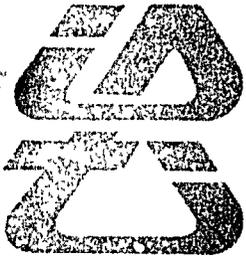


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**MEETING LABOR NEEDS OF
INDUSTRIAL FREE ZONES IN THE
DOMINICAN REPUBLIC:**

**ASSESSMENT OF TRAINING
NEEDS AND RESOURCES**

Prepared for:

**Agency for International Development
USAID/Dominican Republic
(Contract No. 0619-C-00-7038-00)**

(Task No. 8)

Prepared by:

**International Science and Technology Institute, Inc.
1129 20th Street, NW
Washington, D.C. 20036**

May 1988

U.S. and Overseas Offices

Arlington, Virginia • Lewes, Delaware • Guatemala City, Guatemala • Cairo, Egypt • Jakarta, Indonesia
Rabat, Morocco • Dakar, Senegal

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May 1988

ACKNOWLEDGEMENTS

Many individuals contributed significantly to the completion of this study. The team would especially like to thank Toni Christiansen-Wagner, Director of Human Resources, USAID/DR, for her guidance and advice and for making the project possible. Private Sector Officers, Ken Lanza and Bob Brown also gave us valuable advice.

Completing the field activities in the Dominican Republic would not have been possible without the extensive coordination and cooperation of each of the zone administrators and association presidents. In addition, we would like to recognize the time and commitment of the many private sector managers who contributed so significantly to this effort.

The collaboration of Ms. Arelis Rodriguez, Executive Director of the Investment Promotion Council, is also deeply appreciated. Her endorsement and encouragement motivated us.

Most especially, we would like to thank Dr. Max Fernandez of INTEC and the local survey team who persevered through many long days and interviews to procure the information for the demand questionnaire. Their professionalism and enthusiasm towards the work are commendable.

Finally, a special note of thanks and recognition to Eric Sorensen of Caliber Associates for his excellent work in developing the data presentation. His contribution greatly enhanced the report.

Amalia G. Cuervo
Project Team Leader
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LIST OF ABBREVIATIONS

AIHE	Association of Industries of Herrera Industrial Park
CBI	Competency Based Instruction
CNZF	National Free Zone Council
FUNDAPEC	APEC Educational Credit Foundation
IDB	InterAmerican Development Bank
IESC	International Executive Service Corps
IFZ	Industrial Free Zone
INFOTEP	Institute for Technical/Professional Development
INTEC	Technological Institute
IPC	Investment Promotion Council of the Dominican Republic
OIT	International Labor Organization
OJT	On-the-job training
SEEBAC	Ministry of Education
TAC	Trade Advisory Committees
USAID/DR	U.S. Agency for International Development, Dominican Republic Mission
USAID/HRD	U.S. Agency for International Development, Human Resource Development

EXECUTIVE SUMMARY

I. INTRODUCTION

Promoting private enterprise has been one of the major objectives of USAID development assistance in the Dominican Republic during the past five years. Programs have focused on improving the general investment climate and on promoting the development and growth of industrial free zones (IFZs) and agricultural and agroindustrial exports in particular.

In the past few years, the IFZs have experienced tremendous growth. Since 1980, close to 100 new firms have installed, and employment has grown from slightly over 16,000 to an estimated 65,000 to 70,000. Predictions indicate that 100,000 persons will be employed in the IFZs by the end of 1988. In addition to the rapid growth in the number of IFZ firms, the changing composition of IFZ industries is also affecting the availability of trained labor. This diversification, which is necessary to ensure the continued success of the IFZs, will place new demands on the labor force and the existing educational institutions.

The rapid growth of the IFZs in the country is leading to critical skill shortages both inside and outside of the IFZs. If not addressed, these shortages will affect the growth of all manufacturing export industries and the productivity and expansion of current ones.

The purpose of this study was to gather and analyze information regarding the training needs in the IFZs, in-country training resources and institutions, and options for supplying trained manpower to IFZ employers. In addition to addressing the growing labor needs in the IFZs, USAID/DR is promoting the industrial integration between the IFZs and the local economy. To this end, the study included a sample of export oriented firms in the Herrera Industrial Park.

The study included three major components:

- o a quantitative demand analysis
- o an evaluation of vocational/technical programs
- o a qualitative assessment (focus groups)

The quantitative demand analysis called for a systematic in-depth survey of a representative sample of IFZ companies and export firms in Herrera Industrial Park. A total of 136 firms were surveyed, 118 from the IFZs and 18 from the Herrera Industrial Park. The supply analysis consisted of a broad review of vocational/technical programs offered by twelve leading providers of non-formal training. To verify the supply and demand analyses, four regional policy dialogues (focus groups) were held to provide immediate feedback to the private sector on

the results of the study, to enlist their participation in efforts to upgrade the skills of the labor force and to refine the recommendations to be presented to USAID/DR.

II. DEMAND ANALYSIS

The results of the demand survey support a number of major conclusions. These include:

Real Growth in Jobs

- o Almost 80 percent of the firms are projecting sizeable increases in employment (14,404 new jobs) by the end of 1988. Most of the demand is in the IFZs with 13,432 new jobs to be created. The most crucial demands are for semi and unskilled workers, and technicians, respectively. Conservative estimates indicate that current IFZ companies alone could create close to 21,000 new jobs in 1988. If potential employment from new investors is factored in, IFZ employment could exceed 100,000 by the end of 1988.

Critical Shortage of Skilled Labor

- o Nearly 80 percent of managers surveyed rated lack of skilled labor as the most critical factor affecting the growth and productivity of their operation. Given the rapid growth of IFZs, this issue will become more critical for investment promotion and for maintaining the productivity levels and quality of existing firms.

Training Needs

- o Most firms, regardless of activity, size and location, are facing serious training needs in the following areas: supervisors, industrial mechanics, electro-mechanics, industrial electricians and bilingual secretaries. Among the apparel industries, there is a great demand for operators with basic skills in operating industrial sewing machines.

Labor and Education

- o Employers prefer to hire workers who have a formal education (at least eight years of schooling) even if the job does not require it. Generally, managers are pleased with the literacy skills of the labor force. A number of companies provided specific examples of how quickly Dominicans learn technical skills on the job. Employers most prefer to hire graduates from: the Loyola Politechnical Institute (Jesuit), the Salesian Technical H.S., and the Vocational/Technical School of the Armed Forces. All were

noted for their discipline and sound basic technical training. The Jesuits seem to do best in electronics and electricity, the Salesians train general industrial mechanics.

- o When it comes to attitudes on the job, however, managers point out that workers are lacking in industrial discipline, initiative and general problem-solving ability. In their opinion, this is due to deficiencies in the basic education system.

Methods for Training

- o Most firms conduct their training informally on-the-job. About 30 percent of the firms have a combination of formal and informal programs. Because of the lack of qualified local instructors, firms bring their own on an intermittent basis from the U.S., Puerto Rico and the Far East. Managers complain that their current methods are too costly, time consuming and ineffective.

Preferences for Meeting Future Training Needs

- o The majority of managers surveyed would prefer to upgrade the current level of in-plant training, develop in-zone training centers and work with existing training institutions, respectively. The exception is the electronics sector, which strongly favors working with existing vocational/technical schools. Most managers (90%) believe training should be financed through a mix of public/private resources, or through totally private means. The majority of firms (75%) prefer to finance training through direct payments to training institutions.

Training Assistance Needed

- o Most firms are willing to pay for quality training services. Employers are also willing to provide the equipment, and in many cases, the facilities. However, firms are requesting assistance in the following areas: instructors, curriculum development, printed and audio visual training materials, and assistance in identifying training needs and priorities.

Backward Linkages

- o The survey shows that few linkages exist between the local economy and IFZs. Integration will require: 1) identifying and matching IFZ firm needs with local producers; and 2) an organization or system to act as brokering agent to identify and facilitate linkages. Further study is needed to determine what changes are needed in current industrial and government policies and bureaucracy to promote such trade.

III. ASSESSMENT OF VOCATIONAL-TECHNICAL PROGRAMS

The supply analysis of vocational/technical institutions concluded that:

- 1) The Dominican Republic possesses a wide range of technical training resources which are not being used to their maximum potential.
- 2) Institutions need substantial equipment upgrading and instructor training to meet many of the training needs in demand by the IFZs, i.e. supervision, electro-mechanics, industrial apparel mechanics, industrial maintenance, electronics, and machine operators.
- 3) Few public or private sector training institutions have developed formal mechanisms to define training needs and priorities for responding to industry demands.
- 4) There is a lack of consistency and standardization of job titles and certification requirements.
- 5) There is great variation in training content and core curriculum. Major jobs are not standardized according to a uniform job classification system and therefore do not provide increased socioeconomic mobility within a trade or related trades.
- 6) There is a lack of regional and national direction in vocational/technical education.
- 7) The linkages between the vocational training system and the employment market are weak. A serious lack of communication and coordination exists between training providers and users.

IV. FOCUS GROUPS

In terms of qualitative information, four regional focus groups or policy dialogues were held: 1) Santiago, La Vega, Puerto Plata, 2) San Pedro, La Romana (unable to attend due to the national strike), 3) Bani, San Isidro, Itabo, and 4) Herrera. The key conclusions of the four sessions were:

Need for Technical Assistance

- o Employers lack knowledge regarding: (1) how to define their exact training needs, (2) where to look in order to obtain adequate training services, and (3) the role they could play in guiding training.

Information Needs

- o The private sector leaders expressed considerable interest in obtaining additional information on what training resources were available inside and outside the country. At present, there is no information system available to keep users of training services apprised on a timely basis of training opportunities and resources.

Private Sector Action Planned

- o The focus group discussions encouraged private sector managers and IFZ administrators to become more proactive and responsible for the labor shortages they are facing. Most groups made significant declarations or commitments to initiate steps to bring about more effective linkages with training providers. In some instances, specific mechanisms for establishing linkages were proposed.

Training Needs and Solutions

- o Training needs as well as the solutions to training problems varied by location due to the composition of firms in the zone, regional priorities and stage of development of the zone. Interventions will have to be responsive to such differences to be effective.

V. RECOMMENDATIONS

In order to adequately respond to the labor demands of existing and potential IFZ clients, the study proposes a number of recommendations:

1) Use of Contract Consultants in the Short Term

Contract consultants should be used in the short term (next 6 months), to provide both job entry level and skill upgrading training. Such contract services would include the proposed INFOTEP mobile training units, instructors from other existing Dominican institutions, and use of international resources¹. All twelve vocational/technical institutions visited expressed interest in providing training for the IFZ firms through contractual or other arrangements. If the mobile training units do not materialize within the next three months, temporary training centers may need to be set up in some IFZs, including Santiago and San Pedro de Macoris.

¹ Two U.S. resources discussed in the focus groups were the International Executive Service Corps (IESC) and Oxford Industries training courses.

2) Upgrading of Training Institutions in the Medium/Long Term

Existing institutions should be used as the primary source for training for the medium and longer term (more than 6 months). A minimum of six months is necessary to carry out the upgrading of staff, revision and development of new curriculum and purchase of new equipment and materials. Considerable upgrading of instructors, curriculum materials and equipment will be required. The prospective loan from the InterAmerican Development Bank (IDB) should substantially assist with these needs. However, the IDB loan may only target needs at the technical and supervisory levels. This study indicates substantial needs of IFZ firms at the job entry and semi-skilled levels. Even with the IDB loan, a minimum of six to twelve months will be necessary to carry out the upgrading of staff, revising and development of new curriculum and purchase of new equipment and materials.

3) Technical Assistance Needed to Meet Special IFZ Training Demands

Financing and international technical assistance should be targeted to strengthen training institutions, especially in the more advanced industrial areas of machine and electronic control trouble shooting, pneumatics and hydraulics. In regard to the information services industry, one firm recommended that USAID could assist selected commercial or secretarial schools purchase computer hardware, thus increasing the "computer literacy" of graduates, a skill which is currently lacking among many of the company's recruits (see Appendix C).

4) Quick Start Training Needed for Industrial Mechanics for the Apparel Industry

Funds should be reserved for contracting expatriate, industry specific, quick start training programs in the repair and maintenance of industrial apparel machinery². Local instructors should participate as counterparts so as to be able to continue to offer this training, at a minimum, in one major vocational training center.

5) Upgrade Supervisory Training Through Existing Institutions

Skill upgrading and university extension programs should be used to address supervisory training needs. Technical assistance, instructor training, curriculum materials and active involvement of employers could greatly enhance the quality and quantity of such programs.

² One such program is that of Oxford Industries. This company has recently expanded its in-house training program for mechanics, offering training to other firms on a contract basis.

-2'

6) Formation of Trade Advisory Committees in Critical Areas

Trade Advisory Committees (TAC) focused on specific need areas should be formed. The TACs could facilitate the upgrading of training programs, and encourage establishment of formal linkages between users and providers of training³. These TACs could build on the ideas discussed in the focus groups regarding regional coordinating committees.

7) Standardization of Training Curriculum Needed

A systemic process for clearly defining training needs and specifying the expected results of training programs should be developed.

Core training curriculum content should be standardized. This should be based on a consistent, nationwide system of classifying job titles and competencies, and should be given serious consideration in order to improve the cost effectiveness and internal and external efficiency of training.

8) Designation of an Organization to Serve as Broker Between Users and Suppliers of Training

A neutral, third party organization or institution should be identified/created to arrange contacts between employers and the most credible suppliers of training. Several existing organizations were suggested during the various focus groups⁴. Further study is needed to: 1) determine how to improve the regional and national direction of vocational/technical education, 2) evaluate which existing institution (s) is appropriate, or whether a new institution should be created, and 3) design a blueprint, or plan of action. If an existing institution is selected, international technical assistance is recommended in the initial stages to assist in developing the structure and systems necessary for promoting effective coordination and cooperation among all critical groups. Experience in other countries has shown that neither private sector groups nor individual training institutions are generally prepared to perform all the tasks necessary to be successful.

³ TACs are widely used in Brazil, Colombia and more recently, Honduras, through a USAID project, CADERH.

⁴ These institutions included INFOTEP, the IPC, the National Council of Free Zones (CNZF), and the Association of Industries of Herrera (AIHE).

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9) Upgrade English Language Training In-Country

There is a need to study how USAID can assist in upgrading general and job-specific English language programs in the country. This study highlights the competition which exists among the IFZs, the local export sector, the financial sector and the tourism industry for quality, bilingual personnel.

10) Crucial Role of USAID's Continuing Support of Private Sector Leaders and Their Initiatives

Immediate action is needed to provide support to private sector leaders expressing a willingness to work on improving skills upgrading programs. One recommendation is to provide each of the participants with a brief, zone-specific report containing the survey results of key questions, excerpts from the evaluation of vocational/technical resources and summaries of the focus group sessions. Additional support through technical assistance will be most critical, or the momentum generated by the study will be lost.

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CHAPTER 1 INTRODUCTION

1.1 Problem and Background

Promoting private enterprise has been one of the major objectives of USAID development assistance in the Dominican Republic during the past five years. Programs have focused on improving the general investment climate and on promoting the development and growth of industrial free zones (IFZs) and agricultural and agroindustrial exports in particular. The IFZs have experienced tremendous growth in recent years and play a major role in the creation of jobs and the generation of foreign exchange for the country.

At this time, the Dominican Republic is considered one of, if not the most, rapidly growing foreign investment market in the region. One prerequisite for continued growth of the IFZs is the availability of a skilled and motivated labor force to attract new industries in an increasing number of diverse manufacturing activities. To ensure such availability, cost-effective training programs are needed, designed with the specific needs of the IFZ companies in mind.

The availability and quality of the labor force are important factors considered by foreign investors contemplating moving their labor intensive operations offshore to industrial free zones. Close to 100 new firms have installed in the IFZs since 1980, and employment has grown from slightly over 16,000 to an estimated 65,000 to 70,000. The Investment Promotion Council (IPC) estimates that 100,000 persons will be employed in the IFZs by the end of 1988.

Close to 60 percent of the firms currently operating in the IFZ have installed since 1982, encouraged by the Caribbean Basin Initiative program and changes in foreign exchange regulations in the Dominican Republic which lowered production costs in the IFZs. Much of this growth has occurred in just the past two years, with the development of several new, large scale IFZs, and major expansions by nearly all of the established IFZs.

In addition to the rapid growth in the number of IFZ firms, the changing composition of IFZ industries is also affecting the availability of trained labor. Although the traditional sewing industries¹ continue to comprise the majority of Dominican IFZ firms, there is a growing number of companies engaged in other activities including electrical and electronic assembly, data

¹ Sewing industries include garments, shoes and leather and fur goods.

entry, disposable medical products, glass frames and jewelry. This diversification, which is necessary to ensure the continued success of the IFZs, will place new demands on the labor force and the existing educational institutions.

The rapid growth of the IFZs in the country is leading to critical skill shortages both inside and outside of the IFZs. If not addressed, these shortages will affect the growth of all manufacturing export industries and the productivity and expansion of current ones.

1.2 Purpose and Objectives

The purpose of this study was to gather and analyze information regarding the training needs in the IFZs, in-country training resources and institutions, and options for supplying trained manpower to IFZ employers (see Appendix A-1 for Scopes of Work). To date, a number of studies had addressed a variety of issues related to the free zones, but none had analyzed employers' needs in the area of skilled labor and training.² In addition to addressing the growing labor needs in the IFZs, USAID/DR is interested in improving the linkages between the IFZs and the local economy. In response to this interest, the team was also asked to evaluate the training needs of export firms in Herrera Industrial Park and to identify training interventions which would improve the competitiveness of these companies in supplying components and materials to the IFZs.

The four-member ISTI team consisted of specialists in the following areas: Employer-Based Training, Vocational Education, Industrial Free Zones and Private Sector Development. Specifically, the ISTI team was asked to address several critical questions about training needs in the IFZs and among export firms in Herrera:

- o What are the industries' most critical skills needs?
- o How are employers currently resolving their overall training needs?
- o If training needs are not being met, what are the constraints?
- o How is training currently being conducted by the firms?
- o How can training assist employers to upgrade their workers and increase productivity?

²A review of relevant studies on the IFZs is provided in Appendix A-2.

1.3 Organization of the Study

The study included three major components: 1) a quantitative demand analysis; 2) an evaluation of vocational technical programs in the country; and 3) a qualitative analysis. The quantitative demand analysis called for a systematic in-depth survey of a representative sample of small, medium and large IFZ companies and export firms in Herrera Industrial Park. The supply analysis consisted of a broad review of vocational/technical programs offered by the twelve leading providers of non-formal training. To verify the supply and demand analyses, policy dialogues (in the form of structured focus groups) were conducted to provide immediate feedback to the IFZ and Herrera firms on the results of the demand and supply analyses, to encourage private sector participation in efforts to upgrade the skills of the labor force, and to further refine the recommendations to be presented to USAID/DR.

The report is organized as follows. Chapter 2, Technical Approach, presents the methodology used in carrying out the demand survey and analysis. Chapter 3, Results of the Demand Analysis, summarizes and analyzes the key issues addressed by the survey. Chapter 4, Assessment of Dominican Vocational-Technical Programs, the findings and major conclusions of the review of major vocational technical programs in the country. Chapter 5, Results of the Focus Groups, discusses the objectives and format of the groups and the results of the four sessions. Chapter 6, Conclusions and Recommendations, presents an overview of major findings, followed by recommendations.

CHAPTER 2 TECHNICAL APPROACH

This section of the report describes the study methodology. It presents an overview of the basic activities involved in conducting the demand survey, followed by a brief description of each step. The methodology and the results of the supply side assessment are presented in Chapter 4. The methodology used in this study is consistent with that used in two previous USAID studies on Employer-Based Training (Cuervo, 1985 and Hershbach, 1986).

The major steps followed in conducting both the demand and supply side analyses were:

1. Establishing the scope and methodology of the study.
2. Designing the survey instrument.
3. Selecting the sample.
4. Collecting the data.
5. Analyzing the data and writing a preliminary report of the findings.
6. Conducting Focus Groups.
7. Writing the final report.

Steps one through four and six were conducted in the Dominican Republic. Steps five and seven were completed in Washington, D.C. Of all the steps presented, the management of the field data collection system was most critical to the success of a project of this type. As a result of the process employed in this study, the project team was able to conduct 136 in-plant surveys in three weeks, in nine industrial zones. The supply analysis included personal visits and assessments of 12 vocational/technical schools throughout the country in one week. In summary, the field tasks for both the demand and supply analyses took approximately seven person-weeks and were completed in the Dominican Republic between mid-January and April 8, 1988. The steps described here detail the sequence of procedures for conducting the demand survey and analysis.

2.1 - Step 1: Establishing the Scope and Methodology of the Project

Jointly with USAID/DR staff, the project team identified the key research questions, refined the problem based on a review of recent studies on IFZs and training, and developed an appropriate methodology.

2.2 - Step 2: Designing the Survey Instrument

Since the major objective of the study was to gather comprehensive data on IFZ employers' training needs and resources, the project team used a survey instrument to conduct structured in-person interviews with key managers of the various firms. As a model, the team utilized an employer-based training survey which has been field tested successfully in similar studies in Honduras and Panama.³ Changes were made to adapt the questionnaire to the needs of the country. Additional questions were added which allowed for more detailed information to be collected on the percentage of time employers utilized various training modalities, their estimated costs for training and preferred methods for conducting and paying for training. All survey items were reviewed by the Mission's Chief of Human Resources (the project officer) and a representative from the Private Sector office.

The demand survey included approximately 200+ items covering a number of critical issues related to the external and internal efficiency of employer-sponsored technical and supervisory training, including:

- o Firm and training characteristics
- o Labor and training demand
- o Preferred methods and institutions
- o Financing of training
- o Linkages with other institutions

Table 2-1 provides a complete list of the issues and questions addressed in the survey instrument. The survey instrument used in the Dominican Republic is included as Appendix A-3.

³These studies were sponsored by AID, Bureau of Science and Technology, Office of Education (AID/S&T/ED). (Cuervo, 1985.)

TABLE 2-1
SURVEY TOPIC AREAS

Firm Characteristics

- o Location of firm
- o Economic activity
- o Number of Employees by sex
- o Market Orientation
- o Principal products or services
- o Professional associations

Labor and Demand

- o Current and projected employment by job category
- o Critical jobs in demand
- o Skill areas in demand
- o Skill areas with highest turnover rates

Identified Training Needs

- o Major training needs
- o Technical and attitudinal labor problems
- o Number of workers requiring entry level training and upgrading
- o Types of training assistance needed

Training Characteristics

- o Importance of training within firm
- o Description of firm's training program
- o Type of training program
- o Functions of training
- o Methods of delivering training by skill category
- o Problems with current training system
- o Preferences and reasons for certain types of training

Financing Training

- o Training budget
- o Projected cost of training services
- o Preferences for financing training

2.3 - Step 3: Selecting the Sample

The study's scope of work called for a large, representative sample of small, medium, and large industrial free zone (IFZ) firms in the major sectors of economic activity in all of the eight operational IFZs in the Dominican Republic. The study hypothesized that employers' training needs, demands, and problems would vary by the firm's size (as defined by the number of employees), activity and location.

In addition, the study's research objectives on investigating the possibility of promoting the integration of the local industrial sector with that of the IFZs, i.e., backward linkages, dictated that the team also sample a selected number of firms from the Herrera Industrial Park. These firms were selected based on their existing or potential export activities.

The sample of the IFZ firms was selected randomly from existing lists of firms obtained from USAID, the IPC and IFZ administrations as of January 1988. Due to the rapid growth of the IFZs in the Dominican Republic, new firms are opening on a monthly basis. To insure the accuracy of the list, the team worked with each of the zone administration offices to update and validate the list for each zone. The Industrial Association for Herrera provided the list of firms for the Herrera sample.

There were a total of 184 operational⁴ IFZ firms at the time of the survey (January 1988). Due to the large percentage of apparel firms in the IFZs, a random sample (stratified by size) of 50 percent of apparel firms in the two largest IFZs in San Pedro de Macoris and Santiago was selected for the survey. An attempt was made to survey 100 percent of apparel firms in other zones and all non-apparel firms. The final sample included a total of 118 IFZ firms and 18 firms in Herrera. As discussed in Section 3.1, the relation of the sample to the real population is so high that the findings can safely be assumed to be representative of all IFZ firms. However, the Herrera sample was selected for a specific purpose and represents less than 20% of the total population in that zone. As a result, conclusions based on the findings for Herrera should be tentative and limited to those that relate specifically to the issue of backward linkages.

⁴ Operational firms refers to those which have installed their manufacturing operations and hired employees. Some of these firms however, may still be in the training phase.

