

**AN EVALUATION OF THE IMPACT CULTURE AND MOTIVATION IN CENTRAL
AMERICA AND THE AMERICAS WITH AN EVALUATION OF SERVICE,
MANUFACTURING, RETAIL, GOVERNMENT AND THE PUBLIC SECTOR**

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ABSTRACT

This study of the Job Characteristics Model centers on companies in both manufacturing and service industries in all countries, and government (in Mexico only) located in North America (U.S.) and Central and South America (Nicaragua, Guatemala, Mexico, Costa Rico, Belize, Honduras, Ecuador, El Salvador, & Panama). Results of United States companies are compared to those of non-U.S. firms. Scores were calculated for each of the five dimensions of the model and the motivation potential score. For comparison purposes, scores for all companies studied were compared to those in the Hackman and Oldham database. It appears that cross-cultural differences may help to explain the findings.

Keywords: Job Characteristic Model, industries, North, Central and South America, U.S. scores, Hackman and Oldham, dimensions, cultural differences

INTRODUCTION

In today's increasingly competitive, global environment, aggressive strategies by companies to lower costs and increase margins often result in unintended consequences in terms of employee motivation and morale. Hackman and Oldham (1976) developed the Job Characteristics Model (also known as the Hackman and Oldham Model) to determine how job characteristics and individual differences interact to affect the overall satisfaction, motivation, and productivity of individuals at work. The model is helpful in planning and carrying out changes in the design of jobs. In developing the Model, Hackman and Oldham built upon the foundation of Herzberg's two-factor theory (Herzberg, Mausner, & Synderman, 1959) with some theoretical foundations based on the expectancy theory (Evans, Kiggundu, & House, 1979).

What does it take to motivate an individual to perform at his or her best? This question has intrigued management and inspired much research and interest. For Hackman and Oldham, the answer to the above question focused on job design and its interaction with the motivation of the individual. The Hackman and Oldham model was developed to specify how job characteristics and individual differences interact to affect the satisfaction, motivation, and the productivity of individuals at work. The model is specifically used in planning and carrying out changes in the design of work.

Several studies (e.g., Ford, 1969; Lawler, 1973; Maher, 1971; Meyers, 1970; Special Task Force, HEW, 1973; Vroom, 1964) have supported the theory of motivation through job redesign. Studies of job redesign have found that this technique is able to (1) significantly reduce turnover and absenteeism, (2) improve job satisfaction, (3) improve quality of products, and (4) improve productivity and output rates (Steers and Porter, 1987).

This study centers on companies in manufacturing, service industries, and government located in North America, Central America and South America. Results of United States companies are compared to those of non-U.S. firms. Scores were calculated for each of the five dimensions of the model and the motivation potential score. For comparison purposes, scores for all companies studied were compared to those in the Hackman and Oldham database.

REVIEW OF THE LITERATURE

Several researchers (Walker, & Guest, 1952; Herzberg, 1966; Davis, 1957; Herzberg, Mausner, & Snyderman, 1959) started the job redesign movement. Job redesign has become a useful tool in developing ergonomic programs, resulting in increased motivation and fewer injuries (Mier, 1992). Using job redesign to introduce technology into the workplace will be very important in the future as organizations shift from a tightly controlled management structure with narrowly defined jobs to a style that gives employees greater satisfaction, thus increasing motivation (Iadipaolo, 1992).

Work redesign is a unique approach to motivation and company reorganization for four reasons: (1) work redesign alters the basic relationship between a person and what he or she does on the job; (2) work redesign directly changes behavior, which tends to stay changed; (3) work redesign offers and sometimes forces into one's hands numerous opportunities for initiating other organizational changes; and (4) work redesign, in the long-term, can result in organizations that re-humanize rather than dehumanize the people who work in them (Hackman, 1977). The entire concept of job redesign is based upon the theories of motivation and the motivation literature.

Recent studies of the Job Characteristics Model (JCM), presented in Appendix 1, have tended to focus on two general questions: (1) does the model apply to non-manufacturing jobs (e.g., service, sales, health care)? (2) Are there mitigating factors which may apply to work settings outside the United States? Some studies have explored these questions simultaneously.

