.153837 | 0.07819 |
| 0.108494 | 0.456217 | 0.331115 | 0.002450 | 0.456813 | 0.347300 | 0.375224 | 0.071303 | 0.229575 | 0.354348 | 0.42 |

| A53 | A54 | A55 | A56 | A57 | A58 | A59 | A60 | A61 | A62 | A63 |
|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|----------|
| 0.076436 | -0.018957 | 0.043594 | -0.017473 | -0.042554 | 0.007865 | -0.001553 | 0.040134 | -0.017263 | 0.005581 | 0.029353 |
| 0.031679 | 0.134083 | 0.041247 | 0.015380 | 0.049127 | 0.074557 | 0.094939 | -0.009730 | 0.083380 | 0.120373 | 0.052710 |
| 0.000070 | 0.056936 | 0.060400 | 0.025717 | 0.071760 | 0.055543 | 0.048552 | -0.012154 | 0.040753 | 0.020345 | 0.025557 |
| 0.000022 | 0.051366 | 0.051645 | 0.015641 | 0.125441 | 0.173543 | 0.059039 | 0.047910 | 0.022417 | 0.143449 | 0.022346 |
| -0.011784 | 0.117129 | 0.142875 | 0.070544 | 0.141197 | 0.090951 | 0.113723 | 0.113723 | 0.040097 | 0.027354 | 0.140777 |
| -0.002170 | 0.072132 | 0.090287 | 0.013499 | 0.113449 | 0.090951 | 0.156073 | 0.113723 | 0.087534 | 0.104344 | 0.131164 |
| -0.051405 | 0.059707 | 0.083134 | 0.120629 | 0.087765 | 0.077972 | 0.176100 | 0.090951 | 0.072354 | 0.056948 | 0.026117 |
| -0.059447 | 0.113665 | 0.072225 | 0.035596 | 0.052525 | 0.011678 | 0.054514 | 0.0779514 | 0.116335 | 0.056248 | 0.056248 |
| 0.003151 | 0.040215 | 0.129071 | 0.150434 | 0.141261 | 0.135357 | 0.062450 | 0.007273 | 0.064668 | 0.099708 | 0.037456 |
| 0.201596 | 0.030440 | 0.048720 | 0.112122 | 0.154723 | 0.003178 | 0.040979 | 0.055013 | -0.000925 | 0.124542 | 0.172471 |
| 0.157417 | 0.190845 | 0.016414 | 0.057723 | 0.101725 | -0.008468 | 0.050552 | 0.076481 | 0.079294 | 0.130188 | 0.174173 |
| 0.073387 | 0.085339 | 0.131881 | 0.037954 | 0.167244 | 0.127527 | 0.105364 | 0.057356 | 0.132314 | 0.154614 | 0.176837 |
| 0.093621 | 0.036399 | 0.097906 | 0.012710 | 0.070450 | 0.019710 | 0.031528 | 0.037585 | -0.014635 | 0.041786 | 0.113333 |
| 0.068033 | -0.016205 | -0.001469 | -0.003214 | 0.013947 | -0.005530 | -0.005136 | -0.051637 | 0.035395 | 0.042300 | 0.031577 |
| 0.117847 | 0.045693 | 0.001427 | 0.118100 | 0.135551 | 0.058780 | 0.071307 | 0.119526 | 0.098138 | 0.035061 | 0.127127 |
| -0.045310 | 0.056490 | 0.078372 | 0.121059 | 0.157237 | 0.122731 | 0.126304 | 0.075343 | 0.119313 | 0.077287 | 0.094734 |
| -0.032632 | 0.038746 | 0.066413 | 0.052370 | 0.166577 | 0.049435 | 0.089376 | 0.038922 | 0.055565 | 0.094739 | 0.030594 |