2.4. - Step 4: Collecting the Data

The data collection activities included: hiring an in-country team to assist with the survey, conducting a brief seminar on data collection techniques and use of the survey, piloting the instrument, conducting interviews with employers, reviewing the completed surveys, and coding the data.

2.4.1 The In-Country Team

Working through the local counterpart suggested by the Mission, a group of 12 potential interviewers were identified to conduct the survey. Based on their participation in a one-day seminar, a final group of eight was selected. Of these, three had advanced professional degrees and prior experience conducting major national surveys, the others were upper level students in Industrial Engineering and/or Business Administration at INTEC.

This method of using university students, professors, and in some instances secondary school teachers was also used in Panama and Honduras. In all three countries, the results have been excellent. The benefits included considerable cost and time savings (as compared to estimates from local survey research firms), and a highly motivated team of interviewers. Most importantly, another major USAID objective was also realized -- that of institution building (in this case, INTEC) and of training local counterparts.

2.4.2 Brief Seminar on Survey Administration

The project team conducted a one-day training program for the local interviewers on the use of the survey. The program included information on the objectives of the study, the characteristics of the various IFZs, use of the survey instrument, role-playing interview techniques with difficult survey questions, and practice in recording data. Ordinarily, this type of training should take at least two to five days, and should be coupled with piloting the instrument. Due to time and budget constraints, it was condensed to one day.

2.4.3 Conducting the Interviews

After the training, the team piloted the instrument with 14 firms in the zones of Herrera, Santiago, Puerto Plata and San Pedro. After the initial piloting the team leader met with the local team to answer questions, and get their suggestions on survey revisions. The team paid special attention that the phrasing of the questions reflected cultural norms.

To set up the interviews, a U.S. team member contacted the administration and association offices of each zone and interviewed their respective senior officers. This provided the key private sector leaders with an opportunity to learn about the study first hand, offer suggestions on the best way to approach the various firms, make comments on the survey instrument, and become partners in the research effort. Simultaneously, project staff became directly acquainted with the problems of the zones and could thus manage the data collection efforts more efficiently. In addition, these meetings provided a wealth of zone-specific information for the study.

All appointments with the firms were made by the zone administrations. The interviewers introduced themselves through a letter on official stationary. In most instances, association presidents had sent managers a memorandum explaining and endorsing the project. This kind of cooperation and coordination greatly facilitated and enhanced the collection of the data.

Generally, each interviewer conducted three to four interviews daily, each one lasting an average of one and one-half hours. The primary data collection form was the actual survey form. All surveys were reviewed by a field supervisor on site, by the local counterpart and by the team leader. This ensured that surveys were filled out correctly. At the end of each week of data collection, the team leader met with each interviewer to clear up any misrecorded data. Payment was made on the basis of completed and approved surveys. This incentive also facilitated the efficiency of the process.

2.5 Analyzing the Data

The major purpose of the data analysis was descriptive: to present the survey responses as clearly as possible and to examine the extent to which the major independent variables (size, location, and activity) affected those responses.

For the most part, the survey data were analyzed by computing the relative proportion of responses for each question.⁵ Frequency tables for each question are presented in Volume II. Additionally, contingency tables were prepared in order to examine the effects of firm size, economic activity, and location on the responses.⁶ Complete tables for all Crosstabs are presented in Volume III.

⁵These correspond to the "FREQUENCIES" procedure available in many popular statistical packages such as SAS and SPSS.

⁶These correspond to the "CROSSTABS" or "TABLES" procedures in those packages.

The choices made in analyzing the data from this study were dictated by:

- o **Sample Composition.** The fact that the ratio of the sample size to the population size is so large (over 60%) offers a unique opportunity. Whereas most similar studies elaborate on the extent to which the results may be representative of the whole, this study contains results that constitute the whole. Rather than relying on exhaustive tests of statistical significance, this study emphasizes presenting the findings in as clear and straightforward a manner as possible, presenting statistical tests of significance where the tabular data, by itself, would be ambiguous.⁷
- o **The nature of the response measures.** Most of the questions in the survey have categorical or scalar response measures. For example, several survey questions require the respondents give ratings ranging from least important to most important. Rather than computing a measure such as the "mean" response (when the response scale is an ordinal scale from 1 to 4, for example), this study shows the relative frequency distributions with significance tests for those questions in the survey of most interest.

The questionnaire responses contain missing values (i.e., there were some questions that were not answered by all of the respondents). Resources to the study limited the degree to which the missing values could be analyzed. Some of the missing value patterns may not have been random. Nevertheless, given the ratio

⁷A statistic is a measure of a population parameter. When one surveys the entire population, as was done in this study for some subgroups, various aggregate measures, such as the mean, median, proportion of responses, constitute the parameters of the population, at least for the subgroup. Statistical tests of significance can be done but the terms that estimate variability (such as the denominator in the formula for variance) have to be adjusted to reflect the fact that the entire population has been sampled.

of the number in the sample to the number in the population, such missing values will not affect the interpretation of the results to a great degree.⁸ All of the tables and figures in this report contain the number of respondents so that the number of missing values can be easily examined.

⁸Various ways to handle the problem of missing values range from the conservative (e.g., drop all of the respondents having any missing values on any of the variables of interest), to the moderate (e.g., replace each missing value with the mean or median for that group or subgroup), to the liberal (use all possible values). Each approach is valid, depending on the purpose of the analysis.

CHAPTER 3 RESULTS OF THE DEMAND ANALYSIS

The results of the demand analysis are presented in the following order:

- o Description of firms participating
- o Labor projections for 1988
- o Perceptions of factors limiting production, growth and productivity
- o Employers' training problems, training needs and labor problems
- o Characteristics of training currently offered by firms
- o Training costs
- o Financing alternatives for improved training

The format for the presentation of the results follows an underlying scheme that reflects one approach to developing training programs responsive to private sector needs. First, the discussion presents the characteristics of firms to provide an understanding of the particular context in which training will take place. Next, it presents employers' job projections by category for the upcoming year to understand the demand in specific skill areas. Following is a discussion of those factors which employers perceive as impeding productivity. This helps to explain how other internal and external issues or factors affect employers in relation to training and lack of skilled labor. For example, it is important to know whether lack of capital is a problem of such magnitude that it precludes training of any kind.

Next, the discussion focuses on the particular problems faced by employers regarding training and their labor force. The purpose here is to identify those training needs most acutely felt by employers. The next section examines the characteristics and structure of current training efforts to meet those needs. Information on employers' estimated training costs is also provided.

The final three sections present data useful for assessing different ways by which training can be implemented. These sections focus on the important themes of employers' training preferences, types of training assistance needed, and financing options for training.

In analyzing the data and presenting the findings, the project team attempted to answer the research questions posed by the objectives of the study. In looking at these questions, the project team attempted to determine:

- o Does economical activity make a difference?
- o Does size of the firm make a difference?
- o Do the results vary by location?

For the sake of clarity, a choice was made to present in the main body of the text only those results that were particularly relevant to the key research questions. Only the most critical questions are discussed in detail and only the most illustrative figures and tables are included in the body of the text. Other related tables are referenced and found in Appendix B. Where appropriate, references are made in the text of those tables. For the sake of completeness, all the data are presented in summary tabular form in Volumes II and III. The tables in Volume II include the total response rates for each question (Frequency Tables). Tables in Volume III include the response to each question analyzed by size, economic activity and location (Crosstab Tables).

3.1 Description of Sample

3.1.1 Characteristics of the Sample

A number of questions in the first section of the survey focused on the characteristics of the firms. This section discusses the extent to which the sample is characteristic of the population as a whole. A total of 136 firms were interviewed.⁹ In summary:

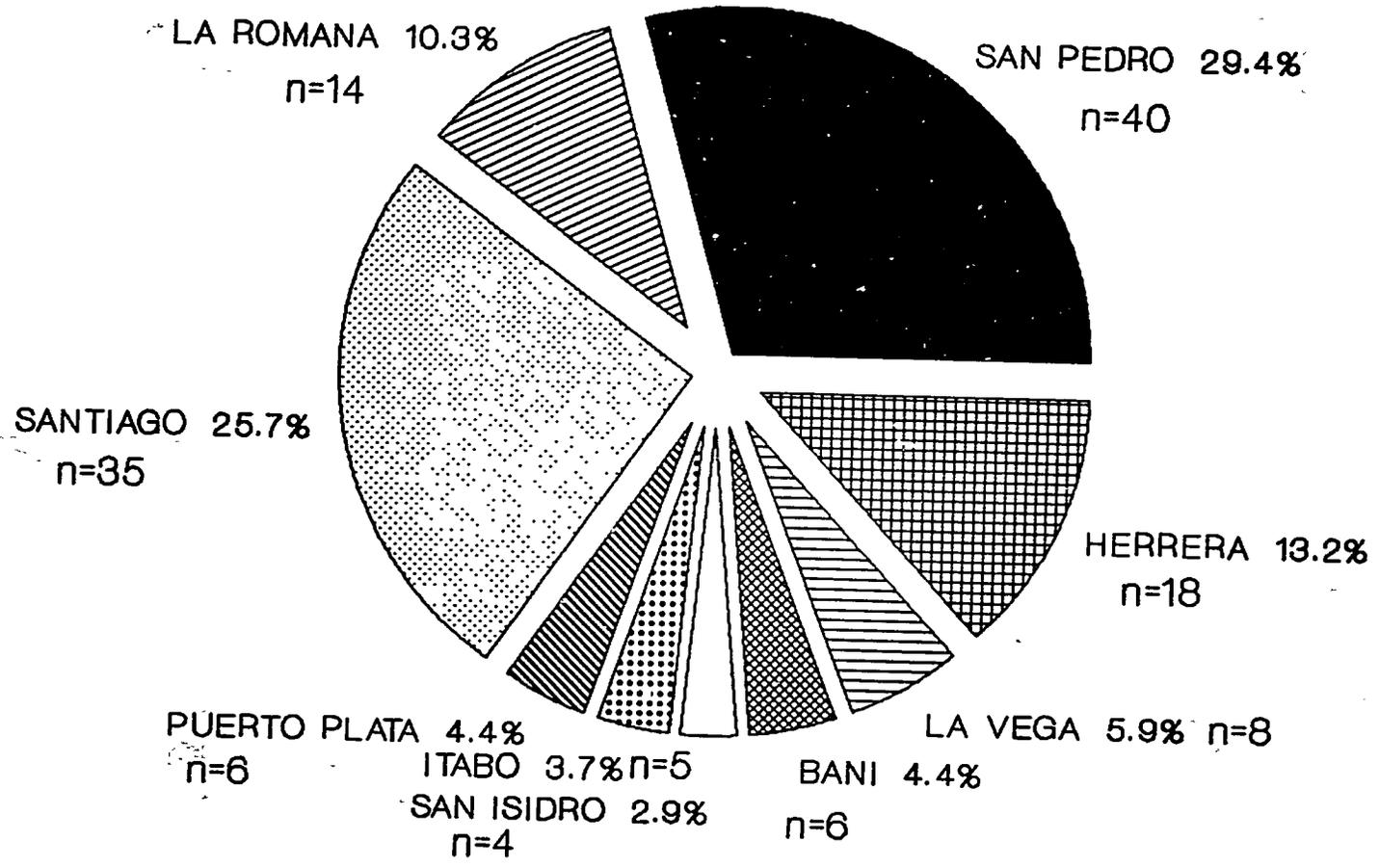
- o Eight-seven percent (118) of the firms surveyed were located in IFZs (see Figure 3-1). The remaining 18 firms (13 percent) were located in Herrera Industrial Park.¹⁰ The largest number of firms were located in the San Pedro de Macoris (40 firms) and Santiago (35 firms) IFZs.

⁹A complete list of all firms surveyed is presented in Appendix A-4.

¹⁰ The Association of Industries of Herrera is currently conducting a survey of firms in the Industrial Park to determine the total population by size and industrial activity. At the time of the survey, no such information was available.

FIGURE 3-1

Location



14

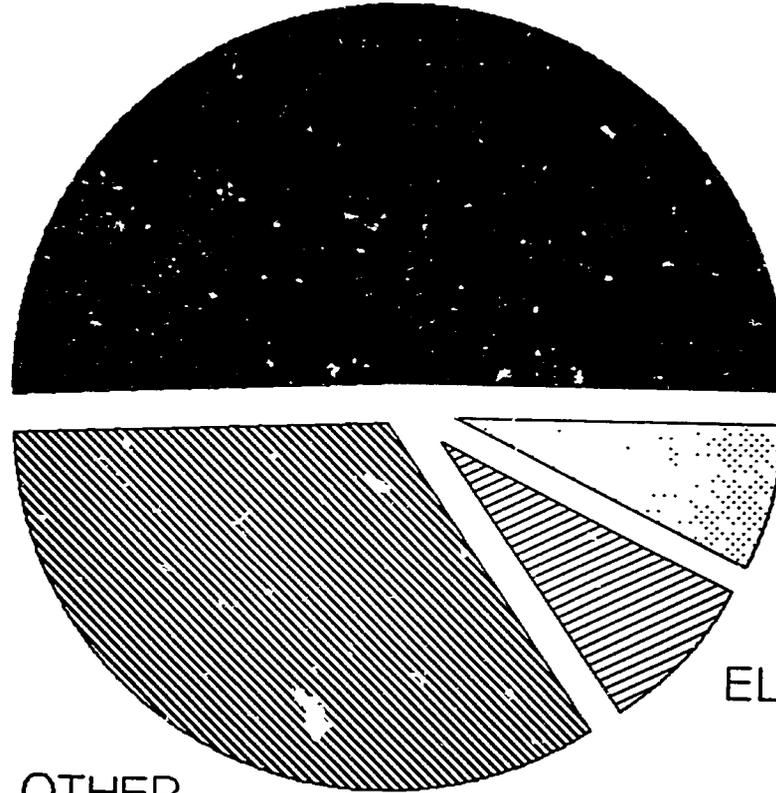
- o Fifty percent of those surveyed were apparel manufacturers, 10 percent were in electrical/electronic assembly, and 9 percent were shoe manufacturers (see Figure 3-2). This is representative of the total IFZ population - apparel firms (61%), electrical/electronic assembly (8%) and shoe manufacturers (9%).
- o Slightly over 80 percent of the firms surveyed were either small or medium size firms (41% each), with less than 500 employees (see Figure 3-3). This is consistent with a comprehensive IFZ survey recently conducted (Manion, 1987) in which 87 percent of IFZ firms were reported to have less than 600 employees.
- o Of the 118 IFZ firms surveyed, approximately 40 percent began operating in the Dominican Republic before 1982. Twenty-five percent began operating between 1982 and 1985 and close to 30 percent have installed in just the past two years (1986 and 1987). This is consistent with the results of the previously mentioned IFZ survey (Manion, 1987).
- o Over 60 percent of those surveyed employ more women than men in their operations although figures vary by economic activity: electrical/electronic (85%), apparel (74%) and shoes (50%). Close to 30 percent of the firms employ more than 80 percent women.
- o The majority of managers interviewed were Dominican (72%).¹¹ Slightly over 8 percent were from the U.S. mainland, 7.5 percent were Puerto Rican and 3 percent were of Cuban descent. The remaining 10 percent were mainly from Asian countries.

¹¹ This refers to the nationality of the person interviewed, and not the origin of the capital of the company.

FIGURE 3-2

Economic Activity

APPAREL n=69
50.7%



SHOES n=10
7.4%

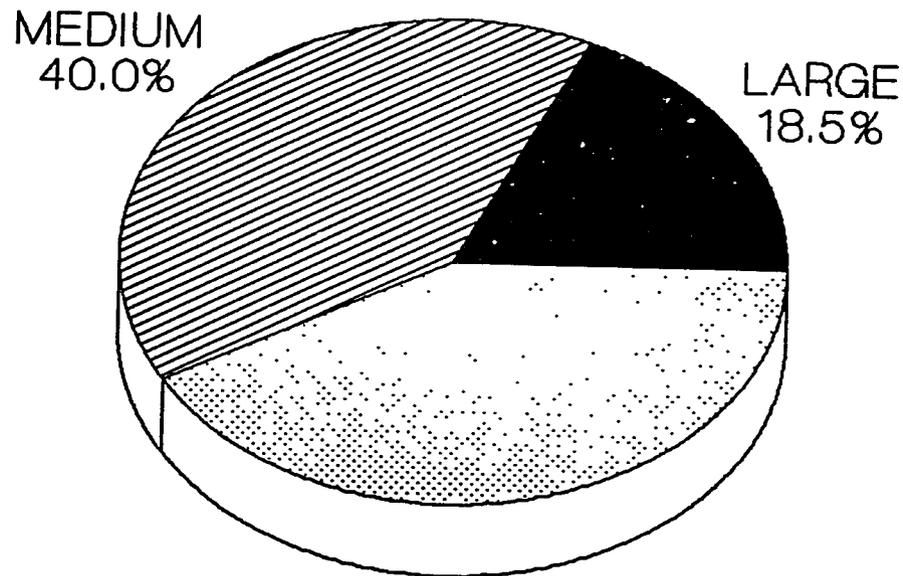
ELECTRONICS n=11
8.1%

OTHER
33.8%
n=46

-16-

FIGURE 3-3

Proportion of Firms by Size (n=136)



Large = 500+ employees
Medium = 201-499 employees
Small = 1-200 employees

SMALL
41.5%

117

3.1.2. Representativeness of the Sample

For the purposes of establishing the representativeness of the IFZ sample, Tables 3-1 and 3-2 show the population from which the sample is drawn and the relation of the sample to the total IFZ population.

There was a total of 184 operational IFZ firms at the time of the survey. Due to the large percentage of apparel firms in the IFZs, a random sample (stratified by size) of 50 percent of apparel firms in the 2 largest IFZs in San Pedro de Macoris and Santiago was selected for the survey. An attempt was made to survey 100 percent of apparel firms in other zones and all non-apparel firms. The survey team completed a total of 118 interviews with IFZ firms, representing 64 percent of the total IFZ population. By industry, the sample represented 56 percent of apparel manufacturers and 75 percent of non-apparel firms, although percentages varied by individual IFZs.

In Herrera Industrial Park, a purposive sample was selected to explore issues regarding backward linkages between Herrera and IFZ firms. The 18 Herrera firms were selected based on current or future export potential, and recommendations from the IPC and the Association of Industries of Herrera (AIHE). The firms surveyed represent a wide variety of industries, including apparel, food products, electrical/electronic/metal mechanics and plastic goods.

In conclusion, because the relation of the sample to the actual population is so high (65-100%), the findings of the study can safely be assumed to be representative of the entire IFZ population. Caution, however, should be exercised when interpreting the results of the Herrera group, since the sample was small and firms were not randomly selected.

TABLE 3-1
POPULATION AND SAMPLE CHARACTERISTICS BY LOCATION
 (Industrial Free Zones only)

<u>Variable Category</u>	<u>Pop.</u>	<u>Surveyed/a</u>	<u>% Pop</u>
Zone:			
Bani	6	6	100
San Isidro	4	4	100
Itabo	7	5	71
S. P. de Macoris	68	40	59
La Romana I,II	23	14	61
La Vega	10	8	80
Santiago I,II	56	35	63
Puerto Plata	<u>10</u>	<u>6</u>	<u>60</u>
Total	184	118	64

a/ Actual percentages of the population surveyed may be higher than shown here due to the fact that some managers may run more than one operation (these numbers represent actual interviews conducted). This is the case with some firms which have expanded in recent years, opened additional firms under new names, but retained the same manager for all companies. There are examples of this in Itabo, San Pedro de Macoris, Santiago and Puerto Plata.

TABLE 3-2
POPULATION AND SAMPLE CHARACTERISTICS BY ACTIVITY
 (Industrial Free Zones only)

<u>Variable Category</u>	<u>Pop.</u>	<u>Surveyed/a</u>	<u>% Pop</u>
Economic Activity:			
Apparel	113	64	57
Elec/Electronic	12	10	83
Shoes	16	11	69
Tobacco/Cigars	7	6	86
Leather/Fur Goods	9	6	67
Jewelry	5	4	80
Medical Products	5	4	80
Other	<u>17</u>	<u>13</u>	<u>76</u>
Total	184	118	64

a/ See note in Table 3-1

3.2 Job Projections for 1988

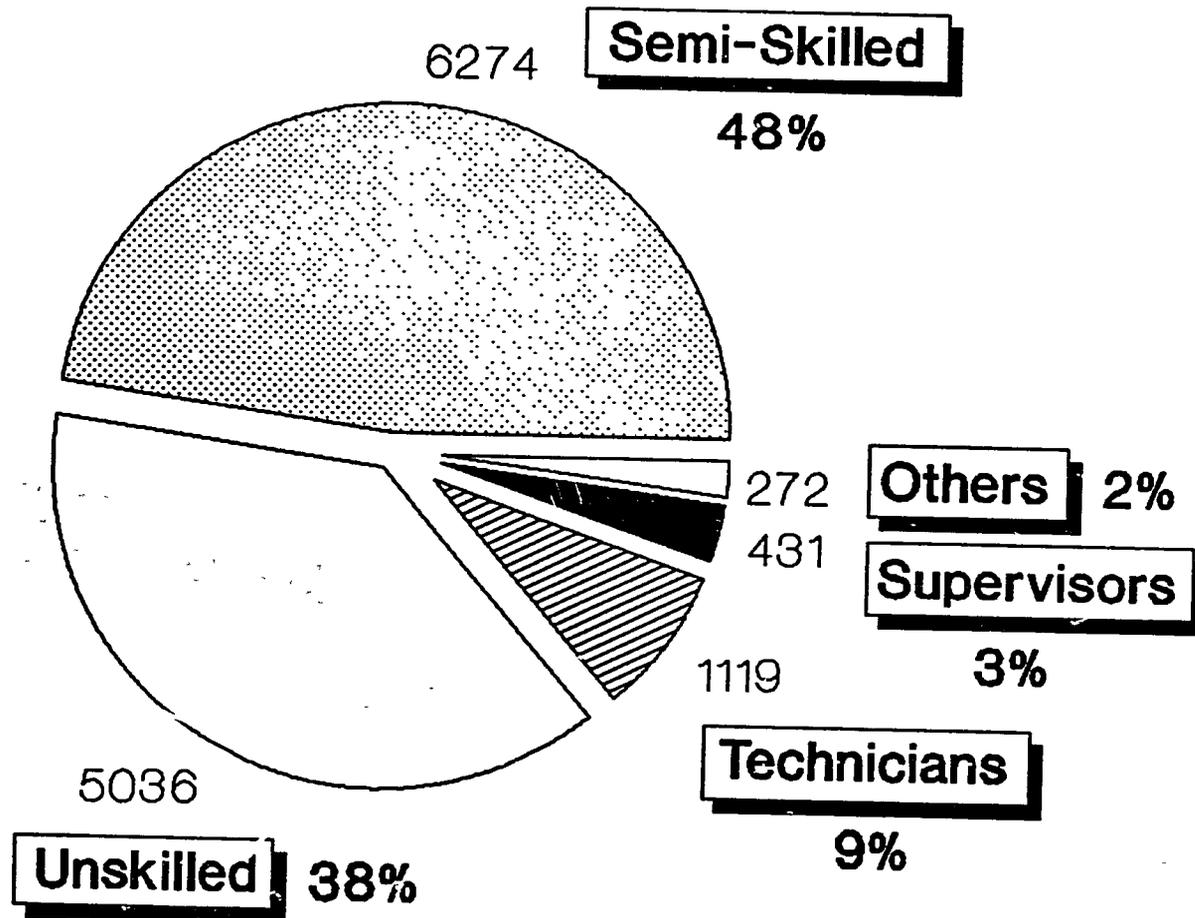
In order to determine the future labor demand, each employer was asked to indicate the number of new employees the firm would require in 1988, by skill category (Question 5). The 136 firms responding to the survey will need a total of 14,405 new workers by the end of 1988. (This data is summarized by job category in Figure 3-4).

Survey results indicate that the largest single need is for semi-skilled and unskilled workers, or operators (11,310). Feedback from the focus groups indicated that the major source of semi-skilled workers is those currently employed in the IFZs. Participants indicated that this is due to the lack of basic, job entry level skill training programs in the industrial skill areas needed by the IFZs.