Several recent studies have explored the first question alone. In the United States, the usefulness of the JCM has been validated in studies of information technology professionals (Brown, 2002), public school teachers (Fernandez, 2002), and hospital workers (Casey & Robbins, 2009). Other studies have been conducted outside the U.S., albeit in areas with a similar culture and society. One researcher administered

the JDS to hotel workers in the United Kingdom (Lee-Ross, 1998) and to hospital chefs in Australia (Lee-Ross, 2002). In both cases the results indicated that the JCM was valid in a service setting.

Other studies have been conducted using the Job Characteristics Model in international settings. A study in Belgium of public service workers found that administrative tasks (more routine and clerical in nature) held less motivating potential than commercial tasks (those tasks more closely associated with accomplishing the mission of the organization). This was due to lower levels of the core job characteristics (Buelens & Van den Broeck, 2007).

A study in Malta focused on the level of motivation of public service workers (PSM); this study found that employees who experience positive job characteristics, as measured by the JDS, have a higher PSM level (Camilleri, 2005). Elanain (2008), in a study of both manufacturing and service companies, found employees are impacted by increasing the provision of the critical job characteristics; employee satisfaction and commitment can increase, and turnover can decrease as a result.

A Netherlands study in the financial services and educational areas found support for the hypothesis that work characteristics are a direct cause of job motivation and satisfaction (Houkes, Janssen, Jonge, & Bakker, 2003). Another study proposed that critical job dimensions would be lower for Mauritian workers than for Australian, i.e., work content would be perceived differently due to cultural differences (Lee-Ross, 2005). Using the JDS to measure work content, the author found that Mauritian workers scored lower on all five of the critical job dimensions.

Michailidis and Dracou (2011) studied Cyprus sales representatives and found the MPS score was significantly related to three characteristics—educational level, age, and tenure. Educational level and age were inversely related, while tenure was directly related. Millette and Gagné (2008) found support for the hypothesis that the MPS (job satisfaction) was positively associated with autonomous motivation (defined as internal motivation) among volunteers in a health care organization.

The authors also found support for the hypothesis that MPS was positively associated with volunteer work satisfaction. Sadler-Smith, El-Kot and Leat (2003) found the work criterion, autonomy, was associated with job satisfaction in a non-Western context (Egypt) through a manufacturing facility study.

A study of educational institutions in Germany (Schermuly, Schermuly and Meyer, 2011) found that job satisfaction was highly and inversely related to emotional exhaustion. The authors also found that satisfaction was predicted best by perceived competence of the subjects (in this case, vice-principals of the institution).

Among various service workers in Canada, Mexico and the Netherlands, researchers found that job satisfaction is affected by external factors such as cultural influences (Sledge, Miles, & van Sambeek, 2011). Wong, Hui and Law (1998) found that overall and intrinsic job satisfaction is reciprocally related to job perception among service workers in China.

Ali, Said, Yumus, Kader, Latif and Munap, (2014) studied job motivation and satisfaction in the fast food industry. This article relates to the fast food industry while Ayandele and Nnamseh (2014)

studied the model in the civil service field. Moloi, Thapelo (2014) utilized the model to study 11 and 12 educators in 14 selected secondary schools.

HYPOTHESES

This study utilized the Job Diagnostic Survey (JDS) for the U.S. companies and the non-U.S. countries. The researchers developed the following hypotheses to determine if a significant difference exists between U.S. and non-U.S. companies, in terms cultural influences on companies in surveyed countries.

H₀: There are no significant differences between the U.S. and non-U.S. countries in terms of cultural influences on companies in both samples based on data generated form JDS results.

H₁: There are significant differences between the U.S. and non-U.S. countries in terms of cultural influences on companies in both samples based on data generated form JDS results.

METHODOLOGY

Survey Instrument

The Job Diagnostic Survey (JDS) is an instrument designed to measure the key elements of the job characteristics theory. The survey measures several job characteristics, employees' experienced psychological states, employees' satisfaction with their jobs and work context, and the growth need strength of respondents. The instrument has a variety of scales depending on the section. Sections one through five utilize a 7-point scale. Section six utilizes a 10-point scale, and sections seven and eight utilize a 5-point scale.

The JDS is designed to be completed by the incumbents of a job or jobs in question-not by individuals outside the job. An instrument designed for the latter purpose is entitled the Job Rating Form (JRF) and is completed only by management personnel. The Job Rating Form uses a 7-point scale for all three sections.