| -0.015894 | 0.118962 | 0.035318 | 0.055998 | 0.197465 | 0.049471 | 0.061722 | -0.029303 | 0.034351 | 0.073598 | 0.151854 |
| 0.026969 | 0.055285 | 0.117249 | 0.012718 | 0.069071 | 0.052741 | 0.059974 | 0.044474 | 0.053924 | 0.053552 | 0.036231 |
| -0.015054 | 0.039344 | 0.097063 | 0.002771 | 0.031499 | 0.044363 | -0.038400 | 0.102255 | 0.035710 | 0.059224 | 0.029737 |
| 0.090662 | -0.036543 | 0.045777 | -0.044773 | -0.049708 | 0.017711 | -0.028396 | 0.023750 | 0.043367 | 0.074343 | 0.041134 |
| 0.017981 | -0.026759 | 0.042359 | 0.059535 | 0.105119 | 0.005135 | -0.019067 | 0.022677 | 0.066180 | 0.091574 | 0.144667 |
| -0.027331 | -0.019274 | -0.007453 | -0.032349 | 0.046379 | -0.073122 | -0.079344 | -0.043347 | 0.040368 | 0.025791 | 0.114671 |
| -0.032656 | 0.117692 | 0.215915 | 0.051224 | 0.161087 | 0.102722 | 0.131447 | 0.076392 | 0.141804 | 0.126772 | 0.040571 |
| -0.000013 | 0.024458 | 0.019796 | 0.025777 | 0.025394 | 0.059395 | 0.030693 | 0.010359 | 0.114781 | 0.047439 | 0.072571 |
| -0.037497 | 0.046931 | 0.021185 | 0.051229 | 0.172129 | 0.040369 | 0.084997 | 0.072339 | 0.071164 | 0.046946 | 0.071164 |
| 0.000488 | 0.052251 | 0.053104 | 0.058547 | 0.123313 | 0.123313 | 0.113976 | 0.111159 | 0.134544 | 0.136356 | 0.172344 |
| 0.072183 | 0.171090 | 0.049517 | 0.040591 | 0.171579 | 0.077243 | 0.001441 | 0.151383 | 0.133739 | 0.143820 | 0.172511 |
| 0.107338 | 0.051116 | 0.134169 | -0.007566 | 0.097439 | 0.103300 | 0.036796 | 0.099194 | 0.238566 | 0.052161 | 0.151293 |
| 0.192591 | 0.116044 | 0.062712 | 0.058395 | 0.084959 | 0.041138 | 0.036215 | 0.047113 | 0.079562 | 0.052195 | 0.148522 |
| 0.168980 | 0.057060 | 0.051045 | -0.000003 | 0.032755 | 0.073514 | -0.016559 | 0.030915 | -0.032508 | 0.010291 | 0.171709 |
| 0.153225 | 0.058136 | 0.026562 | 0.025429 | 0.053143 | 0.024409 | -0.001309 | -0.006987 | 0.075301 | 0.056144 | 0.092512 |
| -0.024024 | 0.057087 | -0.008686 | -0.000487 | 0.131552 | 0.022572 | 0.058651 | 0.036864 | -0.032170 | -0.051410 | 0.049757 |
| 0.131226 | 0.103894 | 0.056306 | 0.043944 | 0.113662 | 0.106447 | 0.100999 | 0.156040 | 0.156771 | 0.076153 | 0.116372 |
| 0.059342 | 0.158673 | 0.075996 | 0.027967 | 0.169340 | 0.123404 | 0.038978 | 0.136214 | 0.055439 | 0.075108 | 0.077327 |
| 0.165700 | 0.065814 | -0.036576 | -0.027574 | 0.063309 | -0.012491 | 0.015571 | 0.018503 | 0.006287 | 0.008153 | 0.051467 |