FIGURE 3-4

Hiring Expectations-1988

Free Trade Zones



Est. # of New Workers Needed

21

The second largest demand is for technicians, which includes machine mechanics, electricians and carpenters (1,119). Based on the projected number of new operators (11,130) and the average ratio of technicians to operators (1:100), the projected demand for technicians from the survey is high. This, in part, points to the critical need for technicians. It is also high due to the fact that the category of technicians was broadly interpreted by the managers¹². Four hundred and thirty-one (431) new supervisors will be needed.¹³

The need for new workers is widespread. About 70 percent of the firms surveyed will need new technicians, semi-skilled and unskilled workers before the end of 1988. Approximately two-thirds will need new supervisors, and 52 percent will need new office personnel. Only 15 percent of the firms will need to hire other types of personnel in 1988. Responses according to firm size, location and economic activity can be summarized as follows:

- o About 85 percent of large firms foresee a need for new semi-skilled personnel in 1988, compared to approximately two-thirds of small and medium size firms. Higher percentages of firms (85 percent) in Bani and Puerto Plata expressed a need for new semi-skilled labor, followed by San Pedro and San Isidro (75 percent). Itabo and Herrera have the least critical needs. The shoe and apparel industries are in most need of new semi-skilled workers.
- o About 80 percent of small and large firms, and 60 percent of medium size firms foresee a need for new unskilled workers in 1988. Bani has the most widespread need for unskilled labor (85 percent of firms), followed by San Pedro, San Isidro and La Romana. The needs in Herrera and Itabo are less critical, and in La Vega only 45 percent of employers expressed a need for new unskilled labor in 1988. Approximately two-thirds of firms across all industries will need new unskilled workers in 1988, with the exception of shoe manufacturers.

¹² In at least one case, projects for technicians included operators with certificate skills.

¹³ This is in line with the demand expected, given the number of new operators projected. The industry average is one supervisor per 20 to 30 operators.

- o Approximately 70 percent of both small and medium firms will need new technical personnel in 1988, compared to 80 percent of large firms. All firms in San Isidro, La Vega and Bani will need new technicians in 1988 as well as close to 80 percent of firms in San Pedro. The need for new technicians is highest among the apparel industries - 83 percent of firms will need new staff - followed closely by shoe manufacturers.
- o Regardless of size, about two-thirds of firms will hire new supervisors in 1988. The need for new supervisors is highest among the apparel industries - 75 percent of those interviewed will need to hire new personnel in 1988. In terms of location, higher percentages of firms in Puerto Plata, San Isidro, La Vega and Bani will need new supervisors (see Table 3-3 for information by individual IFZs).
- o Sixty-five percent of small, and approximately 50 percent of both medium and large firms foresee a need for new office personnel in 1988. San Isidro and Herrera had the highest response rates for new office personnel; Puerto Plata and Itabo had the lowest. By activity, the shoe and apparel firms have the greatest need for new office personnel.
- o Only 15 percent of employers foresee any need for other new personnel in 1988. The greatest needs were expressed by employers in San Pedro and Herrera, followed by Puerto Plata, La Romana, Santiago and La Vega. The highest response rates for other new personnel came from the shoe, miscellaneous and apparel industries, in descending order.

Based on responses from the survey sample, projections of new jobs were made to the total IFZ population.¹⁴ Based on these projections, close to 20,500 new jobs could be created in the IFZs during the remainder of 1988, just through expansion of current operations (see Table 3-4 for projected needs by skill level). This would bring total IFZ employment to approximately 90,000, not including employment created by new investment. If potential new investment is factored into the projections (12,000 - 15,000 new jobs), the total would range from 102,000 to 105,000. This is consistent with projections made by the IPC, who predicts that a total of 100,000 persons will be employed in the IFZs by the end of 1988 (IPC, 1987).

¹⁴ Due to the small size of the Herrera sample, it was not possible to make reliable projections of future employment needs in Herrera.

TABLE 3-3
EMPLOYERS 1988 JOB PROJECTIONS BY JOB CATEGORY AND LOCATION OF FIRM¹
N = 136

Job Category/Location	Santiago	Puerto Plata	San Pedro	La Romana	La Vega	Bani	Itabo	San Isidro	Herrera	Total
Supervisors	118	16	105	67	41	36	24	24	50	481
Technicians	226	63	311	54	299	48	16	102	73	1,192
Semi-Skilled	2,463	174	937	968	870	600	17	245	368	6,642
Unskilled	1,208	415	1,791	500	600	220	282	320	404	5,740
Office Personnel	46	8	63	11	26	14	13	13	42	236
Other	20	6	41	7	2	0	2	0	36	114
TOTAL	4,081	682	3,248	1,607	1,838	918	354	704	973	14,405

¹Represent new full-time jobs to be created by the end of 1988.

TABLE 3-4
PROJECTED NEW JOBS IN DOMINICAN IFZS, 1988/1

	<u>Survey Sample/2</u>	<u>Total/3</u>
Supervisors	431	672
Technicians	1,119	1,744
Semi-skilled workers	6,274	9,783
Unskilled workers	5,036	7,853
Office personnel	194	303
Other personnel	<u>78</u>	<u>122</u>
TOTAL	13,432	20,477

- 1/ Based on estimates of firms currently established in IFZs
 2/ Based on the results of the survey (118 IFZ firms)
 3/ Projected to total current IFZ population (184 firms)

Given these findings, the need for workers with job entry skills (semi-skilled), will become acute in the near future. If efforts to address the IFZ training needs are not begun immediately, there will most likely be two results: 1) increased turnover and competition as new firms compete with the old for a shrinking pool of semi-skilled and skilled labor; and 2) increased training costs as new IFZ firms are forced to recruit and train less qualified, and most likely, less educated workers.

3.3 Factors Affecting Productivity and Expansion

The design of a training program should reflect a response to the total organizational context in which the program will occur. Four critical areas should be considered: management, labor, production and marketing. By understanding the general needs of employers in terms of the companies' productivity and growth, one can better determine the importance of training relative to other concerns. Managers were asked to rank ten factors (on a scale of 1 - 4) in terms of their importance to the overall productivity and expansion of the firm (Question 10).

Over 80 percent of the managers surveyed expect their business to grow during the remainder of 1988. About 15 percent predict it to remain at the same level, with only slightly under 4 percent projecting a decline. In spite of this optimism, there are several factors which negatively affect productivity and continued expansion in the IFZs in the Dominican Republic.

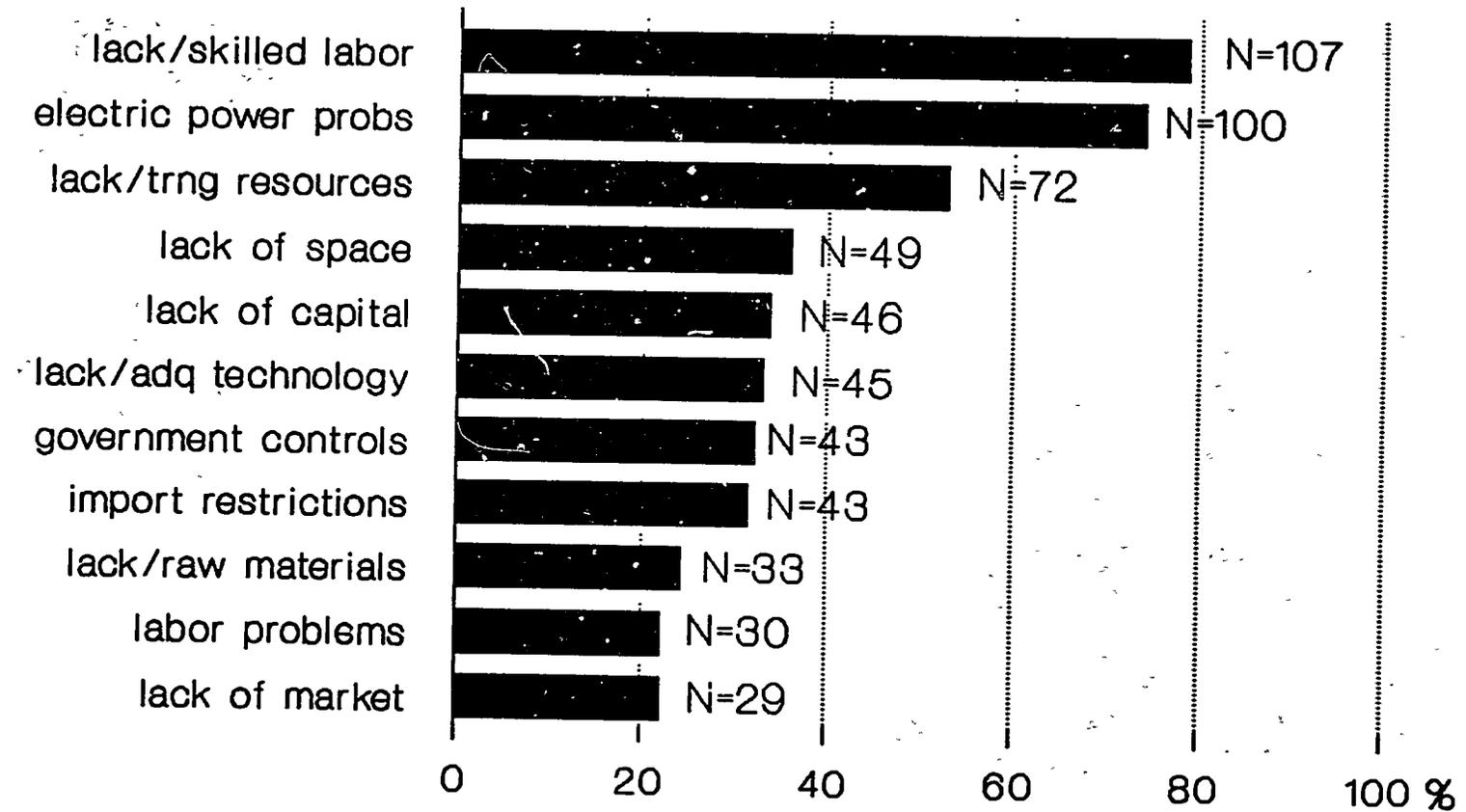
Skilled labor and training needs are 2 of the 3 major factors affecting the productivity and expansion of the firms surveyed (see Figure 3-5). Nearly 80 percent of managers cited lack of skilled labor to be an important or very important constraint, more than any other single factor. Electrical power problems were cited by slightly over 70 percent of those surveyed, and lack of training resources received the third highest response. About 30 - 35 percent of all firms cited various other factors: lack of space, lack of capital, lack of adequate technology, governmental controls and import restrictions. Firms seem to have the least problem with obtaining raw materials, dealing with labor/management issues and marketing.

Responses varied greatly by location of the firms. Lack of skilled labor is the most important constraint in Puerto Plata, Herrera, Santiago and La Vega (see Table 3-5 for the complete ranking of constraints by location). Lack of training resources was cited just as frequently by managers in La Vega. Electrical power is the most crucial problem in Bani, San Pedro and La Romana. The major issue in both San Isidro and Itabo is governmental controls. The focus group confirmed that there was some overlap in interpretation of governmental controls and import restrictions, and that the problem in both of these zones had been with Customs. In brief, the major constraints by zone were:

- o Santiago: lack of skilled labor and electrical power problems/lack of training resources/lack of space (tie)
- o La Vega: lack of skilled labor/lack of training resources (tie), electrical power problems and lack of capital
- o Puerto Plata: lack of skilled labor, lack of training resources, lack of capital/lack of adequate technology (tie)
- o San Pedro de Macoris: electrical power problems, lack of skilled labor and lack of training resources
- o La Romana: electrical power problems, lack of skilled labor and lack of space/lack of adequate technology (tie)
- o Bani: electrical power problems, lack of skilled labor and lack of capital/import restrictions (tie)
- o Itabo: governmental controls, lack of skilled labor/lack of raw materials (tie) and import restrictions

FIGURE 3-5

Employers' Ratings of Factors Affecting Productivity/Expansion of Their Firms



% 'important' or 'very important'

TABLE 3-5
EMPLOYER'S RATINGS OF FACTORS AFFECTING THE FIRM'S PRODUCTIVITY AND EXPANSION BY LOCATION
N = 136

Factors/Location		Santiago	Puerto Plata	San Pedro	La Romana	La Vega	Bani	Itabo	San Isidro	Herrera
Lack of Skilled Labor	Percent*	88	100	77	67	78	83	60	75	92
	Frequency	30	6	30	10	7	5	3	3	13
Electric Power Problems	Percent*	56	17	95	94	67	100	0	50	72
	Frequency	19	1	37	14	6	6	0	2	13
Lack of Training Resources	Percent*	56	83	57	33	78	33	20	50	56
	Frequency	19	5	21	5	7	2	1	2	10
Lack of Space	Percent*	56	0	38	47	33	33	0	0	16
	Frequency	19	0	15	7	3	2	0	0	3
Lack of Capital	Percent*	38	50	23	20	45	50	20	0	56
	Frequency	13	3	9	3	4	3	1	0	10
Lack of Adequate Technology	Percent*	50	50	18	47	5	17	0	0	28
	Frequency	17	3	7	7	5	1	0	0	5
Government Controls	Percent*	35	17	21	20	33	0	80	100	45
	Frequency	12	1	8	3	3	0	4	4	8
Import Restrictions	Percent*	26	50	13	13	44	50	40	25	78
	Frequency	9	3	5	2	4	3	2	1	14
Lack of Raw Materials	Percent*	15	33	15	13	22	17	60	25	61
	Frequency	5	2	6	2	2	1	3	1	11
Labor Problems	Percent*	32	17	33	14	22	0	0	0	0
	Frequency	11	1	13	2	2	0	0	0	0
Lack of Market	Percent*	29	33	18	13	33	17	20	0	22
	Frequency	10	2	7	2	3	1	1	0	4

*Percents have been rounded off to two digits.

- o San Isidro: governmental controls, lack of skilled labor and electrical power problems/lack of training resources (tie)
- o Herrera: lack of skilled labor, import restrictions, electrical power problems and lack of raw materials

The results also varied by size of firm and economic activity. Smaller firms are more concerned with lack of capital, lack of raw materials and lack of training resources than are medium and larger size firms. On the other hand, larger firms are more affected by lack of space for expansion.

The apparel firms' major barriers to improved productivity and expansion are the same as the overall sample. The electronics firms' major problem is governmental controls, followed by lack of skilled labor and inadequate electrical power. The shoe industry is by far most concerned with the lack of skilled labor, while the miscellaneous industries find electrical power problems and lack of skilled labor to be their major concerns.

In summary, lack of qualified labor is a serious limitation to increased productivity and the expansion of firms currently operating in the IFZs and Herrera, regardless of size, activity and location. Other problems such as electrical fluctuations and outages have alternative or temporary solutions (electrical generators). Labor shortages, if not addressed, will only lead to more fierce competition among firms and could discourage future investment in the IFZs.

3.4 Employers Most Urgent Training Needs

For training programs to be effective, they must be based on industry specific needs. Two survey questions investigated the problems employers face with their labor force in terms of training, critical jobs in most demand and specific skills needed.

Because experience in Central American countries has shown that it is difficult for general managers to be specific in defining training needs by job category, the survey included two different types of questions to assess training needs: a forced choice question, (#43), in which managers selected from a list of possible needs the ones that were most urgent and could also include other needs in an open category, and an open-ended question (#51) in which they could describe exactly what specific skills and jobs they most needed.

The results for all responses to question 43 are presented in Figure 3-6. The high response rate on this question indicates that all firms are facing critical training needs. Supervisory training, with an emphasis on human relations skills, is the most critical training need for the majority of all firms (60%), followed by training in quality control (46%), industrial mechanics (44%), bilingual secretarial skills (22%) and basic computer skills (13%). Twenty-five percent of all firms indicated "other" training needs which included primarily training for senior managers or general management skills for senior managers, bookkeeping and accounting, and other office related skills.

As the study hypothesized, the data also show that training needs do, in fact, vary according to the size, economic activity and location of the firm. In some cases, these differences are significant.

By size of firm, a number of interesting differences emerge. The data show that larger firms have a greater need than others for training in the areas of industrial mechanics (60%) and quality control (58%) and somewhat more for bilingual secretarial and computer skills. (See Figure B3-1.)

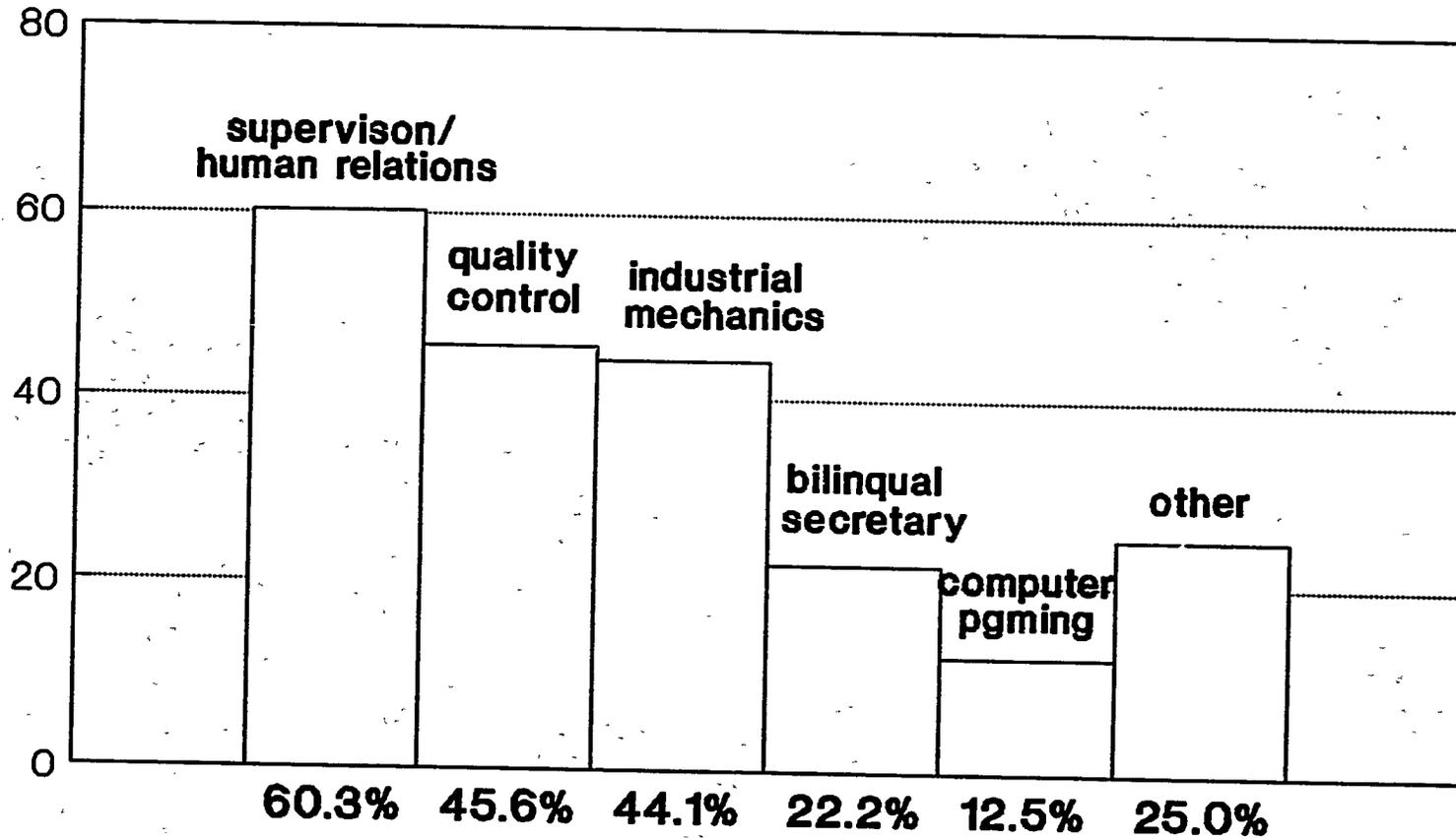
Supervisory training is a much more serious need for medium (70%) and smaller (62.2%) firms. This may be explained by the fact that in larger firms there is more job specialization, whereas in smaller and medium firms, supervisors tend to be technical personnel or operators who have been promoted through the ranks and have received little training in managing production processes and personnel. Larger firms, in turn, can afford to hire higher level skill supervisory personnel who manage a greater number of employees. As the data on the characteristics of firm based training indicate (Section 3.6.2), larger firms invest more in supervisory training through their own formal and informal methods, and are more willing to send their supervisors to programs outside the firm or country to acquire the necessary skills.

By economic activity, the most interesting difference noted is that the shoe industry has the greatest need for training in quality control (80%) as compared to apparel (58%) and electronics (18%). This is consistent with the anecdotal information collected during the interviews. Shoe manufacturers indicated that there are virtually no training programs for their sector in the country. Quality control personnel are selected from the better qualified operators, and even then, must be closely supervised. (See Figure B3-2.)

FIGURE 3-6

MOST URGENT TRAINING NEEDS

All Respondents (n=136)



% of all firms citing this need

Supervisory training is most critical for apparel (70%) and other firms (61%). Training mechanics in the repair and maintenance of industrial equipment is a serious need for apparel (59%), shoe (60%) and miscellaneous firms (58%). Another interesting result is that almost half of all electronics firms (45%) are experiencing problems finding and training executive bilingual secretaries. As would be expected, a firm's need to provide a specific kind of training is in large part influenced by the educational resources and institutions located in the surrounding area. The newer zones of Itabo, San Isidro and Bani which are located within close proximity of the best technical school in the country, are not experiencing as serious problems as other zones located away from the capital.

The needs of the information service firms, although not included in the quantitative survey, merit mention as they represent one of the most promising new sectors for the IFZs. Two information service operations were visited during the course of the study: 1) Caribbean Data Services (CDS), which is located in the San Isidro IFZ; and 2) CODETEL's computer graphics operation in Santo Domingo. Labor shortages is one of the major factors affecting the productivity and expansion of CDS's data entry operations, and high turnover has caused them to reevaluate their recruitment policy¹⁵. The primary need of CDS is for unskilled/semi-skilled workers or "keyers." Keyers are not required to have previous computer or English language training, but should have basic typing skills (12 w.p.m.) and some familiarity with the computer. The demand for new group leaders, supervisors and shift managers is not as crucial, since they can be promoted from within the firm as needed. Unlike CDS, CODETEL's management did not note any current labor or training shortages. Appendix C contains a case study which summarizes the training needs, current training programs and projected growth of this sector.

Table 3-6 presents training needs by location. On interpreting these results, the reader should keep in mind that the total number of firms in Puerto Plata, Bani, La Vega, San Isidro and Itabo are quite small (4-8), and thus high percentages

¹⁵The major factor affecting CDS's productivity is lack of adequate transportation for workers in the zone. The problem has been addressed and partially resolved, but at a high cost to the worker. According to CDS calculations, the average worker spends approximately 16 percent of their salary on transportation.

**TABLE 3-6
EMPLOYERS MOST URGENT TRAINING NEEDS BY LOCATION**

Training Need/Location		Santiago	Puerto Plata	San Pedro	La Romana	La Vega	Bani	Itabo	San Isidro	Herrera
Supervision	Percent	82	83	45	53	63	100	50	25	67
	Frequency	27	5	17	8	5	6	2	1	12
Quality Control	Percent	73	100	41	27	88	100	25	25	27
	Frequency	25	6	16	4	8	6	1	1	5
Industrial Mechanics	Percent	50	33	51	46	78	67	0	25	83
	Frequency	17	2	20	7	7	4	0	1	15
Bilingual Secretary	Percent	21	33	11	33	13	33	50	25	39
	Frequency	7	1	4	5	1	2	2	1	7
Computer Programming	Percent	23	0	10	13	0	0	25	25	16
	Frequency	8	0	4	2	0	0	1	1	3

Survey Question 45

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may in fact only represent 2 or 3 firms. To clarify some of the results, comments made by the firm representatives in the focus groups are integrated with the findings.

Santiago

Supervisory training is the most important training need for 82 percent of the firms in Santiago. Seventy-three percent cited quality control, 50 percent require training for industrial mechanics and 21 percent and 23 percent, respectively, in the areas of bilingual secretaries and computer skills.

During the focus group meeting, private sector representatives stated that the three top needs for training in supervision, quality control and industrial mechanics are interrelated. The real needs are for better trained industrial engineers and technicians with more practical industry experience. During the interviews, managers complained that industrial engineering programs in the Dominican Republic are highly theoretical and out-of-date¹⁶. Because firms are bringing more sophisticated production equipment to the IFZs, this is creating a demand for better trained technicians. In their opinion, the schools in the country are not familiar with the newer technologies and thus are not able to respond adequately to the demand.

Puerto Plata

All firms surveyed in this zone need training in quality control, and 83 percent also require supervisory training. This reflects the non-traditional composition of firms sampled in this zone which includes one furrier, one jewelry and two leather manufacturers. All of the manufacturing processes are tedious and require constant attention to detail. Two firms need training in industrial mechanics and bilingual secretarial skills.