The JDS is not copyrighted and, therefore, may be used without the author's permission. However, the researcher did send letters to the authors asking for permission to use the instrument and purchased a copy of the instrument from the Educational Testing Service in Princeton, New Jersey. A short form of the JDS has also been developed. It excludes measures of the experienced psychological states and uses fewer items to measure other key variables in the job characteristics theory. The short form was used for this research.

In each case, the researchers obtained the permission of the companies to conduct the surveys. For the sites in non-U.S., the researchers translated the surveys into Spanish and developed a letter explaining the survey and letting the employees know that individual responses would remain anonymous. The survey instrument translation and letter were certified for both the translation of the survey questions as well as the implied intent.

Sample and Data Collection

A convenience sample of five U.S. companies was selected for study. The sample for the first study was derived from a manufacturing plant in northwest Arkansas, where a total of 192 employees out of a plant population of 1,000 completed the questionnaire on location. A large retail company in Arkansas comprised the second study, where 89 stores were randomly selected out of a population of 1,953 stores. In the second study, 534 employees were surveyed, with a response rate of 62 percent or 330 employees. The researchers conducted a study in the service industry in the U.S. The survey was conducted in a hospital with 300 employees, with 89 employees responding. This represented a 30 percent response rate. A random number generator was utilized to determine participants in the study. In a survey in the Public sector, 21 surveys were completed, and in the non-profit 18.

This study consists of a 2,218 total responses, with 660 in the United States and 1,568 international. Convenience samples of the U.S. and nine non-U.S. countries (Nicaragua, Guatemala, Mexico, Costa Rico, Belize, Honduras, Ecuador, El Salvador, and Panama) were also selected for study. A bank in Nicaragua has a population of 600 with 233 responding. This represented a 39 percent response rate. A Guatemala bank with a population of 380 employees was surveyed. In the survey 152 employees returned the survey representing a 40 percent response rate. The food service company in Nicaragua had 108 surveys completed out of a total of 150. This response rate was high due to the encouragement of the owner, who communicated to the employees that individual responses would be kept confidential.

In the survey of 274 small service business owners in Mexico, 175 completed the survey for a 64 percent response rate. In the Costa Rican bank survey, 52 were surveyed and 28 responded for a response rate of 54 percent. In the Belize survey, 36 were surveyed and 15 responded for a response rate of 42 percent. In El Salvador a study of 786 employees in the retail industry was conducted. The survey resulted in 354 responding or a 45 percent response rate. In the Honduras survey, 385 were surveyed and 158 responded for a response rate of 41 percent. For the Ecuador survey, 402 were surveyed with 157 responding for a response rate of 39 percent. In the survey of government operations in Mexico, 356 were surveyed with 134 responding for a response rate of 38 percent. In the survey in Panama, 125 were surveyed with 54 completing the survey for a 43 percent response rate. The company surveyed in Panama is in the retail sector.

All studies above utilized the Job Diagnostic Survey (JDS). Employees completed the Job Diagnostic Survey (JDS) instruments which were sealed in envelopes then collected at a central location and returned to the researchers. The survey instrument was scored, with results compared to each other and to the Hackman and Oldham database.

In each case, the researchers obtained the permission of the companies to conduct the surveys. For the sites in non-U.S., the researchers translated the surveys into Spanish and developed a letter explaining the survey and letting the employees know that individual responses would remain anonymous. The survey instrument translation and letter were certified for both the translation of the survey questions as well as the implied intent.

RELIABILITY OF THE INSTRUMENTS

The Job Diagnostic Survey is intended for use in (1) diagnostic activities to determine whether and how existing jobs can be improved to increase employee motivation, performance, and satisfaction; and (2) evaluation studies of the effects of work design. Since the JDS was originally published (Hackman and Oldham, 1974 and 1975), the instrument has been used in many organizations and

subjected to several empirical tests (Cathcart, Goddard, & Youngblood, 1978; Dunham, 1976; Dunham, Aldag, & Brief, 1977; Oldham, Hackman, & Stepina, 1979; Pierce & Dunham, 1978; Stone, Ganster, Woodman, & Fuslier, in press; Stone & Porter, 1977; Barr and Aldag, 1978).