| 0.069393 | 0.155998 | 0.152142 | 0.105564 | 0.049318 | 0.102211 | 0.146063 | 0.135413 | 0.109770 | 0.153312 | 0.071167 |
| 0.017087 | 0.174935 | 0.296951 | 0.223981 | 0.139267 | 0.130223 | 0.239832 | 0.154793 | 0.135559 | 0.247216 | 0.187205 |
| 0.009245 | 0.191629 | 0.239620 | 0.159335 | 0.149346 | 0.110071 | 0.122414 | 0.182598 | 0.178315 | 0.157133 | 0.157454 |
| 0.074507 | 0.112047 | 0.114649 | 0.093507 | 0.223733 | 0.144964 | 0.167301 | 0.074089 | 0.052213 | 0.105343 | 0.153297 |
| 0.357461 | 0.291870 | 0.084174 | 0.010663 | 0.124307 | 0.156571 | 0.146812 | 0.032276 | 0.155526 | 0.139960 | 0.077943 |
| 0.384718 | 0.218168 | 0.113509 | -0.082483 | 0.067391 | 0.069928 | 0.017569 | 0.064460 | 0.159984 | 0.159324 | 0.047079 |
| 0.034799 | 0.198855 | 0.197378 | 0.120182 | 0.179728 | 0.203392 | 0.232490 | 0.074005 | 0.119585 | 0.177580 | 0.153281 |
| 0.227185 | 0.311254 | 0.283668 | 0.190527 | 0.110448 | 0.242520 | 0.239233 | 0.140282 | 0.238362 | 0.273993 | 0.243176 |
| 1.000000 | 0.244431 | -0.015639 | -0.016399 | 0.037946 | 0.071202 | 0.059499 | 0.039552 | 0.077639 | 0.038192 | 0.095347 |
| 0.244431 | 1.000000 | 0.264973 | 0.077190 | 0.180234 | 0.224585 | 0.274272 | 0.153812 | 0.213325 | 0.287899 | 0.131074 |
| -0.015639 | 0.264973 | 1.000000 | -0.193532 | 0.162276 | 0.256921 | 0.239782 | 0.148168 | 0.271027 | 0.289727 | 0.146328 |
| -0.016399 | 0.077190 | 0.193532 | 1.000000 | 0.118993 | 0.132918 | 0.124744 | 0.107258 | 0.114579 | 0.145161 | 0.202045 |
| 0.037946 | 0.180234 | 0.152276 | 0.118993 | 1.000000 | 0.237769 | 0.202270 | 0.046677 | 0.102225 | 0.135283 | 0.171777 |
| 0.071202 | 0.224585 | 0.266921 | 0.132918 | 0.237769 | 1.000000 | 0.406079 | 0.223313 | 0.135021 | 0.270194 | 0.282285 |
| 0.059499 | 0.274272 | 0.239782 | 0.124744 | 0.202270 | 0.406079 | 1.000000 | 0.173204 | 0.232037 | 0.281123 | 0.258479 |
| 0.089552 | 0.153812 | 0.148168 | 0.107258 | 0.046677 | 0.223313 | 0.173204 | 1.000000 | 0.187345 | 0.273538 | 0.185045 |
| 0.097639 | 0.213325 | 0.271027 | 0.114579 | 0.102225 | 0.185021 | 0.232037 | 0.187345 | 1.000000 | 0.326355 | 0.152437 |
| 0.208192 | 0.287899 | 0.289727 | 0.145161 | 0.135283 | 0.270194 | 0.281023 | 0.273538 | 0.326355 | 1.000000 | 0.295231 |
| 0.095342 | 0.131074 | 0.146828 | 0.202045 | 0.171777 | 0.282285 | 0.268470 | 0.135045 | 0.152437 | 0.295231 | 1.000000 |