La Vega

La Vega is a newer zone nestled in a primarily agricultural region, which competes with Santiago for skilled labor. All but one of the firms surveyed are in the apparel industry.

Seventy-four percent of these firms are facing serious problems finding and/or training maintenance mechanics to repair and service industrial sewing machines. Supervision, with an emphasis on human relations skills, is the second most important need for 60 percent of the firms.

¹⁶These comments also apply to the zones of La Vega and Puerto Plata which were also represented at the Focus Group held in Santiago.

Bani

Half the firms in Bani began operation in 1986 and the other half in 1987. Of the six firms interviewed, all but one are in the apparel business. In spite of its proximity to the capital, it is still difficult for these firms to meet their training needs in the area of supervision. All firms indicated a problem in this area, followed by industrial mechanics (64%). No firms reported a problem in the area of quality control.

During the focus group, these responses were partially supported by the zone administrator who indicated that the greatest needs were in the areas of personnel management (or supervision) and bilingual secretaries.

Itabo

In Itabo, one finds the larger, more technologically sophisticated firms of Westinghouse, Baxter Medical, GTE, Hanes and a Codetel subsidiary. All these firms invest heavily in their own internal formal and informal training programs. In addition, Itabo's proximity to the best rated technical school in the country, the Loyola Institute, should assist the firms in finding and training competent personnel.

In the technical areas of industrial mechanics and quality control, the data support this assumption. However, three out of five firms still reported a need in the area of supervisory training and bilingual secretaries. According to these firms, good supervisory training courses and skilled supervisors with experience in human relations are almost non-existent in the Dominican Republic. Finding competent bilingual secretaries is also a major problem. One manager reported that it took him almost four months to finally hire a secretary with good English skills. In order to keep her, he had to offer her the same salary he is paying an electro-industrial engineer in charge of supervision and quality control. The zone recruitment office confirmed that it had been very difficult to attract competent bilingual secretaries away from the capital, given the high demand, and Itabo's distance from the city.

San Isidro

Like Itabo, San Isidro was purposefully designed to attract the larger, higher technology firms. All managers meet on a weekly basis and discuss common problems in the areas of infrastructure, customs, and labor and recruitment issues. As in Itabo, there is a full-time human resource manager (see review of IFZ Recruitment Centers in Appendix D) who screens applicants for the firms. San Isidro is also located near the second most respected vocational technical school, the Salesians ITESA. Even so, two out of the four firms (50%) interviewed indicated that the personnel they

had hired to serve as supervisors needed significant training in industrial supervision. Half of the firms also reported a need to hire semi-skilled workers rather than unskilled. An apparel and an electronics assembly firm commented that the lack of job entry skills of the labor force was requiring the firms to invest a great deal of time in up front basic training.

San Pedro

Slightly over half of all firms surveyed (55%) have a major need in the area of industrial mechanics. Primarily, these employers are looking for technical maintenance personnel who can repair and service industrial equipment, especially in the apparel industry. The San Pedro managers also reported training needs in the areas of supervisory/human relations (43%) and quality control (40%).

During the focus group, managers appeared more concerned about the need of future companies than their own current needs. The problem of quality control, they felt, was a more serious problem for the electrical/electronic firms than for other types of firms.

La Romana

Nine out of 14 firms sampled in La Romana were in the apparel industry. The training needs in this zone are primarily for supervisory (53%), industrial mechanics (50%), quality control (44%), and bilingual secretarial (36%) skills.

Half of the firms surveyed have both formal and informal training programs; five of these have their own designated training area within the firm. These programs are primarily for unskilled workers. Supervisors are either sent out of the country for training or brought already trained from the United States or Puerto Rico.

Herrera

The most decisive training need for firms in Herrera was in the area of industrial mechanics (77%), followed by supervision (67%).

During the focus group, the managers gave three reasons for the high demand for industrial mechanics training: 1) firms in Herrera are older and therefore need more maintenance on machinery; 2) there is more medium and heavy industry in Herrera than in the IFZs; and 3) there are more integrated industries in Herrera with more complicated production processes.

The fact that such a high proportion of the firms sampled in Herrera are experiencing difficulties finding skilled maintenance technicians underscores the seriousness of the problem. The lack of skilled labor seems to affect many firms throughout the country, not just in the IFZs.

3.4.1 Occupations in Most Demand

Using an open format, employers were asked to list those occupations for which it is most difficult to find skilled labor. (Table B3-3 summarizes the data on Question 51 by zones). In many instances, the jobs in demand correspond closely to the responses already discussed under critical training needs. Although the exact job titles vary somewhat by zone, some clear trends are evident across zones. Occupations most in demand include:

- o Plant and production supervisors trained in human relations and personnel management
- o Industrial maintenance mechanics
- o Industrial electrical and electronic technicians and engineers
- o Assembly line operators
- o Bilingual secretaries

Regarding industrial mechanics, employers consistently cited the importance of experience and knowledge in repairing different types of industrial equipment and the need to be able to read technical manuals in English.

3.5 Labor and Work Ethic Problems

One of the major attractions for potential investors to the IFZs in the Dominican Republic is the low cost of labor. Generally, promotional groups emphasize that labor, although unskilled, is easy to train. The study attempted to document how employers rated the labor force in a number of areas related to work ethic, literacy and technical skills. Managers were asked to assign a numerical value of one to four (four being the most problematic) to list of labor and work ethic issues. All firms indicated some problems. The overall results are presented in Table 3-7.

TABLE 3-7
LABOR AND WORK ETHIC PROBLEMS

Issue	Percent of Manager Indicating a 'Problem' or 'Serious Problem'
	N = 136
o Attendance	50%
o Punctuality	48%
o Technical Skills	47%
o Initiative	39%
o Quality of Work	37%
o Manual Dexterity	27%
o Literacy	26%
o Loyalty	25%

Large firms have more of a problem with attendance (64%) and lack of technical skills (60%), while medium size firms are more affected by lack of attendance (59%) and punctuality (54%). Technical skills are the overriding concern for smaller firms. Figures B3-4 and B3-5 show employers' ratings of technical and attitudinal problems as a function of size and type of industry.

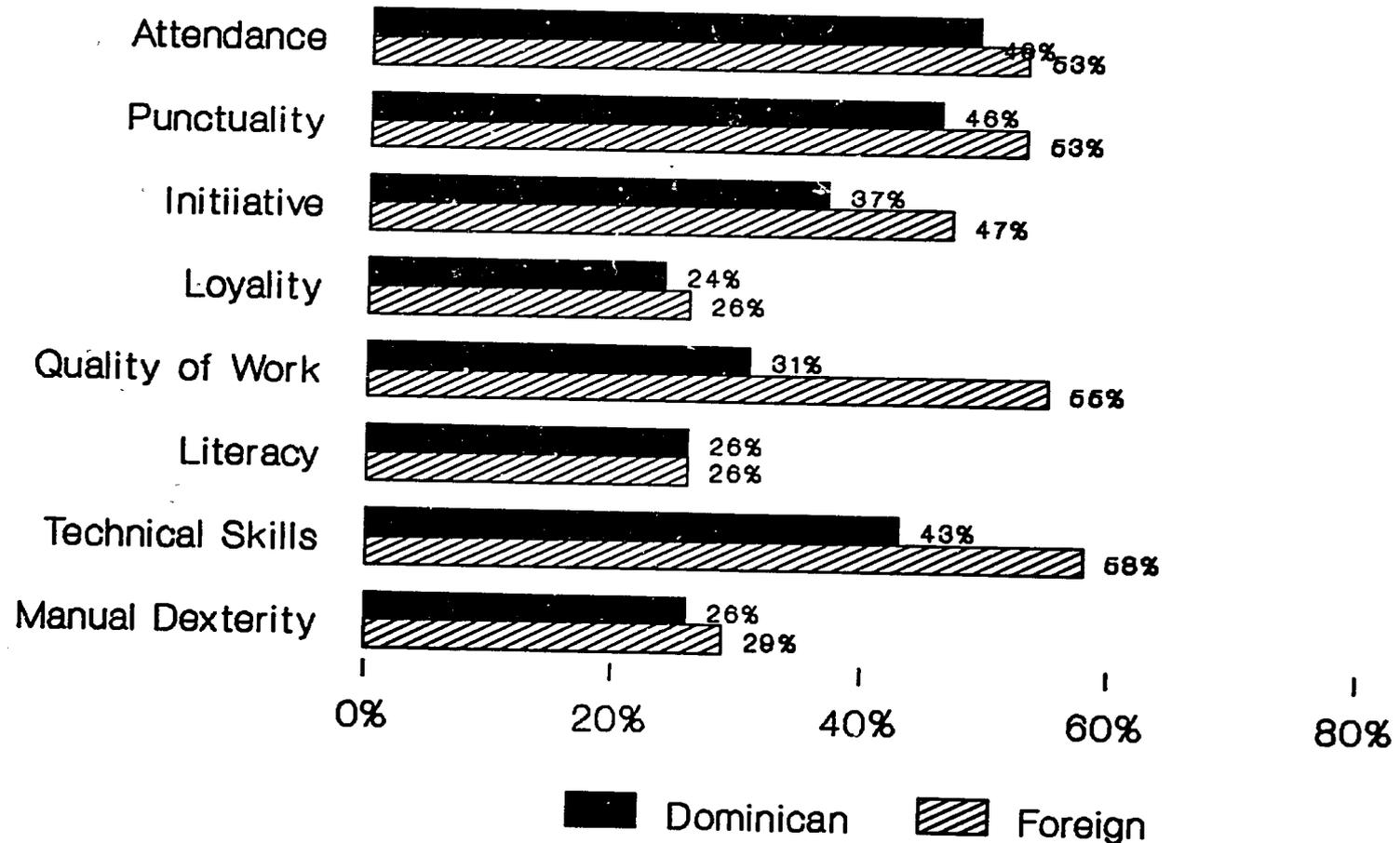
By type of industry, the apparel firms are more concerned with attendance (65%) and punctuality (61%), as compared to technical skills (54%). For the electronics firms, the lack of workers' initiative on the job and their poor technical skills (50% for both) were the overriding concerns.

To determine if a manager's nationality affected how positively or negatively he rated the labor force, the team analyzed this interrelationship. Figure 3-7 presents the results. Non-Dominican managers had significantly more problems with the lack of technical skills (58%) and quality of work (55%).

FIGURE 3-7

Employers' Problems with Selected Labor/ Work Ethic Issues:By Manager Nationality

(n=136)



% citing as problem/serious problem

39'

Employers perceive that attitudinal factors are as critical (in some instances more important) as technical and manual skills.¹⁷ These findings are supported by the anecdotal evidence collected during the interviews. Managers indicated that the work force, although trainable, lacks the discipline to work in a modern day factory. This is understandable when one considers the rate at which the country has evolved from a primarily agricultural economy one which serves as a base of operation for the large number of multinational companies found in the IFZs.

During the focus groups, employers agreed that there is a general lack of industrial discipline due to the absence of any real job training in the schools. However, this has not affected their productivity. In their opinion, the lack of skilled labor is critical and could seriously handicap the ability of the country to attract future investors. They added that if the problems of basic skills training were addressed appropriately in the schools, the situation could be remedied. Overall, however, private sector representatives expressed confidence in the Dominican labor force.

In interpreting these findings, it must be noted that workers' motivation and general attitudes on the job are in large part influenced by management style, incentives and the general organizational context of the company. Transportation problems and lack of medical facilities in the zones contribute to absenteeism and tardiness. Westinghouse for example, has two shifts of medical staff: one doctor and two nurses on each shift. As a result, they reported little problem with these issues. Also, to ameliorate the harsh and dull factory environment, some companies play music over the loudspeakers. According to these managers, this increases productivity significantly.

¹⁷In similar studies in the United States, Jordan, Honduras and Panama employers have indicated that attitudinal issues such as punctuality and loyalty are as important or more important than the technical competencies of the work force. (Hershbach, 1986; Cuervo, 1985; van Steenwyck, 1982 and 1984.) Successful national technical training systems such as SENA in Colombia require all trainees to take as many as 20 modules in "Integral and Ethical Training." The modules address the issues of responsibility, citizenship and conduct in the work place. These skills are then required during all shop activities. Partly as a result of such emphasis, employers characterize SENA graduates as more disciplined, more responsible, more motivated to be self-starters and with better problem solving abilities than non-SENA graduates. (Cuervo and van Steenwyck, 1986.)

3.5.1 Employers ratings of educational background of workers

A number of questions aimed at ascertaining managers' opinions of the educational competencies of the labor force. Managers are generally satisfied with the basic literacy and education levels of the workers. Only about a quarter (26%) indicated some problem in this area and they were mostly in the apparel industry.

Question 24 asked employers if they preferred to hire workers who had a formal education even if the job did not require it¹⁸. The majority (88%) would rather hire educated workers. Managers most often cited such reasons as: workers were more trainable, thus lowering training costs; and educated workers were more disciplined, better problem solvers and could expand into other work areas more easily.

Another question (#23) asked managers to rate the quality of training at the selected institutions where their employees had been educated. Managers could only respond if they had some direct knowledge of the institution. Response rates varied greatly, indicating that many employers were not familiar with these institutions. Figure 3-8 presents the responses for all firms. In summary, most managers had experience with the secondary schools and rated them regular (52%) to favorable (23%). The most highly rated technical schools and universities were the Loyola Polytechnico (80%), the Salesians' ITESA (74%) and the Universidad Madre y Maestra (UCMM) (72%). Although the technical vocational school of the Armed Forces was not included in the list, information collected during the interviews indicated that employers also rated the graduates from this school highly. All of these institutions were included in the supply side evaluation presented in Chapter 4.

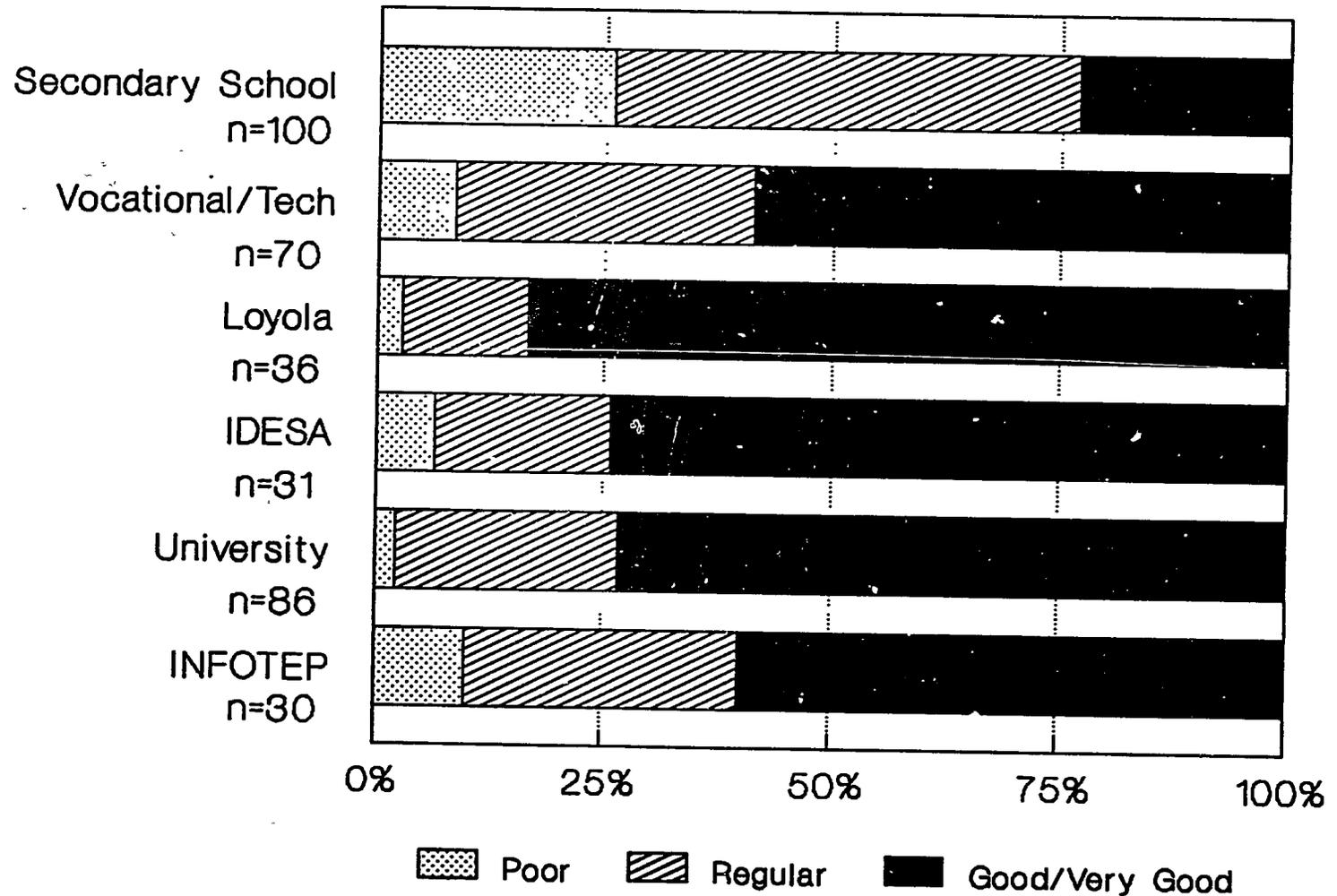
In the case of Loyola, ITESA and the Armed Forces, managers indicated that graduates not only had a sound technical background but were also more disciplined than other graduates. The UCMM was recognized mostly in the Santiago, Puerto Plata, La Vega and San Pedro zones.

Of the institutions listed, the least known was INFOTEP, the national technical training institute. However, of the few (30) that had experience with it, about 60 percent rated it favorably. Most of these firms were in the zones nearer to the capital.

¹⁸For the purposes of the study, formal education was defined as having completed at least eight years of basic schooling or a primary education.

FIGURE 3-8

Employers' Perceptions of the Quality of Instruction Where Employees Were Trained



These are the only firms currently paying the INFOTEP tax and thus are more likely to use their services. Through their general comments, many employers indicated a distrust of working with INFOTEP, citing its politization.

3.6 Characteristics of Training Activities

A major portion of the survey focused on how employers currently meet their training needs. Questions looked at the types of programs, length of training, retraining, and alternative methods to train managers. This section summarizes the responses to these questions.

3.6.1 Types of programs

When managers were asked if it was important to provide employee training, an overwhelming majority, across size, type of firm and location, responded affirmatively. Only two companies disagreed.

Consistent with this data, other findings show that most firms conduct some form of training activities. Those that do not train prefer to hire trained personnel. Surprisingly, more small firms (93%) conduct training than do medium (85%) and large (80%) firms. This could be due to the fact that at least one quarter of the sample included new firms which had just begun operation and thus are currently devoting more time to training. As one manager of a new multinational subsidiary stated: "When you locate in the DR (sic), you know you will have to invest the first six-to-eight months just in training your personnel." Many of these firms, currently classified as small, will be considered medium or large firms within the next 12 months.

Most employers characterize their training activities as informal and on-the-job as contrasted with formal (defined as using an organized curriculum, as special instructors, and a more structured learning setting (see Figure B3-6)). Compared to two other countries where a similar survey was conducted, however, more firms in the Dominican Republic have formal training mechanisms (13%) and/or a combination of formal and informal methods (25%). Again, these data support trend in the overall survey results, that there is substantial private sector investment and interest in training in the IFZs.

As would be expected, formal training is provided more often by the medium (19%) and large size (13%) firms (see Figure B3-7). About one in every four firms, regardless of size, employs a combination of methods. By economic activity, the data reveal two interesting points: 1) a higher proportion of

electrical/electronics firms (64%) invest in a combination of formal and informal methods, and 2) the shoe industry almost completely uses on-the-job, informal training methods.

3.6.2 Functions of Training

Managers are primarily concerned with making a profit. Any activity that helps to increase profit, e.g. by increasing number of items produced, or competitiveness with other firms, will be perceived as important and useful. Most managers surveyed view training highly because it represents a direct long-term investment in employees and indirect long-term investment in the firm, and the country. As the response to Question 21 indicates, most managers have a clear understanding of the short- and long-term payoffs of training. According to managers, the four most important functions of training are:

- o improved productivity
- o quality control
- o new skills development
- o cost reductions

3.6.3 Methods for training different skill workers

A series of questions asked employers to indicate how they train supervisors, technicians, and semi and unskilled workers using the following methods:

- o on-the-job informally (OJT)¹⁹;
- o on-the-job with organized instruction;
- o in the firm, formally, in classrooms;
- o through local vocational/technical schools;
- o outside the country.

¹⁹ In its simplest form, OJT takes place when a new employee is assigned to work with an established worker. The instruction occurs as the job is being performed - as the incumbent worker shows the novice how to perform tasks. OJT is effective for teaching manual skills, but it is an inferior method for imparting technical and theoretical knowledge. It is most useful for teaching the practical application of theory to trainees who have already learned the theory (Hershbach, 1986).

Most firms (82%) train their supervisors on-the-job informally, (Figures B3-8 to B3-11 summarize the results for each skill category²⁰). Because of the lack of available programs in-country, some companies (14%) send their supervisors outside the country for training. The average length for training supervisors ranges from three to six months. Approximately one in ten firms bring their own supervisor from outside the Dominican Republic. The general feeling however, is that Dominican supervisors are better able to understand the needs and cultural nuances of the work force.

The more one descends the skill ladder, the more one finds that firms rely on OJT, complemented by organized instruction, to meet their needs. Firms are more willing to send technicians (18%) to local vocational schools for training than their supervisors (8%). The average length of training for technicians is three to six months. Over half of the firms (55%) surveyed do not train their own technicians. They either hire trained technicians from other firms and/or contract them from technical schools. A few (7%) bring in their own technicians from outside the country.

OJT is used most often to train semi- and unskilled workers. In such cases, 85-90 percent of all the training is done informally and is complemented by some organized instruction usually provided by local supervisors. The average training time for semi and unskilled is as follows:

TABLE 3-8
AVERAGE TRAINING PERIOD: SEMI/UNSKILLED

	<u>Semi-Skilled</u>	<u>Unskilled</u>
More than three months	18%	15%
Two to three months	37%	31%
One to two months	23%	20%
Less than one month	21%	33%

As an alternative to training unskilled workers, over 60 percent of firms hire trained workers from other firms. This is particularly true in the apparel industry. Research found, in fact, that some companies will guarantee a worker a job or

²⁰In these figures, percentages add to more than 100% due to multiple responses by some respondents.

promotion if they get their training in another IFZ operation. It would appear that employers prefer to hire people with experience gained in other firms because OJT is so time consuming and expensive, and because there are so few available training resources for this sector.

3.6.4 Major problems with current training methods

All firms indicated some problem with their current methods for meeting training needs. In summary, three major objections to training are: 1) it takes too much time (39%); 2) the personnel leave after they are trained (33%); and 3) it is too costly (27%). Because of the lack of competent instructors, providing training in-plant is too complicated and employees do not learn or absorb what they are taught. As a result, managers felt that training often does not result in increased productivity or profits for the firm.

3.6.5 Employers suggestions for new investors regarding training

Question 59 asked managers what they would recommend to new or potential investors regarding training. The results were as follows:

- o Bring your own instructors (55%)
- o Contract local instructors (44%)
- o Send workers to local vocational/technical schools (24%)
- o Send workers out of the country for training (14%)

Firms indicated that in the case of supervisors and some technicians (electro-mechanics), new companies should plan to augment in-plant training with formal training outside the country. The data reflect the lack of confidence many firms have towards schools in-country.

3.7 Turnover Rates

Prior research has shown that high turnover is often an indicator of labor shortages in a specific region, industry, or season of the year. Managers were asked therefore in which skill categories they had experienced the highest rates of turnover, whether turnover was seasonal and why turnover was a problem.

Regardless of size, the highest turnover rates by far are among semi-skilled workers. A much higher percentage of large and medium size firms (56 and 37 percent respectively) cited this problem, than did small firms (31%). Turnover seems to be higher among semi-skilled workers for two reasons: 1) they have

obtained a level of basic, as well as firm-specific, training which makes them more marketable to other IFZ firms; and 2) they are less well paid, work under less optimum conditions and are less valued employees than are more skilled supervisors and technicians, for which turnover is lower.

In general, the data show that employee turnover is more of a problem for medium and larger size firms than for small firms. Thirty-one percent of the managers of small firms report it to be no problem, compared to 15 and 5 percent of medium and large firms, respectively (see Figure B3-12). High turnover among supervisors and unskilled and semi-skilled workers is more crucial in larger firms due to the sheer number of operators needed to keep the factory running efficiently. In fact, the data show that turnover among supervisors and semi-skilled workers increases in frequency in direct relation with the size of the firm. On the other hand, large firms had less problem with turnover among technicians, most likely due to their ability to offer more attractive salaries and benefits.