Experience with the JDS and studies of its properties, have highlighted a few limitations and suggest several cautions in using the JDS survey instrument (Hackman & Oldham, 1980). The Job Characteristics, as measured by the JDS, are not independent of one another. When a job is high on one characteristic (such as skill variety), it also tends to be high on one or more others (such as autonomy and/or feedback). The positive intercorrelations among the job characteristics may reflect problems in how they are measured in the JDS.

RESULTS OF THIS STUDY

Table 1 compares five studies conducted by the researchers in the United States in the manufacturing, retailing, public service, and non-profit sectors. Table 1 also reflects the means of the research for the manufacturing and sales industries in the United States as calculated by Hackman and Oldham.

Table 2 reflects eleven non-US studies in three banks (service industry in Nicaragua and Guatemala and Costa Rica), a food service company in Nicaragua, several small businesses in Mexico, and retail outlets in Honduras, El Salvador, Ecuador and in Belize. The study also included a government operation in Mexico. Table 1 and Table 2 display the scores for the core job characteristic of the model. Those core characteristics are: skill variety, task identity, task significance, autonomy, feedback, and motivating potential score. The table also reflects the motivating potential score (MPS) for each of the research studies.

Table 1: Means for the Studies in the Service, Manufacturing and Retail Industries United States

| Dimensions | Hackman & Oldham Mean for Sales Industry | Hackman & Oldham Mean for Manufacturing Industry | United States Study #1 Manufacturing Company | United States Study #2 Major Retailing Company | United States Study #3 Hospital (Service) | United States Study #4 Public Service | United States Study #5 Non-Profit Organization |
|-----------------------------------|--|--|--|--|---|---------------------------------------|--|
| | | | n=192 | n=330 | n=89 | n=21 | n=18 |
| Skill Variety | 4.80 | 4.20 | 4.89 | 4.46 | 4.05 | 4.51 | 3.84 |
| Task Identity | 4.40 | 4.30 | 3.94 | 5.25 | 3.89 | 3.83 | 3.69 |
| Task Significance | 5.50 | 5.30 | 5.31 | 5.59 | 4.48 | 4.5 | 4.48 |
| Autonomy | 4.80 | 4.50 | 4.67 | 5.30 | 3.56 | 3.8 | 3.56 |
| Feedback | 4.44 | 4.70 | 4.07 | 4.05 | 3.36 | 3.78 | 3.36 |
| Motivating Potential Score | 104.52 | 97.29 | 89.59 | 109.47 | 49.52 | 61.74 | 59.86 |

Table 2: Means for the Studies in the Service, Manufacturing and Retail Industries Non-US

| Dimensions | Non-US Study #1 Bank in Nicaragua (Service) | Non-US Study #2 Bank in Guatemala (Service) | Non-US Study #3 Food Service Nicaragua | Non-US Study #4 Small Service Businesses in Mexico | Non-US Study #5 Bank in Costa Rica | Non-US Study #6 Retail in Belize | Non-US Study #7 Retail in Honduras | Non-US Study #8 Retail in El Salvador | Non-US Study #9 Retail in Ecuador | Non-US Study #10 Government in Mexico | Non-US Study #11 Retail in Panama |
|----------------------------|--|--|---|---|---------------------------------------|-------------------------------------|---------------------------------------|--|--------------------------------------|--|--------------------------------------|
| | n=233 | n=152 | n=108 | n=175 | n=28 | n=15 | n=158 | n=354 | n=157 | n=134 | n=54 |
| Skill Variety | 3.77 | 3.71 | 3.70 | 3.77 | 4.03 | 3.52 | 3.72 | 3.74 | 3.87 | 3.56 | 3.50 |
| Task Identity | 3.01 | 3.35 | 3.62 | 3.95 | 4.21 | 3.72 | 4.07 | 3.27 | 3.44 | 3.38 | 3.57 |
| Task Significance | 2.50 | 3.10 | 3.17 | 3.70 | 3.35 | 4.01 | 4.32 | 3.29 | 3.44 | 3.34 | 3.44 |
| Autonomy | 2.86 | 2.72 | 3.88 | 3.70 | 3.85 | 3.70 | 3.68 | 3.13 | 3.32 | 3.23 | 3.22 |
| Feedback | 3.50 | 3.48 | 3.95 | 3.70 | 3.24 | 3.31 | 3.17 | 3.12 | 3.72 | 3.36 | 3.51 |
| Motivating Potential Score | 31.79 | 32.05 | 53.53 | 52.05 | 48.20 | 45.93 | 47.09 | 33.53 | 44.26 | 37.19 | 39.58 |