YCRPSTAT

S.D.D.P.C.

| A53 | A54 | A55 | A56 | A57 | A58 | A59 | A60 | A61 | A62 | A63 |
|-----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| -0.003708 | 0.074924 | 0.074864 | 0.080349 | 0.072367 | 0.088947 | 0.146080 | 0.055364 | 0.133804 | 0.048116 | 0.128282 |
| 0.238448 | 0.398938 | 0.333059 | 0.275212 | 0.417120 | 0.331024 | 0.388568 | 0.308317 | 0.370296 | 0.416303 | 0.423422 |

WCPST T S.D.P.C.

| 44 | 45 | RIW LABEL |
|-----------|----------|-----------|
| -0.050608 | 0.076237 | A09 |
| -0.044315 | 0.181296 | A10 |
| 0.050109 | 0.154690 | A11 |
| -0.001963 | 0.228353 | A12 |
| 0.090971 | 0.275974 | A13 |
| 0.129543 | 0.311107 | A14 |
| 0.049947 | 0.248442 | A15 |
| 0.095879 | 0.239401 | A16 |
| 0.031007 | 0.250709 | A17 |
| 0.021994 | 0.373565 | A18 |
| 0.053737 | 0.321579 | A19 |
| 0.154227 | 0.403448 | A20 |
| 0.103366 | 0.400964 | A21 |
| 0.046292 | 0.248307 | A22 |
| 0.062136 | 0.421912 | A23 |
| 0.149217 | 0.259394 | A24 |
| 0.163499 | 0.312000 | A25 |
| -0.051773 | 0.227399 | A26 |
| 0.024184 | 0.238966 | A27 |
| -0.057661 | 0.163424 | A28 |
| 0.037989 | 0.229276 | A29 |
| 0.030199 | 0.104979 | A30 |
| -0.000508 | 0.111847 | A31 |
| 0.100477 | 0.181694 | A32 |
| 0.170127 | 0.154125 | A33 |
| 0.095661 | 0.126312 | A34 |
| 0.120799 | 0.175862 | A35 |
| 0.030352 | 0.109410 | A36 |
| 0.111326 | 0.426114 | A37 |
| 0.019549 | 0.391151 | A38 |
| 0.065165 | 0.378202 | A39 |
| 0.144096 | 0.356151 | A40 |
| 0.197874 | 0.235494 | A41 |
| 0.092344 | 0.398494 | A42 |
| 0.062204 | 0.456227 | A43 |
| 0.031185 | 0.331115 | A44 |
| 0.000960 | 0.209460 | A45 |
| 0.151674 | 0.456863 | A46 |
| 0.038191 | 0.349900 | A47 |
| 0.065552 | 0.378224 | A48 |
| 0.041065 | 0.371303 | A49 |
| -0.041564 | 0.229575 | A50 |
| 0.153637 | 0.354348 | A51 |
| 0.079839 | 0.412801 | A52 |
| -0.003903 | 0.238448 | A53 |
| 0.074924 | 0.398938 | A54 |
| 0.094864 | 0.383059 | A55 |
| 0.080349 | 0.275212 | A56 |
| 0.092367 | 0.417120 | A57 |
| 0.088947 | 0.381024 | A58 |

↓
rit

NCRPSTAT S.D.D.P.C.

| A64 | A65 | ROW LABEL |
|----------|----------|-----------|
| 0.146080 | 0.388568 | A59 |
| 0.005364 | 0.308817 | A50 |
| 0.133804 | 0.370296 | A51 |
| 0.048116 | 0.416303 | A62 |
| 0.128282 | 0.423422 | A63 |
| 1.000000 | 0.270932 | A64 |
| 0.270932 | 1.000000 | A55 |

TITLE T1 CENTER "***PRINCIPAL COMPONENT ANALYSES ***" 3

FACTOR COR2.OUT,
SF FAC1.OUT,
PC,
FAC OUTFAC1 S

A P P E N D I X E

10-10-92

Form003

AAU SCHOOL OF GRADUATE STUDIES

DEPARTMENT OF PSYCHOLOGY

A list of occupations presented to rank them in their economic level and social prestige.

DIRECTION; A list of several occupations is attached to this paper. The aim is to group the occupations into six categories, where the results will be used for research purpose.

You are kindly requested to rate each occupation into the scale value you assume according to your judgement with the scope of the country (Ethiopia). A rating of "1" means highest rank, while "6" means the least.

There are 3 pages list of occupations, with extra 3 copies. The first 3 copies are intended to rate the occupation along economic (income) level. The second 3 copies are prepared to rate them with reference to social prestige.

Occupations are listed at the left hand side and rating scales (1-6) are at right hand side, correspondingly. Please read all the occupations first and put a tick mark at the space (box) provided below the rating scales for each occupation.

Example

Scale

| Occupation | 1 | 2 | 3 | 4 | 5 | 6 |
|-----------------------|---|---|---|---|---|---|
| OAU Secretary General | | | | | | |
| Beggar | | | | | | |
| Occupation 'x' | | | | | | |
| Occupation 'y' | | | | | | |

Thank you!

Desalegne Shanko

Income Scale

| | 1 | 2 | 3 | 4 | 5 | 6 |
|-----------------------------------|---|---|---|---|---|---|
| Medical doctor | | | | | | |
| Secretary | | | | | | |
| Administrator of technical school | | | | | | |
| Carpenter, Mason | | | | | | |
| Skilled worker | | | | | | |
| Unskilled worker | | | | | | |
| Labourer | | | | | | |
| Manager | | | | | | |
| Provincial manager (head) | | | | | | |
| Purchaser | | | | | | |
| Driver | | | | | | |
| Garage worker | | | | | | |
| Waiter | | | | | | |
| Administrator | | | | | | |
| Bank teller | | | | | | |
| Laboratory technician | | | | | | |
| Service worker | | | | | | |
| Guard | | | | | | |
| Technician (qualified) | | | | | | |
| Technician (skilled) | | | | | | |
| Public relation worker in Embassy | | | | | | |
| Linesman in Tele, EELPA | | | | | | |
| Tax collector | | | | | | |
| Cashier | | | | | | |