Apparel and shoe manufacturers experience their highest turnover among semi-skilled workers. Over 45 percent of apparel firms and 50 percent of shoe firms cited their highest turnover in this area (see Figure B3-13). Turnover among the electronics industries does not seem to be as pressing a problem as in other sectors. Forty-five (45) percent said that they have no problem at all with turnover in their factories. Turnover rates for the electronics sector are highest among supervisors and unskilled workers. The miscellaneous industries have higher turnover among unskilled and semi-skilled labor, in that order. Their turnover among technicians is slightly less.

Although all zones reported their highest turnover among semi-skilled workers, the data show varying degrees of concern over the issue which points to certain regional deficiencies. All of the firms in Bani and Herrera, and 97 percent of those in Santiago, have problems with employee turnover. The Bani firms' problem has been exclusively with semi-skilled and unskilled workers, reflecting the difficulties of establishing an industrial zone in a traditional agricultural area. The turnover in both Herrera and Santiago has been spread fairly evenly across all skill areas. The size of the Santiago IFZ was limited by financial constraints in the mid-1980s, but a large number of companies have expanded operations or installed since the initiation of the second stage of the zone in the past 2 years. This has placed additional pressure on the limited labor pool in the city. In the focus group in Santiago, it was also reported that turnover of technicians has been influenced by workers going to the new zone in La Vega. There they can work on and become familiar with newer machinery used by these firms and return later to Santiago to demand higher salaries.

Approximately 80 percent of managers in Puerto Plata, San Pedro and La Romana reported some problem with employee turnover. Both Puerto Plata and San Pedro have higher turnover among semi-skilled and unskilled workers. In Puerto Plata this is in part due to competition with the hotel industry. As in Santiago, turnover in San Pedro is mainly due to the large number of companies which have expanded operations or installed over the past 1 - 2 years. Aside from semi-skilled workers, La Romana also has higher turnover among supervisors.

Both of the zones in Santo Domingo are new and have yet to encounter serious turnover problems, with the exception of Caribbean Data Service in San Isidro, (CDS). Three of the 5 firms in Itabo have had some degree of problem with turnover, each in a different skill area. However, none of the managers cited high turnover among semi-skilled workers. None of the firms surveyed in San Isidro mentioned problems with turnover. However, a subsequent interview with CDS (data entry) pointed out a problem with turnover among their operators, or "keyers". The specific case of CDS is explained in further detail in Appendix C.

Close to 70 percent of managers stated that employee turnover was seasonal, with the highest response rates coming from La Romana (90 percent), San Pedro (75 percent) and Santiago (70 percent). This seasonal turnover mainly comes during the Christmas/New Year's period.

In conclusion, with the tremendous growth in the IFZs over the past few years, it has become more tempting for new or expanding firms to hire away trained personnel from current operations rather than invest time and resources in training. Most of the zones have addressed the problem through informal "gentlemen's agreements" among the firms. However, turnover remains a serious problem, in spite of these efforts.

3.8 Employers' Estimate of Training Costs

Training, regardless of the method, represents a major investment for most companies. Firms generally do not keep accurate records on the cost of on-the-job informal training thus making it virtually impossible to accurately assess a firm's total investment for training. (Dougherty, 1987.) A number of questions sought to obtain information on training costs. Because previous studies have shown that employers are rarely able to provide exact figures on these expenditures, managers were asked to approximate their costs according to specific ranges.

The data indicate that most firms (73%) do not have a separate budget to track training costs. The size of the firm did not seem to matter. Sixty-three percent of electronics firms did, however, maintain separate accounts. More electronics firms (29%) also spend over 30% of their budget on training. (See Table 3-9.)

Question 61 asked managers to estimate their 1987 training costs. Using the median, the analysis attempted to arrive at the firms' average training budget. The results are found in Table 3-10.

TABLE 3-10
MEDIAN TRAINING BUDGET FOR 1987

Small N=48	RD\$ 7.1
Medium N=48	RD\$ 11.4
Large N=21	RD\$ 14.3

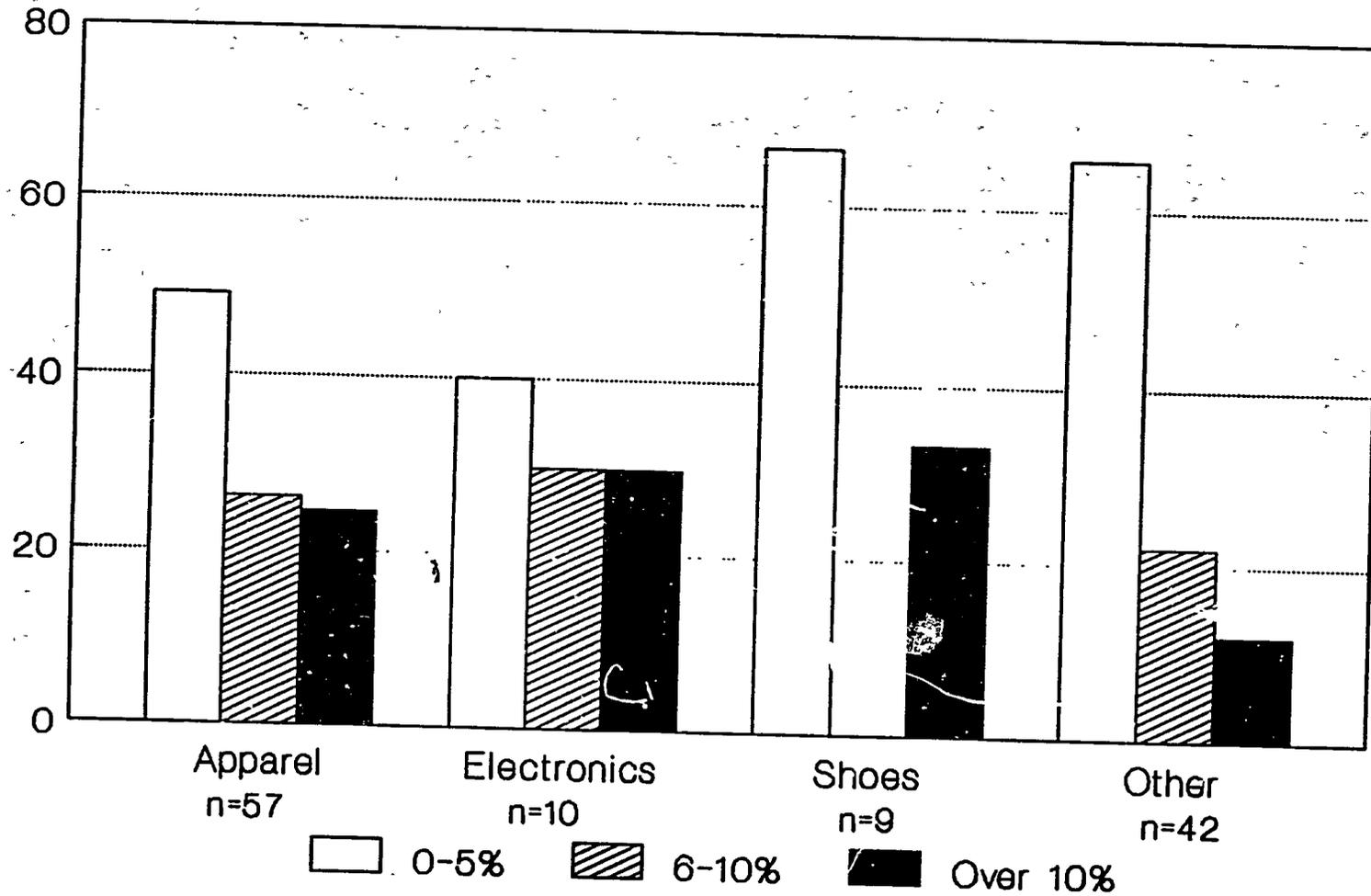
Considering that smaller firms have less than 200 employees, their investment in training is proportionally greater than that of larger firms. One must take into consideration, however, that a number of new firms, classified as small, are currently engaged in intensive training. Some of these firms, e.g., GTE and Baxter, will by the end of this year be considered medium to large firms.

The data by location are presented in Figure 3-9. As would be expected, the newer zones, which are primarily attracting higher technology multinational firms, and are investing in excess of RD \$50,000 a year on training.

When the data were presented during the focus groups, the managers indicated that the training costs were in fact underestimated. Given the various costs of training, i.e., equipment, repairs, space, instructors' wages, time and production lags, the importance and difficulty of tracking training costs became evident. The few firms that had separate training budgets usually only kept records for costs incurred for specific courses provided outside of the firm. About a quarter of the firms reported sending their high level staff such as

TABLE 3-9

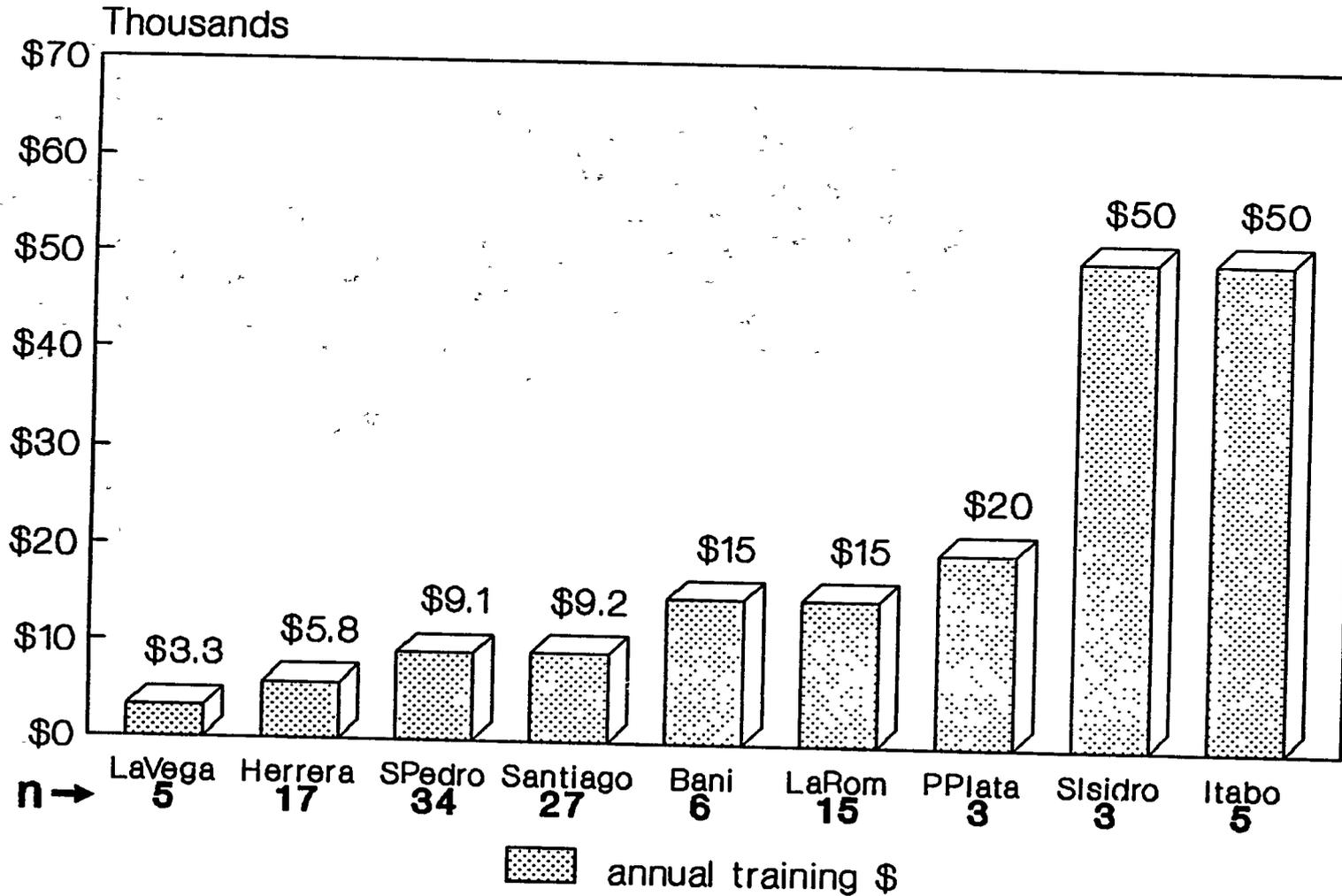
% of Annual Budget for Training* By Economic Activity



* Estimated by company manager

FIGURE 3-9

Annual Training Costs Median Training Budget for 1987



1987

supervisors and senior managers to training programs outside the Dominican Republic. In those instances, firms could easily account for their investment.

One comprehensive question (#65) aimed to assist managers in calculating exact costs per training hour of instruction, by asking them provide the following information:

- o Total number of workers trained in 1987
- o Average length of course (in hours)
- o Number of instructors participating
- o Average instructor salary
- o Average hourly salary of trainees

The responses to these items varied so greatly that it was not possible to generate valid conclusions. The only trend that was apparent, and is supported by other results is that electronics firms pay a premium for training. However, there was a number of difficulties with other data on this question. In some instances, the number of people trained does not correspond to the size of the firm or to the average length of training time reported by some firms. In many instances, firms did not list the instructor's time and/or salary, making derivation of the total cost of training per employee difficult. For the sake of completeness, the data are included in Table B3-14.

In sum, tracking employer-based training costs presents a number of methodological challenges. Most firms, regardless of size, do not tend to keep good internal records of such expenditures. Perhaps a more viable method of collecting cost estimates by industry would be to rely on information from international trade organizations, for example, the Association on Apparel Manufacturers. Some American based firms have also conducted their own analyses, and their costs could serve as rough estimates for similar firms. For a example, a multinational apparel firm in San Isidro indicated that on the average, it spends around US\$3-4,000 to train a U.S. operator, compared to less than US\$1,000 to train a Dominican one.

3.9 Preferences for Meeting Training Needs

Determining how to assist the IFZs and Herrera meet their training needs was an area of primary interest to USAID/DR. Three critical questions in the survey were used to identify employers' preferred options for meeting future training needs, and to discern why they prefer those methods. The most

desirable options were then further discussed in the focus groups, allowing each zone and/or region to move towards developing a personalized program and plan of action to meet their specific situation. The recommendations proposed in each focus group are discussed in more detail in Chapter 5, Results of the Focus Groups.

Results from the survey and feedback from the focus groups confirmed that managers prefer to conduct training in-plant or in zone. When presented with 4 specific training options, about 75 percent of managers said organized in-plant training would be desirable/very desirable, closely followed by in-zone training with a 70 percent response (see Figure 3-10). Managers indicated that they prefer in-plant training because it gives them more control over the content of the training, allows for more flexible scheduling and is cheaper and more cost effective (Figure 3-11). Fifty-five percent of managers have a strong desire to work with existing technical training institutions. Only 25 percent want to utilize other methods of training conducted outside the zone.

Although all managers surveyed prefer in-plant training, followed by in-zone training, a larger percentage of medium and larger size firms responded to these two options. This seems to indicate that the larger the firm, the more open management is to using a variety of training programs. Smaller firms seem to prefer in-zone training for higher level personnel, due to economies of scale.

The sewing industries (apparel and shoes) have a stronger preference for in-plant and in-zone training. This sector is concerned with the lack of experienced trainers and programs available in the country to meet their specific needs for basic sewing training and for sewing machine mechanics. It would appear that managers prefer to have more control over their training programs due to lack of confidence in outside resources. On the other hand, electronics firms expressed a very strong preference for working with existing technical schools, in part due to their positive experience with local educational and training institutions. At the operator level, they prefer high school graduates with good basic science and math skills, and have been satisfied with the current quality. The managers have also been quite satisfied with the training of more skilled personnel by Loyola and the Salesian schools. In addition, basic electronics training is more expensive than basic sewing training and due to the smaller number of firms, is more difficult to provide on a per-zone basis.

FIGURE 3-10

Employers' Preferred Options for Meeting Training Needs - All Respondents (N=135)

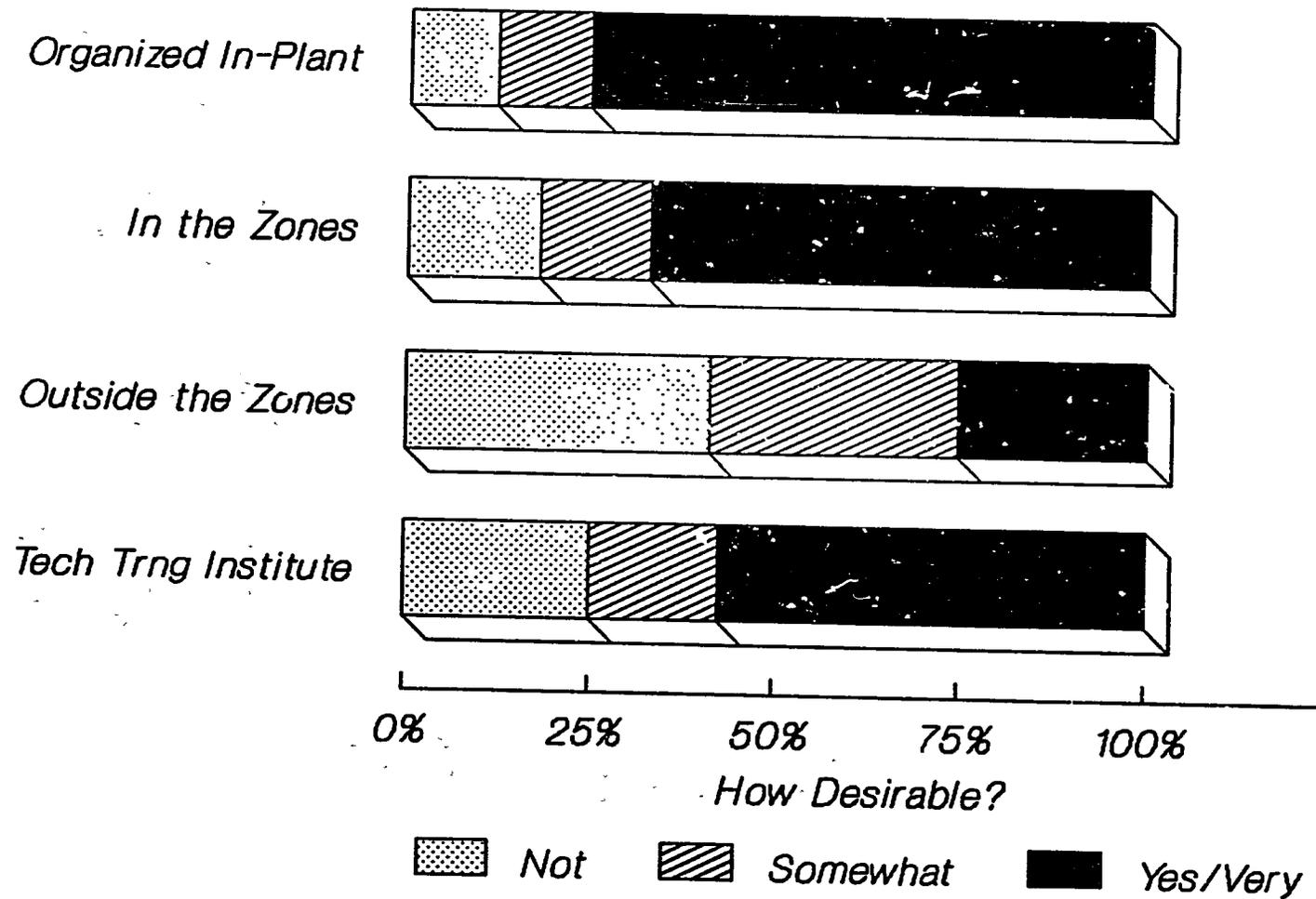
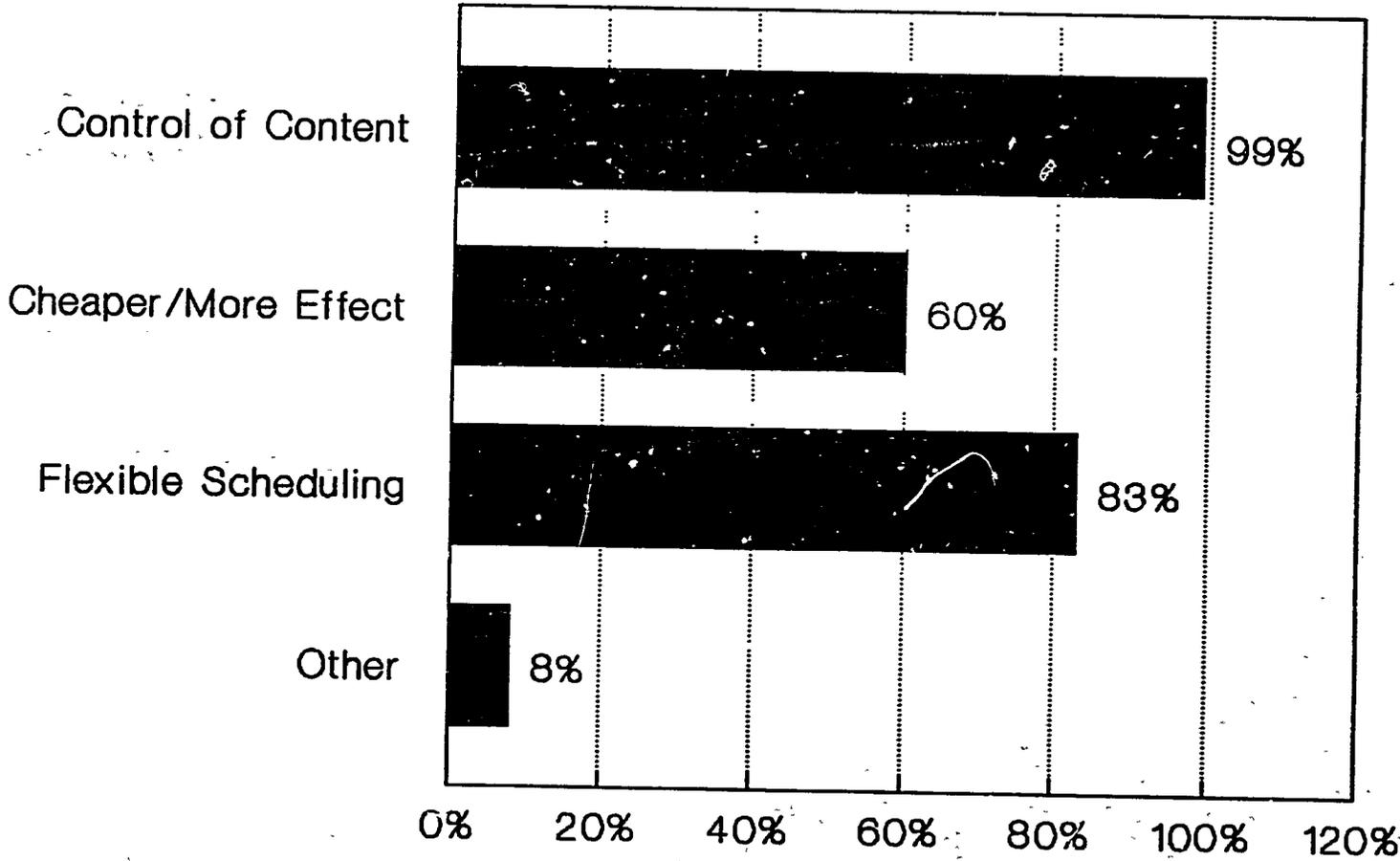


FIGURE 3-11

Reasons to Prefer In-Plant Training



of the 60% who train *In-Plant*
(n=95)

55

Because of their unique characteristics, training needs and stages of development, zones varied in terms of their preferred training options (see Table 3-11). A summary of the major points follows:

- o All of the firms in both Puerto Plata and Bani expressed a strong interest in an in-zone training center. In Bani, such a center is being planned by the Administration, in cooperation with INFOTEP.
- o The IFZs in the capital have a stronger preference for working with technical schools than do IFZs outside the area. This can be attributed to proximity and personal experience in working with INFOTEP.
- o There is a high level of interest in addressing training needs through a variety of methods in Herrera. Close to 90 percent of managers surveyed in Herrera are interested in in-plant training and working with existing vocational/technical schools. Eighty percent expressed interest in an in-zone training center.
- o The majority of Santiago firms are interested in both in-plant (82 percent) and in-zone training (76 percent).
- o The managers surveyed in San Pedro expressed more willingness to work with technical institutions than the smaller group of "leaders" which participated in the focus groups. This is an important distinction, as it is the "leaders" who will have a crucial role in the success or failure of any zone-wide training program.