A formula was utilized to compute each of the scores. Potential motivating potential scores range from 1 to 125. The MPS provides a good indication of those job characteristics which could be enhanced to improve motivation. The MPS for the manufacturing company and the retailing company in this research are comparable to the means in the Hackman and Oldham database. The MPS for the hospital does not have a comparable mean in the Hackman and Oldham database. In addition, the MPS for the Central American banks, the food service company in Nicaragua as well as the small service businesses in Mexico are comparable to the hospital, but significantly below the Hackman and Oldham mean for the sales industry. Also the studies in the public sector and non-profit organization were higher than the results found in the international samples.

Table 3 reflects the mean scores for the United States versus non-United States companies in this sample. The researchers found that the overall MPS for US companies was 74.04 versus 42.38 resulting in a variance of 31.66. The two dimensions that had significant differences were task significance and autonomy.

Table 3: Means for the United States versus Non-U.S. Studies

| Dimension | Average for US Companies | Average for Non-US Companies | Variance |
|----------------------------|--------------------------|------------------------------|----------|
| Skill Variety | 4.35 | 3.72 | .63 |
| Task Identity | 4.12 | 3.60 | .52 |
| Task Significance | 4.85 | 3.47 | 1.38 |
| Autonomy | 4.29 | 3.39 | .9 |
| Feedback | 3.79 | 3.46 | .33 |
| Motivating Potential Score | 74.04 | 42.38 | 31.66 |

DISCUSSION AND CONCLUSIONS

The null hypothesis proposed that “there are no significant differences between the U.S. and non-U.S. countries in terms of cultural influences on companies in both samples based on data generated from JDS results”. To test this hypothesis, the researchers performed a one-factor ANOVA to determine the variation between the subgroups; the results are shown in Table 4. Since the analysis

the F value of 7.854 was larger than the F critical of 1.826, the researchers rejected the null hypothesis and concluded there is a statistically significant difference between the US and non-US companies.

The alternative hypothesis proposed that “there are significant differences between the U.S. and non-U.S. countries in terms of cultural influences on companies in both samples based on data generated from JDS results”. To test this hypothesis, the researchers then performed an analysis of variance for both the US and Non-US companies; the results for the US companies are displayed in Table 5 and for the non-US companies in Table 6. The researchers found there was a significant difference in the two groups. The largest variance was between the retail company in the US and the bank in Nicaragua. The test of the independent groups found the F score was significant. The overall variance for the US was 1.17 and Non-US was 1.03 The F score was $1.17/1.03=1.14$, meaning there is a statistically significant difference between the US and non-US companies, allowing validation for the theory that culture or possible gender is the reason for the variances. Therefore, the alternative hypothesis was accepted.

Table 4: ANOVA: One-Factor Test

Anova: Single Factor

SUMMARY

| <i>Groups</i> | <i>Count</i> | <i>Sum</i> | <i>Average</i> | <i>Variance</i> |
|---------------------------|--------------|------------|----------------|-----------------|
| Public Service | 5 | 20.42 | 4.084 | 0.14803 |
| Non-Profit | 5 | 19.69 | 3.938 | 0.09197 |
| Non-Profit | 5 | 19.34 | 3.868 | 0.19027 |
| Retail | 5 | 24.65 | 4.93 | 0.41755 |
| Manufacturing | 5 | 22.88 | 4.576 | 0.32668 |
| Bank in Nicaragua | 5 | 15.89 | 3.178 | 0.19167 |
| Bank in Guatemala | 5 | 16.35769 | 3.271538 | 0.144535 |
| Food Service in Nicaragua | 5 | 18.35 | 3.67 | 0.08925 |
| Small Business in Mexico | 5 | 18.82 | 3.764 | 0.01173 |
| Bank in Costa Rica | 5 | 18.68 | 3.736 | 0.17978 |
| Retail in Belize | 5 | 18.26 | 3.652 | 0.06737 |
| Retail in Honduras | 5 | 18.96 | 3.792 | 0.19017 |
| Retail in El Salvador | 5 | 16.55 | 3.31 | 0.06385 |
| Retail in Ecuador | 5 | 17.79 | 3.558 | 0.05202 |
| Government in Mexico | 5 | 17.07004 | 3.414008 | 0.018229 |
| Retail in Panama | 5 | 17.23742 | 3.447483 | 0.018587 |