Income Scale

| | | | | | | |
|---------------------------------------|--|--|--|--|--|--|
| - General merchandise | | | | | | |
| - Large shop (goods) | | | | | | |
| - Small shop (goods) | | | | | | |
| - Retail trade (other than food) | | | | | | |
| - Stationary | | | | | | |
| - Retail trade (food or edible) | | | | | | |
| - Hotel owner | | | | | | |
| - Bar owner | | | | | | |
| - Grocery owner | | | | | | |
| - Garage owner | | | | | | |
| - Spare parts owner | | | | | | |
| - Beauty salon owner | | | | | | |
| - Mill owner | | | | | | |
| - Butcher (owner) | | | | | | |
| Ex - soldier (lower grade) | | | | | | |
| Ex - soldier-commissioned officer | | | | | | |
| Ex - soldier-general | | | | | | |
| Ex - soldier-air force (Master tech.) | | | | | | |
| Ex - police-non-commissioned | | | | | | |
| Ex - police-commissioned | | | | | | |
| Ex - soldier-Artist (eg. musician) | | | | | | |

| | | | | | | | | |
|---|--|--|--|--|--|--|--|--|
| Cook | | | | | | | | |
| Treasurer | | | | | | | | |
| Servant | | | | | | | | |
| Chemist | | | | | | | | |
| High school director | | | | | | | | |
| Dresser | | | | | | | | |
| Store Keeper | | | | | | | | |
| Pharmacist | | | | | | | | |
| University (teacher) | | | | | | | | |
| Teacher (technical school) | | | | | | | | |
| High school teacher | | | | | | | | |
| Engineer | | | | | | | | |
| Architect | | | | | | | | |
| Head of department in organization ministries | | | | | | | | |
| Nurse | | | | | | | | |
| Judge in higher courts | | | | | | | | |
| Judge in lower courts | | | | | | | | |
| Attorney, lawyer, advocate (in higher courts) | | | | | | | | |
| Attorney, lawyer, advocate (in lower courts) | | | | | | | | |
| Auditor | | | | | | | | |
| Accountant | | | | | | | | |
| Messenger | | | | | | | | |
| Farmer | | | | | | | | |
| Merchant | | | | | | | | |
| - Whole sale | | | | | | | | |
| - Import-export | | | | | | | | |

Prestige Scale

| | 1 | 2 | 3 | 4 | 5 | 6 |
|-----------------------------------|---|---|---|---|---|---|
| Medical doctor | | | | | | |
| Secretary | | | | | | |
| Administrator of technical school | | | | | | |
| Carpenter, Mason | | | | | | |
| Skilled worker | | | | | | |
| Unskilled worker | | | | | | |
| Labourer | | | | | | |
| Manager | | | | | | |
| Provincial manager (head) | | | | | | |
| Purchaser | | | | | | |
| Driver | | | | | | |
| Garage worker | | | | | | |
| Waiter | | | | | | |
| Administrator | | | | | | |
| Bank teller | | | | | | |
| Laboratory technician | | | | | | |
| Service worker | | | | | | |
| Guard | | | | | | |
| Technician (qualified) | | | | | | |
| Technician (skilled) | | | | | | |
| Public relation worker in Embassy | | | | | | |
| Linesman in Tele, EELPA | | | | | | |
| Tax collector | | | | | | |
| Cashier | | | | | | |