3.10 Preferred Financing Options

At the present time, the majority of training conducted by the firms surveyed is carried out in-plant and financed by the firms. All companies in the Dominican Republic are also required by law to pay a one percent payroll tax to INFOTEP, whether or not they utilize their services.²¹

²¹ At the present time, only the newer IFZs (Bani, San Isidro, Itabo) pay this payroll tax. Because of their extraterritorial legal status and statement that they do not use INFOTEP's resources, the majority of IFZ companies have never paid, or have stopped paying this tax. On the other hand, INFOTEP claims these companies are breaking Dominican law by not complying with payment of the tax. However, INFOTEP has never legally challenged any of the IFZ companies, so it remains an unclear issue.

**TABLE 3-11
EMPLOYERS PREFERRED OPTIONS FOR MEETING TRAINING NEEDS BY LOCATION**

Factors\Location		Santiago	Puerto Plata	San Pedro	La Romana	La Vega	Bani	Itabo	San Isidro	Herrera
		Organized In-Plant	82	17	82	73	78	67	40	50
Percent Frequency	27	1	32	11	7	4	2	2	16	
In the Zone	76	100	62	53	44	100	40	25	78	
	25	6	24	8	4	6	2	1	14	
Outside the Zone	24	67	23	20	22	16	20	25	29	
	8	4	9	3	2	1	1	1	5	
Using Existing Vocational/ Technical Schools in Country	58	40	55	60	22	33	80	50	88	
	19	2	21	9	2	2	4	2	15	
Other	3	16	0	0	0	0	0	0	5	
	1	1	0	0	0	0	0	0	1	

51
Survey Question 52

Managers were asked whether they preferred that training be financed by public or private resources, and how they would choose (Questions 53, 54) to contribute to privately or jointly financed training programs. Sixty percent of the managers believe that training should be jointly financed by the private and public sectors. Thirty percent prefer that training be financed totally by private resources.

The vast majority (73 %) prefer to contribute to privately or jointly financed training programs through direct payments to the training organization (see Figure 3-12). Sixteen percent prefer making supplemental payments to employees to cover the cost of training and only 7 percent endorse contributing to such training through a tax. Four percent prefer other methods.

3.11 Training Assistance Needed

The willingness of employers to pay for training is again supported by a key question (#57) which asked managers who are planning to conduct further in-plant training to indicate the kinds of assistance they would need.

The results for ninety-one firms follows:

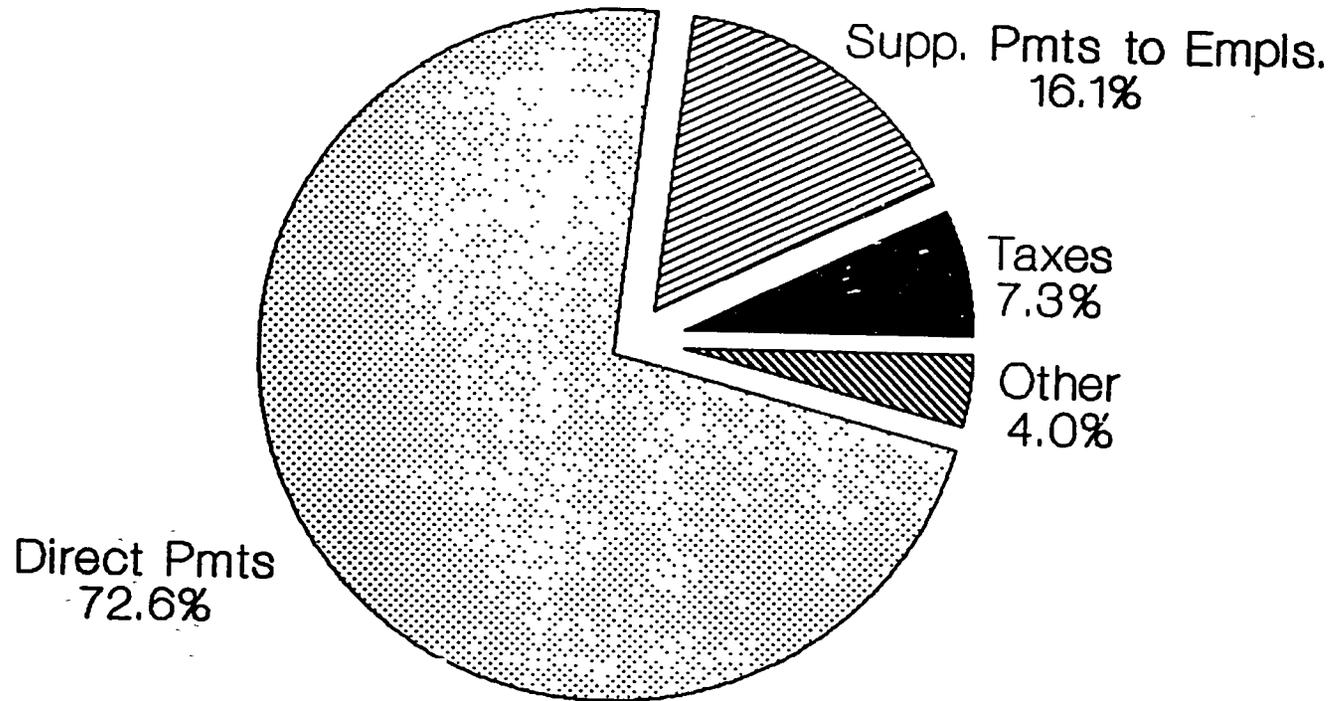
**TABLE 3-12
TRAINING ASSISTANCE NEEDED**

<u>Type of assistance</u>	<u>Percentage of firms responding</u>
Instructors	78%
Audio Visual Equipment ²²	71%
Curriculum Plans	67%
Training (Print) Materials	57%
Training Needs Assessment	53%
Training Technology	52%
Better Facilities	36%
Funds	31%
Training (Industrial) Equipment	29%

²²During the focus groups, audio-visual equipment was clarified to mean video training tapes which, in view of the lack of qualified instructors in the country, could significantly contribute to improving in-plant training.

FIGURE 3-12

Preferred Method of Financing Training Programs



Of the 91% willing to contribute

59

Most employers seem willing to cover the major expenses of providing training by taking the responsibility of providing the funds, physical facilities and industrial equipment for training purposes. This is unusual when compared to the data on Honduras and Panama where funds, facilities and equipment were ranked as the top needs.

The managers in the IFZs and Herrera are not only cognizant of the importance of training and its direct relation to productivity and profits, but also are genuinely willing to pay for quality services. The major problem they face is the difficulty in finding competent, qualified instructors and in-plant training technical assistance in-country. The data by location do not differ significantly and are summarized in Table 3-13.

3.12 Backward Linkages

USAID added five questions to the survey to assess the degree to which linkages existed or were possible between IFZ firms and the firms in the Herrera Industrial Park.²³

A selected sample of these firms was included in the study for the following reasons:

- o A substantial proportion of American manufacturers seeking off-shore assembly sites do not have an interest in establishing their own production facilities and thus prefer to contract with local manufacturers to assemble their products.
- o In the Dominican Republic, while many IFZ companies perform contract production, some Dominican owned companies outside the IFZs also engage in export assembly activities under Law 69, the Export Promotion Law.

In order to develop a comprehensive assessment of training needs in the export manufacturing sector it was useful to include a sample of non-IFZ exporters in the survey. These companies form a substantial part of the export capacity of the Dominican manufacturing sector and it will be necessary to take their needs into account in the design of training programs. In addition, the industrial development strategy of the IPC includes an effort to promote exchanges between the IFZs and local Dominican

²³These questions were only addressed to Herrera firms.

TABLE 3-13
TRAINING ASSISTANCE NEEDED BY FIRMS DESIRING IN-PLANT TRAINING
N = 91

Type of Assistance/Location		Santiago	Puerto Plata	San Pedro	La Romana	La Vega	Bani	Itabo	San Isidro	Herrera
		Instructors	Percent	85	100	67	73	67	100	100
	Frequency	23	1	17	8	4	2	3	0	13
Audio-Visual Resources, Equipment		67	0	75	63	83	0	100	0	100
		18	0	18	7	5	0	3	0	14
Curriculum Plans		67	100	63	82	50	0	33	0	36
		18	1	15	9	3	0	1	0	5
Training Materials		44	0	63	36	83	50	100	0	64
		12	0	15	4	5	1	3	0	9
Training Needs Assessment		63	0	60	40	60	50	33	0	43
		17	0	14	4	3	1	1	0	6
Funds		37	0	35	9	67	0	33	0	36
		10	0	8	1	4	0	1	0	5
Facilities		37	0	54	18	50	66	33	0	21
		10	0	13	2	3	2	1	0	3
Training Equipment		58	100	52	54	83	0	66	0	71
		15	1	12	6	5	0	2	0	10

Survey Question 57

manufacturers. To the extent that the skills of those companies can be upgraded, it is more likely that they will be able to produce sub-components and other materials to companies at competitive prices and quality standards.

The survey results indicate that there are few linkages between local firms and the IFZs. Only three out of eighteen firms sampled in this zone sell to the IFZs. These firms and their percent of sales to the IFZ were: manufacturers in steel (5%), air-condition equipment (10%), and sports wear labels (1%). Two additional firms indicated that they have plans to market their products to the IFZs.

In terms of employment linkages, 39 percent of the Herrera sample currently employ workers who have previous IFZ job experience.

The only other evidence of linkages was a newly established electrical equipment firm in San Isidro which was actively looking for a local producer of welding gases. According to the firm, finding a reliable local firm had been difficult. In sum, the local private sector leaders in Herrera pointed to a number of needs which must be addressed before any significant integration can occur between local manufacturers and the IFZs. These suggestions were:

- 1) The need to establish an organization to serve as broker to identify and match IFZ firm needs with local producers.
- 2) The review and change of current industrial and governmental policies to facilitate trade between local producers and the IFZs.

Local managers indicated that the current bureaucracy makes such linkages virtually impossible. A thorough review of such bottlenecks was beyond the scope of this study. Further analysis is needed to determine the policy changes required to promote more industrial integration.

CHAPTER 4 ASSESSMENT OF VOCATIONAL-TECHNICAL PROGRAMS

The objectives of the supply-side assessment were to:

- o provide information on existing training resources for meeting Industrial Free Zone (IFZ) training needs and suggest alternatives for meeting these needs; and
- o provide the USAID/DR with an overview of the vocational training resources available and possible development opportunities in this sector.

4.1 Summary of Training Resources

The major sources of training are technical programs in universities, technical high schools accredited by the Ministry of Education, private nonprofit and proprietary schools, the Armed Forces' training centers, and INFOTEP (See Appendix E for training centers visited and observations on each institution).

The geographic location of existing training centers does pose some problems for meeting all of the existing and future IFZs' training needs. INFOTEP's proposed mobile training units, however, can be used where no training capabilities exist. Both INFOTEP and FUNDAPEC (Fundacion Apec de Credito Educativo) can contract training resources and use existing training centers and other existing buildings for meeting IFZ training needs. Using these facilities, it should not be necessary to construct additional training centers.

4.2 Quality of Training

The quality of training ranges from very low quality, which results in high dropout rates and low job placement rates (less than 30% completion and job placement rates), to excellent training institutions which have very few dropouts and job placement rates at nearly 100%.

A recent study summarized the major vocational-technical resources in-country (Fernandez, Scalce, and Subirais, 1987). This study estimates that skilled and semi-skilled graduates from SEEBAC (Ministry of Education) training centers annually number approximately 5,000 while about 1,300 graduate from the Armed Forces' centers. Home economics and commercial education graduates account for about 80% of all of SEEBAC's graduates with about 400 graduates in technical-industrial areas each year. The Armed Forces' and proprietary schools often focus their training on artisan level trades or very basic skill levels. Universities

also have established associate degrees and extension programs and INFOTEP trains about 7,000 people annually. INFOTEP's programs, however, are geared primarily to skill upgrading.

4.3 Costs of Training

Costs of training vary widely from as low as RD\$1 per participant hour of instruction in nonprofit private training centers (which enroll large numbers of low income participants), to RD\$1 to RD\$5 in SEEBAC centers and universities, to over RD\$8 per participant hour with INFOTEP. Accepting even the higher training costs of INFOTEP, the alternative of building, equipping and staffing additional training institutions in IFZ's does not appear to be a rational alternative when existing training facilities are not being used to their full potential. It is recommended that existing centers be used for providing training with the upgrading of equipment and instructors as required. In addition, funds should also be reserved for contracting expatriate industry-specific, quick-start training programs when local resources cannot provide appropriate training. Local counterpart trainers should be used to assure a multiplier effect when training must be repeated for other firms.

4.4 Student Selection Criteria

Student selection criteria should be reviewed for areas such as industrial sewing machine operation. Selection in this area is normally done on the basis of manual dexterity but most training centers are using academic achievement as the primary requisite for accepting trainees.

4.5 Investments for Upgrading Facilities and Equipment

There are many training programs which need additional investment in facilities and equipment, and this investment should be encouraged. Some of the most innovative training programs visited, however, were those which were operating on a shoe string budget. Careful consideration should be given to training investments, not only on a cost-benefit basis but also in light of their potential to foment innovative training programs.

4.6 Competency Based Instruction (CBI)

Several training institutions expressed interest in developing CBI strategies. Experience has shown that this can be a very costly and time consuming process, especially if each institution develops its own curricula. Maximum use of existing materials in

English and Spanish should be made and inter-institutional cost/work/product sharing should be encouraged.

4.7 Loans for Low Income Students

Several training centers expressed interest in a loan fund for lower income students, explaining that existing loan criteria disqualify many lower income candidates because of the nature of the loan payback guarantees and system of co-signors. Consideration should be given to alternative loan/grant policies for lower income sectors of society.

4.8 Instructor Training

Many training institutions hire former graduates as instructors. A graduate with 5 or more years of experience in the private sector, practicing his/her trade, most likely has sufficient technical knowledge and skills to teach although he or she may lack knowledge of new technologies. Consideration should be given to both technical and pedagogical skill upgrading programs for instructors. Ideally, these programs would be individualized and self-paced with minimal group meetings. Local university CBI programs are suggested.

4.9 Standardization of Curricula

Many training centers are meeting very different training needs among different socio-economic sectors of society. These training alternatives should be encouraged but the core content should be standardized. Standardization would also reduce training costs because demonstrated mastery of a given task will eliminate repeat training.

INFOTEP has developed trade profiles in the form of career ladders which could serve as the basis for standardizing curriculum content and exit points for participants. The International Labor Organization (OIT), which is providing technical assistance to INFOTEP, could also assist in this area. The agreement which is to be signed between SEEBAC and INFOTEP could allow this standardization process to begin

Other training providers, as well as private sector employers and practitioners, should agree to common standards and job definitions. Such standardization would assure higher levels of employment for graduates from a larger number of training centers.

4.10 Follow-up Studies of Graduates

These studies could be helpful to identify curricular deficiencies in training programs and to areas in which the employment market is most active, and to avoid saturating other trades. This type of activity could be a major contribution for INFOTEP.

4.11 Internal and External Efficiency of Training

Some training centers are reporting very low internal efficiency rates with up to 75% dropouts. External efficiency, as reflected by job placement rates, is also very low in some centers. In contrast, other centers have very few dropouts and almost 100% job placement rates. It is recommended that further study be given to the causes of these low and high levels of efficiency in the interest of identifying the key factors for bringing annual retention and job placement rates up to a minimum of 80%.

4.12 Suggestions for Meeting Employers Most Critical Training Needs

A number of specific programmatic suggestions are presented to respond to the employment and training demands documented in Chapter 3.

4.12.1 Maintenance Mechanics

The major SEEBAC training centers and universities are the primary sources of new technical-industrial graduates. The number of graduates from these institutions appears to be insufficient to meet IFZ demand. These centers can increase their enrollments if they have appropriate resources.

The majority of the graduates from these programs are well prepared in basic electricity, electronics, and metal mechanics and should be able to meet a large part of the demand for new maintenance personnel. New equipment, training modules and appropriate curricula should be provided however, for meeting the more advanced industrial maintenance needs such as pneumatics, hydraulics, and machine and electronic control trouble shooting. Skill upgrading for existing maintenance personnel and mechanics should also be encouraged. It is probable that many employers will request a mix of skills in mechanics, electricity, electronics, pneumatics and hydraulics. This will require major curricular changes for institutions which will be training maintenance mechanics. The training program should follow a career ladder with multiple exit points and with the opportunity to mix various modules from different areas as required.

Areas which will require more specialized attention are the repair and maintenance of industrial apparel machinery. It is recommended that an expatriate training program be sought for local instructors who would continue to offer this training locally at at least one major vocational training center. This will also require equipment investments for the relevant training center(s). This training should be offered in both the formal and nonformal modes so that both job entry and skill upgrading needs can be met.

4.12.2 Supervisors and Quality Control

All of the universities visited are developing or are prepared to develop supervisory, quality control, and productivity programs. Contracting local and international technical assistance should be considered, as should using local instructors as counterpart trainers for obtaining a multiplier effect.

While medium and longer term needs should be met by formal university and extension programs, short-term needs can be best met through skill upgrading programs by university extension programs. Also, INFOTEP could respond by working with existing supervisors and recent university graduates, who require additional training. A key factor for the success of these programs will be direct private sector involvement in defining competencies and tasks for supervisors, assuring that training programs have appropriate learning resources for mastering tasks and competencies, and a credible system for evaluating participant performance.

4.12.3 Electronics Technicians

Currently, the only major sources of well trained electronic technicians are SEEBAC and university programs. A shortage of electronics technicians has been projected and increased enrollments should be encouraged. Demand should be monitored closely as supply increases, and appropriate adjustments should be made. Again, private sector involvement in defining training needs and priorities will be a key factor in meeting IFZ and other private sector needs.

Skill upgrading training should be encouraged to meet the short-term demand. SEEBAC, university extension programs, and INFOTEP contracts with training centers should be able to meet this need given appropriate resources.

4.12.4 Bilingual Secretaries

Competent bilingual secretaries are in high demand in most developing nations. The investment for providing quality training in this area is considerably less than those required in many other technical programs. Proprietary schools,

universities, and possibly SEEBAC could provide quality programs. Two strategies are recommended: (a) strengthening existing programs with instructor, curriculum and equipment upgrading; and (2) encouraging higher enrollments by publicizing supply shortages and attractive wages.

4.12.5 Computing and Programming

This demand must be more specifically defined by employers. It is doubtful that there is an exceptionally high demand for computer programmers but rather for word and data processing, or possibly computer maintenance and repair personnel.

If the demand is for competent computer users, this could be covered by proprietary schools and equipping politechnical institutions. Loans offered by FUNDAPEC in this area could be very helpful for covering equipment and training costs providing the economic returns on investments will be attractive for trainees. If the demand is for maintenance and repair personnel, some proprietary schools, universities and SEEBAC programs should be able to meet the demands in this area, given appropriate resources. INFOTEP should be encouraged to contract training in this area from existing programs in order to avoid duplicate programs.

4.12.6 Machine Operators

It appears that the major demand in this area is in the apparel industry. Many existing training centers (SEEBAC, proprietary, nonprofit, and Armed Forces schools) could help fill this demand with appropriate industrial equipment, student selection techniques (manual dexterity tests), standardized training curricula, and credible evaluations of graduates. INFOTEP also plans to implement two mobile training centers which can travel to IFZs for meeting both job entry level and skill upgrading training needs.

However, if the productivity levels of graduates of training programs are not currently acceptable, contracted expatriate training, with the participation of local trainer counterparts, should be encouraged. Similarly, some firms may wish to train their own personnel. The same strategy is recommended for in-plant programs funded through FUNDAPEC. INFOTEP should also reconsider its policy on payroll tax deductions for in-plant training initiatives.

4.13 Brokering Training

Someone must accept the responsibility for brokering training, e.g. arranging contacts between clients seeking training and the most credible suppliers of training. Experience in other

countries has shown that neither the private sector nor individual training institutions are prepared to deal with many of the issues related to defining training needs, selecting the best training source, and then contracting the training based on measurable, pre-established training objectives and performance levels.

While training institutions should be expected to market their training under contracts to the private sector, and nearly all of the institutions visited expressed interest in this concept, this is not an area easily mastered by educators. It often requires a third party, who can mediate differences and help protect both parties.

FUNDAPEC may be a logical choice to assume a leadership role in this area because it will be in the best interest of the institution to assure that rational loans are made to clients and that clients receive the training they require. Many other institutions could also help fill this need but if funding for training loans is to come from FUNDAPEC, it would seem that this institution would be the most logical choice. It is also recommended that FUNDAPEC and INFOTEP share information on contracted training programs.

4.14 Conclusions

The preceding discussion of the various topics in this Chapter included many specific suggestions for program and institutional improvement. In summary, this section presents three overarching conclusions and additional recommendations.

4.14.1 Training Resources and Alternatives for Meeting Training Needs for Industrial Free Zone Firms

The Dominican Republic possesses a wide range of technical training resources which are not being used to maximum potential. While it was difficult to evaluate the internal and external efficiency of each of these institutions within the limited time available for this study, it is evident that the majority of the institutions visited are meeting important human resource development needs and a significant number of these institutions are recording excellent retention/completion and job placement rates.

Each of the institutions visited expressed interest in providing training for IFZ firms through contractual or other arrangements. Given the variety of training institutions, resources and capabilities, it is recommended that these existing institutions be used as the primary sources of IFZ training for both job entry

level and skill upgrading, rather than constructing additional training facilities within IFZs or relying on expatriate quick-start training programs.

There will, however, be areas in which existing institutions will not be able to meet IFZ training needs due to lack of equipment, experience, or instructors. In these cases, it is recommended that funding be provided for: (1) the institutional strengthening of existing institutions whenever possible; and (2) the contracting of international quick-start and industry specific training resources with the use of local counterpart trainers to assure a multiplier effect.

4.14.2 Defining Training Needs and Priorities

Very few private sector or training institutions have developed formal mechanisms for clearly defining training needs and priorities, particularly for meeting industry specific training needs. The IFZ survey indicates a number of high priority training needs (supervisors, machine operators, industrial maintenance personnel, bilingual secretaries, and electronics technicians). But training institutions often mentioned that the private sector has not clearly communicated its needs. There is evidence that some work has been done in this area on a local or regional level, through direct contacts between training institutions and the private sector, with training institutions normally initiating these contacts. However, a national level system should be established for clearly defining training needs, training outcomes, and resources for financing such training.

INFOTEP is currently contracting existing training centers (Instituto Politecnico Loyola) to provide training services. This is an excellent use of INFOTEP funding which avoids duplication of efforts and increases cost-effectiveness. Using existing training resources, including INFOTEP's two mobile training units, should be encouraged.

FUNDAPEC also expects to have IDB financing available for IFZ firms to contract industry-specific training. Special attention should be given to assure that the project design contains appropriate mechanisms for defining training needs and expected outcomes, in explicit and measurable terms, with payment for contracted training based on the extent to which training objectives are met. Industry specific training needs analyses and the DACUM system²⁴ have been used in other countries with

²⁴For further information on DACUM and 1 week training programs for facilitator for using the system, contact Dr. Norton, National Center for Vocational Education, Ohio State University.

good results and are the strategies recommended for defining training needs and expected outcomes.

Since FUNDAPEC will be providing the capital for training loans, it will be in its own interest to assure that training needs and payment for training are clearly defined. This can be accomplished by using its own staff or sub-contracting assistance from other local institutions and/or individuals.

4.14.3 Standardization and Quality Control in Vocational Training

There are many ways in which standardization and quality control of training could be accomplished but it could be very difficult to place all institutions under one single authority. Vocational-technical training in the Dominican Republic is not conducted by one institution or dependency, but by a wide range of institutions. Similarly, there are many different government and private sector institutions which make decisions on training content and in establishing "acceptable" performance standards in trades.

Many different types of institutions are provide training for people with different needs, capabilities and backgrounds. These variations in curricular emphasis and modes of delivery are very important for providing alternative training options for different sectors of society. Nevertheless, teaching technical skills in any trade or professional area should be based on clearly defined trade tasks and skills which have been validated by the private sector and practitioners. These competencies and tasks then form the career ladder of the trade or profession.

A career ladder of this type should have numerous exit points so that a trainee from virtually any socioeconomic level can take advantage of training opportunities, at various times during his/her career and based on individual needs and capabilities.

If the private sector and training institutions could agree on the content and structure of these career ladders for major trades, there could be several important advantages. For example:

1. The internal efficiency of training could be improved (reducing dropout rates) because students would not have to enroll in longer training programs and would have various exit points for obtaining employment.
2. Because the exit points of the career ladder must meet acceptable performance standards, defined and agreed upon by the private sector and training institutions, job placement rates (the external efficiency of training) could be improved.