ANOVA

| <i>Source of Variation</i> | <i>SS</i> | <i>df</i> | <i>MS</i> | <i>F</i> | <i>P-value</i> | <i>F crit</i> |
|----------------------------|-----------|-----------|-----------|----------|----------------|---------------|
| Between Groups | 16.21204 | 15 | 1.080802 | 7.854343 | 1.36E-09 | 1.825586 |
| Within Groups | 8.806765 | 64 | 0.137606 | | | |
| Total | 25.0188 | 79 | | | | |

Table 5: Anova: ONE-Factor Test for US Companies

Anova: Single Factor

SUMMARY

| <i>Groups</i> | <i>Count</i> | <i>Sum</i> | <i>Average</i> | <i>Variance</i> |
|----------------|--------------|------------|----------------|-----------------|
| Public Service | 5 | 20.42 | 4.084 | 0.14803 |

| | | | | |
|---------------|---|-------|-------|---------|
| Non-Profit | 5 | 19.69 | 3.938 | 0.09197 |
| Non-Profit | 5 | 19.34 | 3.868 | 0.19027 |
| Retailing | 5 | 24.65 | 4.93 | 0.41755 |
| Manufacturing | 5 | 22.88 | 4.576 | 0.32668 |

| ANOVA | | | | | | |
|----------------------------|-----------|-----------|-----------|----------|----------------|---------------|
| <i>Source of Variation</i> | <i>SS</i> | <i>df</i> | <i>MS</i> | <i>F</i> | <i>P-value</i> | <i>F crit</i> |
| Between Groups | 4.176184 | 4 | 1.044046 | 4.44464 | 0.009867 | 2.866081 |
| Within Groups | 4.698 | 20 | 0.2349 | | | |
| Total | 8.874184 | 24 | | | | |

Table 6: ANOVA: ONE-Factor Test for non-us companies

Anova: Single Factor

SUMMARY

| <i>Groups</i> | <i>Count</i> | <i>Sum</i> | <i>Average</i> | <i>Variance</i> |
|---------------------------|--------------|------------|----------------|-----------------|
| Bank in Nicaragua | 5 | 15.89 | 3.178 | 0.19167 |
| Bank in Guatemala | 5 | 16.35769 | 3.271538 | 0.144535 |
| Food Service in Nicaragua | 5 | 18.35 | 3.67 | 0.08925 |
| Small Business in Mexico | 5 | 18.82 | 3.764 | 0.01173 |
| Bank in Costa Rica | 5 | 18.68 | 3.736 | 0.17978 |
| Retail in Belize | 5 | 18.26 | 3.652 | 0.06737 |
| Retail in Honduras | 5 | 18.96 | 3.792 | 0.19017 |
| Retail in El Salvador | 5 | 16.55 | 3.31 | 0.06385 |
| Retail in Ecuador | 5 | 17.79 | 3.558 | 0.05202 |
| Government in Mexico | 5 | 17.07004 | 3.414008 | 0.018229 |
| Retail in Panama | 5 | 17.23742 | 3.447483 | 0.018587 |

| ANOVA | | | | | | |
|----------------------------|-----------|-----------|-----------|----------|----------------|--|
| <i>Source of Variation</i> | <i>SS</i> | <i>df</i> | <i>MS</i> | <i>F</i> | <i>P-value</i> | |
| Between Groups | 2.301746 | 10 | 0.230175 | 2.464897 | 0.019427 | |
| Within Groups | 4.108765 | 44 | 0.093381 | | | |
| Total | 6.410511 | 54 | | | | |

SUGGESTIONS FOR FUTURE RESEARCH

The present study could be replicated in other countries for comparative purposes. Cultural variables or gender may contribute to the variations in the MPS scores for United States companies and those in other countries. Of particular interest is the role that task significance may play in determining the overall MPS. It is suggested that additional research be conducted in other countries as a way to help companies redesign work in today's increasingly competitive, global environment. In addition, research could also be conducted in more professional job categories at both for-profit and not-for-profit organizations.

REFERENCES AND APPENDIX 1 AVAILABE UPON REQUEST