Prestige Scale

| | | | | | | | | | |
|---------------------------------------|--|--|--|--|--|--|--|--|--|
| - General merchandise | | | | | | | | | |
| - Large shop (goods) | | | | | | | | | |
| - Small shop (goods) | | | | | | | | | |
| - Retail trade (other than food) | | | | | | | | | |
| - Stationary | | | | | | | | | |
| - Retail trade (food or edible) | | | | | | | | | |
| - Hotel owner | | | | | | | | | |
| - Bar owner | | | | | | | | | |
| - Grocery owner | | | | | | | | | |
| - Garage owner | | | | | | | | | |
| - Spare parts owner | | | | | | | | | |
| - Beauty salon owner | | | | | | | | | |
| - Mill owner | | | | | | | | | |
| - Butcher (owner) | | | | | | | | | |
| Ex - soldier (lower grade) | | | | | | | | | |
| Ex - soldier-commissioned officer | | | | | | | | | |
| Ex - soldier-general | | | | | | | | | |
| Ex - soldier-air force (Master tech.) | | | | | | | | | |
| Ex - police-non-commissioned | | | | | | | | | |
| Ex - police-commissioned | | | | | | | | | |
| Ex - soldier-Artist (eg. musician) | | | | | | | | | |

| | | | | | | | | |
|---|--|--|--|--|--|--|--|--|
| Cook | | | | | | | | |
| Treasurer | | | | | | | | |
| Servant | | | | | | | | |
| Chemist | | | | | | | | |
| High school director | | | | | | | | |
| Dresser | | | | | | | | |
| Store Keeper | | | | | | | | |
| Pharmacist | | | | | | | | |
| University (teacher) | | | | | | | | |
| Teacher (technical school) | | | | | | | | |
| High school teacher | | | | | | | | |
| Engineer | | | | | | | | |
| Architect | | | | | | | | |
| Head of department in organization ministries | | | | | | | | |
| Nurse | | | | | | | | |
| Judge in higher courts | | | | | | | | |
| Judge in lower courts | | | | | | | | |
| Attorney, lawyer, advocate (in higher courts) | | | | | | | | |
| Attorney, lawyer, advocate (in lower courts) | | | | | | | | |
| Auditor | | | | | | | | |
| Accountant | | | | | | | | |
| Messenger | | | | | | | | |
| Farmer | | | | | | | | |
| Merchant | | | | | | | | |
| - Whole sale | | | | | | | | |
| - Import-export | | | | | | | | |

Computation of Inter judge Agreement

Inter judge agreement between two judges is obtained by using kappa statistics (K) (Cohen, 1960):

$$K = \frac{N \sum X_{ii} - \sum X_{i+} X_{+i}}{N^2 - \sum X_{i+} X_{+i}}$$

where N is the number of cases to be judged,

X_{ii} is number of times the judges agreed in category i,

X_{i+} is number of times did judge 1 used category i,

X_{+i} is number of times did judge 2 used category i.

The standard error of estimate of K is given by:-

$$k_0 = \frac{\sum X_{i+} X_{+i}}{N(N^2) - \sum X_{i+} X_{+i}}$$

The level of significance of K is obtained by the formula:-

$$Z = \frac{K}{k_0}$$

, referring the resulting

critical ratio to the normal curve.

Sample Computation

judge GA
(Two)

| Categories | 1 | 2 | 3 | 4 | 5 | 6 | X+i |
|------------|---|----|----|----|----|---|-----|
| 1 | 6 | 0 | 0 | 0 | 0 | 0 | 6 |
| 2 | 1 | 14 | 6 | 0 | 3 | 1 | 25 |
| 3 | 0 | 4 | 3 | 5 | 0 | 2 | 14 |
| 4 | 0 | 1 | 2 | 7 | 2 | 0 | 12 |
| 5 | 0 | 0 | 0 | 1 | 7 | 2 | 10 |
| 6 | 0 | 0 | 0 | 0 | 0 | 3 | 3 |
| Xi+ | 7 | 19 | 11 | 13 | 12 | 8 | 70 |

$$\sum X_{i+} = \sum X_{+i} = N = 70$$

$$\sum X_{ii} = 6 + 14 + 3 + 7 + 7 + 3 = 40$$

$$\sum X_{i+}X_{+i} = (7)(6) + (19)(25) + (11)(14) + (13)(12) + (12)(10) + (8)(3) = 971$$

$$K = N \frac{\sum X_{ii} - \sum X_{i+} X_{+i}}{N^2 - \sum X_{i+} X_{+i}}$$

$$= \frac{70(40) - 971}{4900 - 971}$$

$$= .47$$

$$k_0 = \frac{971}{70(70^2) - 971}$$

$$= .0594$$

$$Z = \frac{K}{k_0} = \frac{.47}{.0594}$$

$$= 7.91$$

significant beyond = .001 level