3. If the nation's training institutions were to use the same career ladder, a participant from one of the Armed Forces centers or a nonprofit training center could receive just enough training for obtaining employment, exit at a low level, obtain employment and later continue his/her studies in a technical high school, private institute, INFOTEP, or university programs without losing credit for previously mastered abilities.
4. Once a system is established, it could also be used as the basis for a national trade certification system, which could provide more formal quality controls on training. In addition, it could give workers credit for skills and abilities learned on the job and through other forms of informal training, thereby increasing economic mobility and permitting more appropriate access to a wider range of training programs.

It is recommended that consideration be given to standardizing training content for improving the cost-effectiveness, and internal and external efficiency of training.

CHAPTER 5 RESULTS OF THE FOCUS GROUPS

5.1. Objectives and Importance of the Focus Groups

There were four primary objectives of the focus groups:

- o Verify, clarify and augment the results of the demand and supply side analyses;
- o Provide feedback to key private sector leaders and IFZ administrators on the results of the study;
- o Identify discrete, positive initiatives to be taken by private sector leaders to address training needs; and
- o Increase private sector involvement and commitment to participate in efforts to upgrade the skills of the labor force

The group discussions centered around two key questions: 1) What are the most urgent training needs?, and 2) What are the most feasible alternatives for meeting these needs? In addition, the group in Herrera Industrial Park discussed the issue of linkages between the local economy and the IFZ firms.

5.2 Format of the Focus Groups

Four focus groups were conducted during the week of April 4 - 9. The IFZs were grouped together by region due to time constraints and in order to encourage regional cooperation in addressing the specific training issues. Although the exact composition of each group differed, an attempt was made to involve both IFZ administrators and company managers, as well as representatives of USAID and the Investment Promotion Council (IPC). In addition, a representative of Fundacion APEC (FUNDAPEC) was invited to participate as an observer in the sessions, in order to enhance coordination with the upcoming InterAmerican Development Bank human resource development project which FUNDAPEC will be implementing.

The sessions were structured to include: 1) a presentation of the key findings from each of the supply and demand assessments, and 2) an open discussion aimed at identifying specific recommendations. The sessions averaged two to three hours. (For additional information on the focus group technique, see Appendix F.)

5.3 Results of the Focus Groups

In general, the results of the survey were validated by the focus group participants. Additions and corrections have been incorporated into Chapter 3. The following chart highlights the major recommendations put forth by each of the focus groups. A summary of the key issues and recommendations discussed by each of the groups follows.

TABLE 5-1
SUMMARY OF PROPOSED ACTIONS FOR MEETING TRAINING NEEDS

<u>Location</u>	<u>Recommendation</u>
Santiago La Vega Puerto Plata	Upgrade in-plant training through coordinated efforts at the zone level, via a committee consisting of members of the Association of Industries and the Administration. Upgrade the quality of training institutions through creation of a regional coordinating committee, composed of representatives of the Associations of Industries and Administrations of the 3 IFZs, and the Industrial Textile Association of Cibao (ASINTEX)
San Pedro	Improve and tailor training institutions' programs to IFZ needs through: 1) inviting instructors to conduct on-site observations of manufacturing facilities; and 2) lending technical personnel and/or supervisors to training institutions to work on curriculum development, course content and practical training experience.
San Isidro Itabo Bani	Take the lead in initiating improved communication and cooperation between INFOTEP and the IFZs through sponsorship of a round table discussion. The event could be organized by the Personnel and Recruitment Offices of the Itabo and San Isidro IFZs. <u>Prepare an Annual Report on Training Needs in the IFZs.</u>
Herrera	Form an alliance with labor representatives on the Board of Directors of INFOTEP in an effort to improve training and make INFOTEP more responsive to private sector needs.

5.3.1. Santiago, Puerto Plata, La Vega IFZs

This group included representatives of the Administrations of the Santiago and Puerto Plata IFZs, company managers from the three IFZs, staff of the Industrial Textile Association of Cibao (ASINTEX)²⁵, and representatives of the Universidad Catolica Madre y Maestra (UCMM), FUNDAPEC and USAID/HRD.

This group was one of the most interested and dynamic groups, evidenced by a lengthy, four-hour session. The participants showed an in-depth understanding of the current and future training problems and identified several concrete steps which must be taken to meet these training needs.

There is a strong concern regarding the availability of both unskilled and trained labor for the IFZs, especially in light of the new La Vega IFZ and the Santiago II expansion. Training needs were categorized by immediate needs and medium/longer term needs, and by three skill levels: operators and quality control; technicians and supervisors; and managerial, professional and administrative staff.

The key points regarding immediate training needs can be summarized as follows:

- o The consensus was to upgrade in-plant training capacity and/or establish an in-zone training center. The choice would vary by the size of the firm and by the level of training. Smaller firms will most likely prefer an in-zone training center to take advantage of economies of scale and lower training costs.²⁶ In-zone training centers will also be more appropriate for training skilled labor, with operators being trained in-plant.
- o The participants expressed a need for technical assistance, including instructors and training programs. They proposed that training be conducted by existing vo-tech schools or by consultants from the

²⁵ ASINTEX is a regional association which includes both IFZ and non-IFZ apparel and textile firms.

²⁶ For example, one participant from Santiago employs approximately 2,000 persons in his plants, which is more than the entire Puerto Plata IFZ. He currently has plans to establish a separate training area in one of his plants, a strategy which would not be feasible for most smaller operations.

International Executive Service Corps (IESC), and funded by the users. Such training would not only meet immediate labor needs, but also enhance future supply through a multiplier effect.

- o These training programs would be organized at the zone level, by a coordinating committee consisting of members of the Association (s) of Industries and the IFZ Administrations. The IFZ Administrations would be responsible for providing the physical space for an in-zone training center. Such space currently exists in both Puerto Plata and La Vega, and the Administration in Santiago is amenable to this recommendation.

In order to meet medium and longer term training needs, the group proposed taking steps to upgrade the training institutions. They have a good relationship with existing institutions in the area and expressed a willingness to cooperate with them.

In order to enhance cooperation with the training institutions, the establishment of a regional coordinating committee was proposed. It would include representatives of the IFZ Administrations and Associations of Industries of the 3 IFZs, and ASINTEX. This committee would serve as a link between the IFZs and the training institutions, collect and communicate specific training needs to the training institutions, and work with the institutions to improve curriculum to better meet the needs of the IFZ firms.

Aside from this coordination/linkage function, three additional tasks for the committee were discussed:

- o Conduct (or contract) a study of available training resources and programs available worldwide;
- o Conduct a study of available national training resources, including the collection of catalogs and course curriculum; and
- o Establish a centralized location for audio visual equipment and other training resources (ASINTEX volunteered to act in this role).

5.3.2. San Pedro de Macoris, La Romana IFZs

This Focus Group included a large number of company managers from San Pedro, representatives of the Association of Industries of the San Pedro de Macoris IFZ, staff and consultants from the

Industrial Development Corporation (CFI)²⁷, and representatives from Universidad Central del Este (UCE), FUNDAPEC and USAID/HRD. Due to the national strike on April 7, representatives from the La Romana IFZ were unable to attend.

This group was largest and most diverse of the focus groups. Several significant training needs and ideas were discussed. Because of the limited time, not all suggestions could be fully explored. The major issues discussed are summarized in the following paragraphs.

Generally, the participants expressed a great deal of concern over the issue of future training needs and options for meeting these needs. They are specifically concerned about future regional labor shortages, given the development of new IFZ projects in San Pedro (Chemtech), La Romana (La Romana II), Hato Rey, Higüey and El Seybo. The San Pedro IFZ Association is estimating a demand for 5,000 - 7,000 new operators alone in 1988.

Partially influenced by the public ownership and management of the IFZ, the companies have a very strong desire to control training. All 12 firms present at the focus group expressed an interest in establishing a training center in the zone, and the zone administration (CFI) expressed a willingness to donate land and build the training center. In order of preference, they want training:

- o In-plant;
- o In the IFZ; and
- o In technical schools located near the zone, with companies making direct payments to the schools

The CFI is familiar with and has already laid the groundwork for in-zone training through programs in La Vega. They reportedly have established a training center in La Vega with assistance from INFOTEP (instructors), IFZ firms (machinery and equipment) and the local government (use of the sports stadium). Basic sewing skills were taught to approximately 300 trainees during a three-week period. No payments were made to the trainees. CFI worked with Dominican Customs to solve a series of problems relating to movement of workers, machinery and materials from the IFZ to the training center.

²⁷ CFI owns and manages the IFZs in San Pedro de Macoris and La Vega.

CFI representatives also reported piloting 3-month long in-plant training programs in La Vega IFZ which are also being coordinated with INFOTEP. In the case of in-plant training, trainees are paid RD\$250/month. However, it must be emphasized that what has worked in La Vega is not necessarily appropriate for San Pedro. La Vega is a new IFZ and much smaller than San Pedro.

Unlike the IFZs in the Cibao region, the San Pedro participants expressed reservations about working with existing training institutions. Two key observations from the session were that:

- o There are strong negative feelings towards some training institutions, in particular INFOTEP and UCE, and little evidence of interest in working with them. Only 4 of the 12 firms present expressed a willingness to work with existing training institutions.
- o A representative from the Technical Training Center at UCE stated that there is a lack of communication between the Center and the firms, and a lack of interest on the part of the firms to work with the Center. The Center has made an investment in machinery and equipment for zone-related training and would like feedback from the firms on current training programs to take advantage of this investment.

Therefore, because of the lack of communication and strong negative feelings which exist between the IFZ and these institutions, there is the need for a neutral mediator. This will be a necessary step if the two groups are to cooperate in the development of an in-zone training center or other viable training options linking training options and training providers.

Two of the specific recommendations offered by the group for improving and tailoring training from outside institutions to IFZ needs were: 1) to invite instructors to factories to observe during a month-long period; 2) to loan technical personnel and/or supervisors to institutions to work on curriculum development, course content and practical training.

5.3.3. San Isidro, Itabo, Bani IFZs

This group included representatives of the Administrations of the Bani, San Isidro and Itabo IFZs (including Personnel Directors), company managers from San Isidro and Itabo, and representatives of FUNAPEC and USAID/HRD.

These are all new IFZs, with the San Isidro and Itabo zones catering to higher-end, non-sewing industries such as electronics assembly and information services. Both of these factors have and will continue to dictate the training needs of the zones, and

influenced focus group participants recommendations for meeting training needs. The participants were very concerned about the future training needs of the country's IFZs and were committed to developing a plan of action to follow through on the results of the focus group.

None of the participants stressed immediate critical needs for operators, due to the fact that the zones are new and firms have been able to choose the "cream of the crop" from the labor pool. The administration in Bani is encouraging companies to employ workers from the Bani area rather than "importing" workers from the capital. Although not critical, Bani does need: 1) personnel managers, 2) bilingual secretaries, and 3) technical personnel. There is also a need for more working capital.

Both the San Isidro and Itabo IFZs have had some problem in recruitment of technical staff and are concerned about future bottlenecks for more highly skilled labor. These zones are targeted to more sophisticated operations and will be competing with at least 4 new zones under development in the Santo Domingo area for a limited pool of technicians and administrative and managerial staff²⁸.

The recruitment process in these 3 zones has been facilitated by the zone Administrations, which provide varying levels of assistance in recruitment and personnel issues (see Appendix D for further details on recruitment programs in the zones). The high productivity levels of Dominican workers was highlighted several times during the session, and confirmed with specific examples from the firms present, as well as second-hand testimonies.

The participants recognized the need to improve training in the country to avoid major bottlenecks in the medium and longer term. In response the group suggested:

- o Continued use of in-zone training centers;
- o Increasing the institutional capacity of selected institutions;
- o Improving the general quality of education;
- o National level planning;
- o Identification of an institution to serve as a link between the IFZs and training institutions; and
- o Taking the lead in serving as catalysts to improve cooperation between the IFZs and INFOTEP.

²⁸ These new zones under development include: Las Americas, Villa Mella, Hainamosa and an currently unnamed project being developed near San Isidro

Both San Isidro and Itabo have buildings designated for training within the zone, with firms providing their own equipment and instructors. The Administration in Bani is working with INFOTEP in the design of an in-zone training center and has discussed the use of mobile training units with a private group.

All three zones are satisfied with the quality of personnel from Loyola, the Armed Forces schools and ITESA. However, the quantity is insufficient. Assuming physical space is available, there is a need to increase the institutional capacity (instructors, materials) of these institutions.

The Itabo IFZ (through an Association of Industries which is under formation) plans to work with churches, technical schools and secondary schools in Los Minas to improve curriculum and the quality of instruction.

The participants identified a need for strategic planning at the national level, and for an organization to analyze and coordinate the supply of and demand for training programs. They feel this job should not be given to the Dominican government, where it will be subject to political whims. This group also believes there is a need for an institution which can serve as a link between the IFZs and the training institutions. They recommended that the National Council of Free Zones (CNZF) serve in this role.

Armed with hard facts on the needs of the zones, such as an Annual Report on Training Needs in the IFZs, the participants believe that the CNZF could exert pressure on INFOTEP to become more responsive to the IFZ's needs. They also recognize that as the IFZs that currently pay the INFOTEP tax, they must take the lead role in promoting greater cooperation with the institutions.

There is a catch-22 situation with increasing cooperation between INFOTEP and the IFZs. Some IFZs do not pay the INFOTEP tax and will not pay it until INFOTEP proves that it can provide them with services they can use. On the other hand, INFOTEP will not provide services to IFZs that are not contributing to their budget. Therefore, there is a lead role for the IFZs that do pay the tax to cooperate with INFOTEP on an individual basis to upgrade and improve programs. If these zones can develop some showcase programs, there is a greater chance that other IFZs may follow.

Once the training needs are communicated to the institutions, they should be interested in responding to market needs. Lack of financial resources to expand and/or upgrade programs will likely be a constraint and could be partially addressed through the InterAmerican Development Bank project and/or scholarships from IFZ companies.

A round table discussion with INFOTEP, to be spearheaded by the Personnel and Recruitment Directors from San Isidro and Itabo, was suggested and is planned.

5.3.4. Herrera Industrial Park

Participants in this focus group included company managers, officers and staff of the Association of Industries of Herrera (AIHE), and representatives of USAID/HRD, the Investment Promotion Council (IPC), and FUNAPEC.

This group focused on the twin issues of training needs and linkages between the local economy and the IFZ operations. In regard to training needs, the following key points were made by the participants:

- o They feel that their role is the identification and communication of training needs to training institutions, and not the actual development and implementation of training programs.
- o The participants expressed a willingness to work with existing training institutions such as INFOTEP to meet their training needs. They acknowledged that they have been passive to date in expressing their training needs and concerns to INFOTEP and other educational institutions, and want to be more aggressive in identifying and communicating those needs in the future. This could be carried out through AIHE.
- o The firms prefer training facilities to be located near or in the industrial park. One constraint to an on-site training center is the current shortage of physical space in the park. AIHE could take the lead in promoting the development of a training center.
- o There is a need to develop communication and cooperation among the private sector, INFOTEP and other vo-tech schools and the universities. This will require an institution (s) which can serve as a coordinator or broker between the private sector and the schools and universities. This task could be carried out on a country-wide basis, by sector (IFZs, manufacturers, agriculture)²⁹ or by geographical regions.

²⁹ For example, the IPC has been playing this role to some extent for new IFZ companies. This is not their "legal role", but they are simply responding to market needs within the general scope of investment promotion.

- o Participants spoke against the creation of any new institutions which would duplicate the "legal" role of present institutions. There was a strong feeling among the participants that current Dominican law accords coordination of all training programs to INFOTEP.
- o There is a unique opportunity at the present time for the private sector to form an alliance with labor representatives³⁰ on the Board of INFOTEP, in an effort to improve training and make it more responsive to private sector needs. Improved training is in the best interests of both labor and private sector leaders, and current labor representatives are amenable to cooperation with the private sector.

With respect to linkages with the IFZs, the members of the group confirmed that opportunities exist, and are increasing given the phenomenal growth occurring in the IFZs. The key points of the discussion were:

- o There is a need to identify the opportunities for further linkages between local manufacturers and the IFZs. A Commission has been established to carry out this task. The IPC and AIHE are currently conducting a comprehensive study of installed/excess capacity among firms in Herrera and Haina Industrial Parks to identify specific opportunities.
- o Once opportunities have been identified, there will be a need for an institution/organization which can act as a broker between the IFZs and the local firms. The IPC is just starting to play this role. In addition to the installed capacity study, the IPC is conducting a review of industrial activities in the IFZs with greater potential linkages to the local economy. Part of the strategic plan for IFZ development will be to give priority to those industries using a higher percentage of local raw materials and intermediate goods.
- o Current industrial policy does not promote trade between local firms and the IFZs. Legal and policy changes are needed. The current legal framework regulating the IFZs makes it more costly for IFZ firms to buy local raw materials than to import them due to tariff levels.

³⁰ These "labor representatives" are not to be confused with labor union leaders. According to participants they are two distinct groups.

- o There is also an unnecessary bureaucracy surrounding "exports" from the local economy to the IFZs. At the present time, sales to the IFZs are approved on a case-by-case basis by Customs and problems have arisen in interpretation. There is a need to create a specific streamlined mechanism to regulate these exports if linkages are to be increased to any significant degree.

5.4 Conclusions

In conclusion, the Focus Groups served to stimulate private sector managers and IFZ administrators to become more proactive and responsible for the training needs they are facing. All of the groups (with the exception of San Pedro) made significant declarations or commitments to initiate steps to bring about more effective linkages with training providers. In some instances, specific committees or round tables were designated.

The private sector leaders expressed considerable interest in obtaining additional information on what training resources were available inside and outside the country. Their requests ranged from information on specific training materials, to models used in other countries where national or IFZ training centers have been successful.

It was clear from the focus groups that technical assistance is needed to facilitate the linkages between the IFZs, vocational/technical schools and the universities.

The opportunity to reflect and discuss the results with colleagues seemed to be a valuable experience for most participants in that it made them more aware of and informed about the importance of tracking training costs, and the need to communicate their specific needs to training institutions. In some instances it was apparent that for meaningful interaction to occur between employers and representatives from training institutions on a regular basis, some neutral coordinating system would have to be established.

The public and private sector participants in the focus groups were extremely appreciative of the opportunity to receive feedback on the results of the study. In two of the groups, the team was asked to provide additional information from the results of the survey which could be used by the participants to move ahead with a specific plan of action.

CHAPTER 6 CONCLUSIONS AND RECOMMENDATIONS

6.1 Demand Analysis

A number of major conclusions can be drawn from the three components of the study. Demand analysis conclusions by topic areas are:

Real Growth in Jobs

- o Of the 136 firms surveyed, almost 80 percent are projecting sizeable increases in employment (14,404 new jobs) by the end of 1988. Most of the demand is in the IFZs with 13,432 new jobs to be created. The most crucial demands are for semi and unskilled workers, and technicians respectively. Conservative estimates indicate that current IFZ companies alone could create close to 21,000 new jobs in 1988. If potential employment from new investors is factored in, IFZ employment could exceed 100,000 by the end of 1988. This is consistent with IPC projections.

Critical Shortage of Skilled Labor

- o Nearly 80 percent of managers surveyed rated lack of skilled labor as the most critical factor affecting the growth and productivity of their operation. Given the rapid growth of IFZs, this issue will definitely become more critical for investment promotion and for maintaining the productivity levels and quality of existing firms.

Training Needs

- o Most firms, regardless of activity, size or location, are face serious training needs in major areas: supervisors (particularly ones with strong human relations skills, and quality control and production management experience); and industrial mechanics (especially experienced maintenance mechanics who can repair industrial equipment). This need is particularly critical for apparel firms because of the frequent machine adjustments necessary for keeping up with changes in the fashion industry. Also, apparel managers feel that no one in the country currently has training programs to meet their specific needs.

Electro-mechanics and competent industrial electricians are also difficult to find. Most firms fear the supply has been exhausted and with the number of IFZs' potentially doubling in the next two years, this is particularly serious.

Bilingual secretaries are in high demand and sometimes receive salaries higher than industrial engineers working as production managers.

Among the apparel industries, there is a great demand for operators with basic skills in operating industrial sewing machines. A pool of workers with this basic training would reduce training costs, delays in production, and damage to equipment. Some employers encourage operators to seek work in newer zones, to get "trained" on newer machines. They promise the worker a guaranteed promotion and/or pay raise when they return.

- o The highest turnover rates of the firms surveyed is among semi-skilled workers. Employee turnover becomes more of a problem as firms grow in size, and is more widespread among the apparel and shoe industries. This is particularly true in apparel, given the lack of training programs mentioned above. Employee turnover is of greater concern to managers in Bani, Herrera and Santiago, followed by Puerto Plata, La Romana and San Pedro. However, turnover by skill category varies from zone to zone.

Labor and Education

- o Employers prefer to hire workers who have a formal education (at least eight years of schooling) even if the job does not require it. Generally, managers are pleased with the literacy skills of the labor force. A number of companies provided specific examples of how quickly Dominicans learn technical skills on the job.

When it comes to attitudes on the job, however, managers point out that workers are lacking in industrial discipline, initiative and general problem solving ability. In their opinion, this is due to deficiencies in the basic education system.

Employers most prefer to hire graduates from: the Loyola Politechnical Institute (Jesuit), the Salesian Technical H.S., and the Vocational/technical school of the Armed Forces. All were noted for their discipline and sound basic technical training. The Jesuits seem to do best in electronics and electricity, the Salesians train general industrial mechanics.

Methods for Training

- o Most firms conduct their training informally on the job. In many instances the instructors are the general managers and supervisors. About 30 percent of the firms have a combination of formal and informal programs. Instructors

are brought in intermittently from the U.S., Puerto Rico and Far East. Managers complain that their current methods are too costly, time consuming and ineffective.

If current trends persist, a large percentage of new investors to the IFZ in the Dominican Republic will continue to be in the apparel industry. The lack of available workers in this sector coupled with the lack of appropriate training resources to meet the demand, could seriously inhibit the growth of investment and jeopardize the prosperity and stability of existing firms in the IFZ.

Preferences for Meeting Future Training Needs

- o The majority of managers surveyed would prefer to upgrade the current level of in-plant training, develop in-zone training centers and work with existing training institutions, respectively. The exception is the electronics sector, which strongly favors working with existing vocational/technical schools. Most (90%) managers believe training should be financed with a mix of public/private resources, or through totally private means. Close to 75 percent of firms prefer to finance training through direct payments to training institutions.

Training Assistance Needed

- o Most firms are willing to pay for quality training services. Employers are also willing to provide the equipment, and in many cases, the facilities. Types of assistance needed include: instructors, curriculum development, printed and audio visual training materials, and assistance in identifying training needs and priorities.

Backward Linkages

- o The survey shows that few linkages exist between the local economy and IFZs. Integration will require: 1) identifying and matching IFZ firm needs with local producers; and 2) an organization or system to act as brokering agent to identify and facilitate linkages. Further study is needed to determine what changes are needed in current industrial and government policies and bureaucracy to promote such trade.

6.2 Supply Side Analysis

The seven major conclusions of the supply analysis were:

- o The Dominican Republic possesses a wide range of technical training resources which are not being used to their maximum potential. No additional training centers may be necessary since there are sufficient physical facilities in-country.
- o Institutions, however, need substantial equipment upgrading and instructor training to meet many of the training needs in demand by the IFZs, i.e. supervision, electro-mechanics, industrial apparel mechanics, industrial maintenance, electronics, and machine operators.
- o Few public or private sector training institutions have developed formal mechanisms to define training needs and priorities for responding to industry demands.
- o There is a lack of consistency and standardization of job titles and certification requirements.
- o There is great variation in training content and lack of a core curriculum. Major jobs should be standardized according to a uniform job classification system so as to provide increased socioeconomic mobility within a trade or related trades.
- o There is a lack of regional and national direction in vocational/technical education.
- o The relationship between the vocational training system and the employment market is weak. There is a serious lack of communication and coordination between training providers and users.

6.3 Focus Groups

In terms of qualitative information gathered through the focus groups, the key point were:

Need for Technical Assistance

- o Employers lack knowledge regarding: (1) how to define their exact training needs, (2) where to look in order to obtain adequate training services, and (3) the role they could play in guiding training.

Information Needs

- o The private sector leaders expressed considerable interest in obtaining additional information on what training resources were available inside and outside the country. Their requests ranged from information on specific training materials, to models used in other countries where national or IFZ training centers have been successful. At present, there is no information system available to keep users of training services apprised on a timely basis of training opportunities and resources.

Private Sector Action Planned

- o The focus groups served to stimulate private sector managers and IFZ administrators to become more proactive and responsible for the labor problems they are all facing. All of the groups made significant declarations or commitments (with the exception of San Pedro) to initiate steps to bring about more effective linkages with training providers. In some instances, specific committees or round tables were designated.

Training Needs and Solutions

- o Training needs as well as the solutions to training problems varied by location due to the composition of firms in the zone, regional priorities and stage of development of the zone. Interventions will have to be responsive to such differences to be effective.

Backward Linkages

- o There is a need to identify the opportunities for further linkages between local manufacturers and the IFZs. The study of excess capacity in Herrera and Haina Industrial Parks currently being conducted by IPC and AIHE will provide a good starting place. Once opportunities have been identified, there will be a need for an institution/organization which can act as a broker between the IFZs and the local firms. Current industrial policy does not promote trade between local firms and the IFZs. Legal and policy changes are needed. There is also an unnecessary bureaucracy surrounding "exports" from the local economy to the IFZs. There is a need to create a specific streamlined mechanism to regulate these exports if linkages are to be increased to any significant degree.

6.4 Recommendations

In order to adequately support the labor demands of existing IFZ and potential new firms, a number of recommendations are proposed.

1) Use of Contract Consultants in the Short Term

Contract consultants should be used in the short term (next 6 months), to provide both job entry level and skill upgrading training. Such contract services would include the proposed INFOTEP mobile training units, instructors from other existing Dominican institutions, and use of international resources³¹. All twelve vocational/technical institutions visited expressed interest in providing training for the IFZ firms through contractual or other arrangements. If the mobile training units do not materialize within the next three months, temporary training centers may need to be set up in some IFZs, including Santiago and San Pedro de Macoris.

2) Upgrading of Training Institutions in the Medium/Long Term

Existing institutions should be used as the primary source for training for the medium and longer term (more than 6 months). A minimum of six months is necessary to carry out the upgrading of staff, revision and development of new curriculum and purchase of new equipment and materials. Considerable upgrading of instructors, curriculum materials and equipment will be required. The prospective loan from the InterAmerican Development Bank (IDB) should substantially assist with these needs. However, the IDB loan may only target needs at the technical and supervisory levels. This study indicates substantial needs of IFZ firms at the job entry and semi-skilled levels. Even with the IDB loan, a minimum of six to twelve months will be necessary to carry out the upgrading of staff, revising and development of new curriculum and purchase of new equipment and materials.

3) Technical Assistance Needed to Meet Special IFZ Training Demands

Financing and international technical assistance should be targeted to strengthen training institutions, especially in the more advanced industrial areas of machine and electronic control trouble shooting, pneumatics and hydraulics. In regard to the information services industry, one firm recommended that USAID could assist selected commercial or secretarial schools purchase computer hardware, thus increasing the "computer literacy" of

³¹ Two U.S. resources discussed in the focus groups were the International Executive Service Corps (IESC) and Oxford Industries training courses.

graduates, a skill which is currently lacking among many of the company's recruits (see Appendix C).

4) Quick Start Training Needed for Industrial Mechanics for the Apparel Industry

Funds should be reserved for contracting expatriate, industry specific, quick start training programs in the repair and maintenance of industrial apparel machinery³². Local instructors should participate as counterparts so as to be able to continue to offer this training, at a minimum, in one major vocational training center.

5) Upgrade Supervisory Training Through Existing Institutions

Skill upgrading and university extension programs should be used to address supervisory training needs. Technical assistance, instructor training, curriculum materials and active involvement of employers could greatly enhance the quality and quantity of such programs.

6) Formation of Trade Advisory Committees in Critical Areas

Trade Advisory Committees (TAC) focused on specific need areas should be formed. The TACs could facilitate the upgrading of training programs, and encourage establishment of formal linkages between users and providers of training³³. These TACs could build on the ideas discussed in the focus groups regarding regional coordinating committees (Chapter 5.3.1).

7) Standardization of Training Curriculum Needed

A systemic process for clearly defining training needs and specifying the expected results of training programs should be developed.

Core training curriculum content should be standardized. This should be based on a consistent, nationwide system of classifying job titles and competencies, and should be given serious consideration in order to improve the cost effectiveness and internal and external efficiency of training.

³² One such program is that of Oxford Industries. Oxford Industries has recently expanded its in-house training program for mechanics, offering training to other firms on a contract basis.

³³ TACs are widely used in Brazil, Colombia and more recently, Honduras, through a USAID project

8) Designation of an Organization to Serve as Broker Between Users and Suppliers of Training

A neutral, third party organization or institution should be identified/created to arrange contacts between employers and the most credible suppliers of training. Several existing organizations were suggested during the various focus groups³⁴ Further study is needed to: 1) determine how to improve the regional and national direction of vocational/technical education, 2) evaluate which existing institution (s) is appropriate, or whether a new institution should be created, and 3) design a blueprint, or plan of action. If an existing institution is selected, international technical assistance is recommended in the initial stages to assist in developing the structure and systems necessary for promoting effective coordination and cooperation among all critical groups. Experience in other countries has shown that neither private sector groups nor individual training institutions are generally prepared to perform all the tasks necessary to be successful.

9) Upgrade English Language Training In-Country

There is a need to study how USAID can assist in upgrading general and job-specific English language programs in the country. This study pointed out the competition which exists among the IFZs, the local export sector, the financial sector and the tourism industry for quality, bilingual staff.

10) Crucial Role of USAID's Continuing Support of Private Sector Leaders and Their Initiatives

Immediate action is needed to provide support to focus group leaders expressing a willingness to work, or the momentum generated by the study will be lost. One recommendation is to provide each of the participants with a brief, zone specific containing survey results, evaluation of vocational/technical resources and summaries of the focus groups.

In sum, the success of all future immediate and long term training interventions will depend on:

- 1) directly involving employers on a regular basis to define technical skill competencies and expected training results;
- 2) assuring that training programs have appropriate learning resources;

³⁴ These institutions included INFOTEP, the IPC, the National Council of Free Zones (CNZF), and the Association of Industries of Herrera (AIHE).

- 3) establishing and maintaining effective coordination systems, regionally and nationally, to insure that training providers are meeting the fastly growing demands of the IFZs; and
- 4) developing a credible system for evaluating trainees performance upon completion of their program

APPENDIX A
SURVEY AND SAMPLE MATERIALS

APPENDIX A-1

PIO/T No. 517-0000-3-70049
Attachment I
Page 2 of 4

III. SCOPE OF WORK

Sample Selection and Methodology: The study will survey a selected, representative sample of large, medium and small free trade zones and industry representatives of the major and potential zones. For the purpose of discussion, a computerized simulation model will be used to identify and analyze training needs, determine the characteristics of appropriate training interventions, and assess the problems encountered in training FTZ employees. It is hypothesized that the particular problems of providing firm-based training will vary by size, function, activity and mode of production of the particular firm. Thus, recommendations for enhancing training and transferring instructional technology will be dependent on cost/benefit analyses, the level and sophistication of production in a firm, the nature of its market functions and level of economic activity.

Through the use of a structured survey instrument, the study will examine a number of critical issues related to the internal efficiency of firm based training, including:

- o turnover rates
- o demand/supply
- o technology/labor relationships
- o use of instructional technology
- o qualification and recruitment of workers, and
- o training patterns.

The purpose of the data gathering activities will be: 1) to identify past, current and proposed training activities and opportunities, as well as options for the expansion of training; 2) to assess the demand and current use of U.S. produced vocational/technical instructional technology; 3) to identify key factors limiting the growth and productivity of the various firms as it relates to training; and 4) to develop a model which amplifies the financial aspects of the alternative decisions to providing training. In addition, the team will analyze the constraints and facilitating factors in the provision of training by employers and to their use and application of instructional technology to meet critical skill shortages.

Outcomes: The study has been designed to provide the following outputs:

- 1) A better understanding of the complexity of the various issues impacting on firm based training and instituting effective linkages between training and employment;

- 2) The identification of program characteristics essential for addressing critical training needs;
- 3) A listing of essential elements required in structuring effective training programs involving employers;
- 4) The identification of critical training problems and their relation to productivity; and
- 5) The identification of viable options for employment based training using existing voc/technical schools, a training facility in the zone and/or in-plant training by the zone industry;
 - a) An analysis of existing voc/tec institutional capabilities, relevance of training to free trade zone industry labor demands, interest of firms to use the institutions, and potential institutional requirements, e.g. equipment/ personnel;
 - b) An analysis of: 1) the cost benefits in building a training facility in the free zone; 2) frequency and preference of using free zone industry trainers for in-plant training; and/or 3) frequency, demand and cost/benefit of users' existing voc/tec institutions to meet FTZ industry needs.

IV. QUALIFICATIONS

At least one of the person(s) designated should have experience in Dominican free trade zone organizational, administrative and personnel requirements; another with employer based training experience, including survey design, administration and interpretation; a third person with experience in topics related specifically to women's involvement and participation as employees in the free trade zones, and a fourth host-country expert with knowledge of Dominican educational training institutions, their current offerings in relation to free trade zone training demands as well as their potential to meet the needs through, for example, additional training, equipment, personnel, etc.

V. PERIOD OF SERVICES

The total contract time is 16 weeks - 4 weeks for each member of the four person team. Estimated starting date is late August or early September 1987.

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Tentative Work Schedule

<u>Team Composition</u>	<u>Work Weeks</u>	<u>Work days</u>	<u>Per Diem Days*</u>
U.S. Contractors 3	12	12 x 5 days = 60	30 x 3 = 90
Local Expert <u>1</u>	<u>4</u>	4 x 5 days = 20	20
Totals <u>4</u>	<u>16</u>	<u>80</u>	<u>110</u>

* 10 days per diem added for each U.S. contracted person per visit for 3 weekends and a Sunday arrival and Saturday departure.

VI. REQUIRED REPORTS

As stated in the Scope of Work, the Contractor will prepare a Report which, in summary, describes:

- 1) The current methods used by the free trade zones to recruit and train personnel for employment;
- 2) Projected demands for personnel;
- 3) An analysis of the options for meeting the training requirements: existing training institutions, training facilities in the zone, use of U.S.-based industry training experts for in-country training;
- 4) A discussion of the results of an employer-based training survey including the cost-effectiveness of a trained workforce, macro-economic impact of providing trained workers for free trade zone expansion, and interest of the free trade zone administrations to support one, or all of the options for employer-based training; and
- 5) Recommendations for strengthening current AID inputs and/or areas for future intervention through LC or DA resources.

This Report will be presented in draft 5 days before the Contractor is to depart from post in order for the Project Committee to review the recommendations. Feedback from the Committee should be included in the redrafts and a final version is to be submitted within 15 days, 20 days after completion of the in-country draft report.

VII. PAYMENT

Payment for 50% of the Contractor services will be processed upon the satisfactory completion of the draft Report herein described. Final 50% payment will be provided once the final Report has been submitted and approved by the USAID Project Committee.

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1. BACKGROUND: CONSISTENT WITH THE USAID/DR STRATEGY TO DEVELOP AND EXPAND INVESTMENT AND PRODUCTIVITY IN THE FREE TRADE ZONES (FTZ), USAID HAS FUNDED A WORK ORDER WITH ISTI FOR AN EMPLOYER-BASED TRAINING STUDY TO ASSESS THE TRAINING NEEDS OF THE FIRMS IN THE FTZS. WE WOULD LIKE TO EXPAND THE SCOPE OF THIS EFFORT TO INCLUDE TWO NEW AND DISTINCT TASKS IN A COMPLIMENTARY WORK ORDER WITH ISTI UNDER IT CONTRACT WITH LAC/PSA:

- (1) AT THE REQUEST OF THE INVESTMENT PROMOTION COUNCIL, THE ORIGINAL SAMPLE TO BE SURVEYED SHOULD BE INCREASED BY 35%, TO INCLUDE THOSE DOMINICAN OWNED EXPORT ORIENTED COMPANIES OUTSIDE FREE ZONES OPERATING UNDER SPECIAL INCENTIVES LAW 69. THESE COMPANIES FORM A SUBSTANTIAL PART OF THE EXPORT CAPACITY OF THE DOMINICAN MANUFACTURING SECTOR. IN ORDER TO ENHANCE THE COMPETITIVENESS OF THE SECTOR, IT WILL BE CRITICAL TO TAKE INTO ACCOUNT THE NEEDS OF THESE FIRMS IN DESIGNING FUTURE TRAINING PROGRAMS.

- (2) THE SECOND TASK INVOLVES THE ORGANIZATION AND FACILITATION OF A SERIES OF EIGHT (8) FOCUS GROUP DISCUSSIONS OR POLICY DIALOGUES TO DISCUSS THE PRELIMINARY QUANTITATIVE FINDINGS OF THE SURVEY WITH KEY FTZ ADMINISTRATORS, FTZ AND LAW 69 EMPLOYERS AND OTHER KEY PRIVATE AND PUBLIC SECTOR REPRESENTATIVES. THE PURPOSES OF THE FOCUS GROUPS WOULD BE TO:

- (A) PROVIDE IMMEDIATE FEEDBACK TO THE PRIVATE SECTOR ON THE RESULTS OF THE SURVEY;

- (B) INVOLVE USAID, PRIVATE SECTOR, GOVERNMENT AND EDUCATION REPRESENTATIVES IN A SERIES OF STRUCTURED DISCUSSIONS TO DETERMINE JOINTLY THE MOST VIABLE OPTIONS FOR MEETING THE TRAINING NEEDS IDENTIFIED.

2. SCOPE OF WORK:

- (1) LAW 69 FIRMS: EXPAND THE ORIGINAL SCOPE OF THE

DOMINICAN REPUBLIC FTZS TRAINING NEEDS ASSESSMENT STUDY
 (CONTRACT NO. LAC-0619-G-20-7038-00, TASK NO. 8) TO
 INCLUDE AN ADDITIONAL 35 MORE FIRMS. THE METHODOLOGY FOR
 SELECTING THE SAMPLE SHOULD BE INTENTIONAL IN ORDER TO
 SELECT THOSE FIRMS WHICH HAVE THE MOST EXPORT POTENTIAL
 AND INTEREST IN PRODUCING COMPONENTS AND OTHER SUCH
 PRODUCTS TO FREE ZONE COMPANIES AT COMPETITIVE PRICES AND
 QUALITY STANDARDS.

- (2) FOCUS GROUP: AFTER THE PRELIMINARY RESULTS OF THE
 EXPANDED SURVEY ARE ANALYZED, DEVELOP A STRATEGY WITH
 USAID FOR PRESENTING THE QUANTITATIVE SURVEY FINDINGS TO
 KEY PRIVATE AND PUBLIC SECTOR REPRESENTATIVES INVOLVED IN
 EXPORT PROMOTION, FTZ DEVELOPMENT, EMPLOYERS AND MEMBERS
 OF THE VARIOUS EDUCATIONAL INSTITUTIONS IDENTIFIED AS
 POTENTIAL SUPPLIERS OF THE TRAINING REQUIRED.
 METHODOLOGY SHOULD INCLUDE A CLEAR STRUCTURED SET OF
 DISCUSSION GUIDELINES FOR A SERIES OF 6-8 FOCUS GROUPS TO
 BE ORGANIZED BY TYPE, LOCATION AND SIZE OF INDUSTRY. THE
 QUALITATIVE INPUT RECEIVED FROM THESE DISCUSSIONS SHOULD
 BE INTEGRATED INTO THE FINAL REPORT OF THE SURVEY
 FINDINGS AND SHOULD AUGMENT THE QUANTITATIVE DATA
 PROVIDED BY STRUCTURED SURVEY INSTRUMENT.

3. BUDGET:

- ISTI PERSONNEL:

	DAYS	RATE	AMOUNT
- B. FRIDAY	2.00	153.85	307.70
- C. POWELL	10.00	67.00	670.00
- FRINGE AT 25%			244.43
- OH AT 4%			482.85
		TOTAL	1,710.98

- CONSULTANT SALARY:

- A. CUERVO, TEAM LEADER 16.00 242.00 3,872.00

- S. DUNLAP 3.00 200.00 600.00

- PFR DIEM: 8.00 70.00 560.00

- LOCAL TRANSPORTATION

BT 300.00

same } 3 1460 +

- OTHER DIRECT COSTS:
 - LOCAL CONSULTANT:
 - M. FERNANDEZ (DATA GA-
 - (THERING & ANALYSIS)

	13.00	150.00	1,950.00
		SUB-TOTAL	8,992.98
		GMA 9%	809.00
		FEE 1%	92.02
		T O T A L	\$9,900.00

4. AID/W ACTION: AID/W IS REQUESTED TO ISSUE A TASK ORDER USING AID/W FUNDING UNDER THE LAC BUREAU/PRIVATE SECTOR CONTRACT WITH ISTI IN THE AMOUNT OF \$9,900.00 TO COVER THE COST OF THE SERVICES OUTLINED IN THE AFOREFMENTIONED SCOPE OF WORK. JSAID/DR APPRECIATES LAC/PSA'S CONTINUED INTEREST AND SUPPORT OF THIS PROGRAM INITIATIVE. KILDAY
 BT
 #0927

APPENDIX A-2
PREVIOUS STUDIES ON IFZS AND TECHNICAL TRAINING
IN THE DOMINICAN REPUBLIC

Several recent USAID/DR studies have addressed the constraints to further development of the IFZs, including training needs.

"Assessment and Strategy for Electronics/Electro-Mechanical Sector in the Dominican Republic" (Carlson, 1986), was based on site visits to 12 manufacturing firms both inside and outside of the IFZs. The assessment concluded that while there were no major shortages of unskilled labor at that time, there were shortages of certain skilled technicians, supervisors and managers. Ideally, U.S. firms desire English-speaking engineers with manufacturing experience and management training. Most Dominicans that qualify have preferred to work in the U.S. for more lucrative salaries in dollars. The study pointed out that university engineering programs in electronics are new and predicted that technical shortages would diminish in the next few years. However, the study does not address growth in the industry - 7 new firms have installed in the IFZs alone since the writing of the report, placing additional pressure on the limited pool of qualified personnel. In order to address the shortages, the report make several good recommendations including: enhancing cooperation between the universities and the private sector, implementing cooperative programs and summer internships with manufacturers, and developing short technical seminars.

A general survey conducted among 143 IFZ industries in mid-1987 (Manon, 1987) revealed that approximately 60 percent of the firms have some type of problem with contracting, training and maintaining workers, although this varied by zone. No problems were cited in La Romana, Itabo and San Isidro. San Pedro de Macoris and Santiago have the most difficulty in maintaining workers, while Puerto Plata's firms' major complaint was in contracting and training workers. There is a strong demand for mechanics in the IFZs, demonstrated by the high salaries, often similar to those of qualified production and quality control managers. In terms of work ethic, the IFZ firms do not appear to have widespread problems - in over 75 percent of the firms absenteeism is less than 10 percent, and in over 70 percent of firms tardiness is less than 10 percent.

Based on a survey of a variety of non-traditional export firms¹, "Demand Analysis for Private Sector Training in Export-Related Industries" (Cader, 1986), focused on the training needs for managers, professionals and technicians. Of the 116 companies interviewed, one-fourth responded that the lack of trained employees is the most important limitation to future growth and

¹ Including agribusiness, agroindustry, IFZ, other industry and banking services.

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well-being of their firm. Over 50 percent consider the lack of training to be a severe constraint. Although the extremely small sample of IFZ firms (28) does not allow one to make conclusive statements regarding overall IFZ interest, it is worth noting some of the findings of the study. Only 30 percent of IFZ firms interviewed expressed an interest in training, the lowest of any of the sectors. Smaller firms (less than RD\$300,000 annual sales) tended to be the most interested. The overwhelming majority of IFZ firms preferred short term training to long term, with the greatest interest being expressed for technical training (47 percent), followed by professional and administrative (26 percent each). Of the IFZ firms interested in receiving training, all would guarantee the participant's employment upon return, although less than 15 percent would be willing to continue paying salary during study and pay travel costs.

In mid 1986, a consulting team was asked by USAID to prepare a report on the employment in the IFZs and to make recommendations for improvements in worker services. (Joeques, 1987) The report was based on visits to the 4 existing IFZs, 2 proposed IFZs and interviews with 12 IFZ firm managers. The study revealed that the general level of worker services provided in the IFZs was poor, with current services restricted to the areas of health, transportation, cafeterias and financial services, in varying degrees. Several recommendations were made, the most important being the establishment of a clinic in each IFZ which would provide workers with both routine preventative care and treatment of regular and immediate health problems. Recommendations were also made for industrial training and labor referral services, savings and loan facilities and a pilot childcare scheme. The proposed training facilities would offer generic training courses in various IFZ activities, greatly reducing the time and expense of training by the individual IFZ firms in the short term. In addition, the scheme would have a beneficial longer term impact in raising the industrial productivity of the Dominican workforce and increasing the supply of trained workers for domestic as well as the IFZ companies. Most of the training resources for the course would come from a levy on employers, and the report recommends that the managers should be involved collectively in the design of the scheme through the Associations of Industries in the various IFZs.

"Estudio de las Zonas Francas Industriales de La Romana, San Pedro de Macoris, Santiago Y Puerto Plata" (Janka, 1987) was a general IFZ study conducted by special advisor to the Industrial Development Corporation (CFI) in May 1986. The purpose of the study was to update the database of information on the 4 existing IFZs, evaluate the current IFZ business climate, identify common problems of the IFZ firms, and recommend solutions. The study was based on personal, open-ended interviews with 112 of the 124 companies located in the 4 IFZs. The study documents much of the growth in the IFZs since 1984, in terms of number of firms, diversification of industrial activities and employment generation. In general, the business climate of the IFZs was

given a favorable rating, with the only reference to training needs being in the San Pedro de Macoris IFZ. Among the numerous recommendation of the study is the establishment of training centers in each of the IFZs, in conjunction with the Associations of Industries. Specifically, it was proposed that the zone operators (with governmental financing) would provide the training building, with the individual firms contributing the machinery and equipment and assuming the expenses of training staff, perhaps with the assistance of INFOTEP.

APPENDIX A-3

INFORMACION DE IDENTIFICACION

Nombre de la Empresa _____

Dirección _____

Teléfono _____

Persona Encargada _____

Código _____

Código _____

Código _____

- Provincia: 1. Piquetina _____
2. Mediana _____
3. Grande _____
- Localidad: 1. San Pedro _____
2. La Romana _____
3. Santiago _____
4. Puerto Plata _____
5. Itabo _____
6. San Isidro _____
7. La Vega _____
8. Bani _____
9. Herrera _____

El Encargado _____

Superior _____

Fecha de la Encuesta _____

Superior _____

A. INFORMACION SOBRE LA EMPRESA

1. Actividad Económica

- 1. Construcción de obra
- 2. Electrónica
- 3. Electricidad
- 4. Comercio
- 5. Transportes
- 6. Servicios
- 7. Otros

2. En qué año se fundó su empresa y empezó sus operaciones

- Año de inicio:
- 1. 1980 - 1987
 - 2. 1982 - 1995
 - 3. Antes de 1980

3. Número de Empleados

- 1. Menos de 100
- 2. 101 - 200
- 3. 201 - 500
- 4. Más de 500

4. Porcentaje de mujeres empleados en la empresa:

- 1. Por debajo del 30%
- 2. Entre el 31% y el 50%
- 3. Entre el 51% y el 80%
- 4. Más del 80%

5.

Por favor, indique el número de empleados que usted está proyectando necesitar en 1988 por categoría.

	TC.	T.P.
1. Supervisores	----	----
2. Tecnicos (mano de obra calificada)	----	----
3. Mano de obra semi-calificada	----	----
4. Mano de obra no calificada	----	----
5. Personal de Oficina	----	----
6. Otros	----	----

Especifique _____

6. ¿Cual es su producto o servicio principal? (Marque solo uno).

1. Confección de ropa	----
2. Cigarros	----
3. Electrónica	----
4. Eléctrica	----
5. Informática	----
6. Farmacéutica	----
7. Carteras	----
8. Zapatos	----
9. Otros productos de piel	----
10. Juguetes	----
11. Artículos deportivos	----
12. Artículos médicos desechables	----
13. Otros	----

Especifique _____

7. En este año (1988), cree Ud. que sus necesidades en términos de número de unidades producidas, van a...

- 1. Aumentar -----
- 2. Bajar -----
- 3. Seguir lo mismo -----

2. ¿Por qué? -----

PERCEPCION DE LA EMPRESA CON RESPECTO A LA IMPORTANCIA DE LA CAPACITACION.

9. ¿Cuáles son las necesidades más apremiantes de su empresa? (Señale 3 o menos).

- 1. -----
- 2. -----
- 3. -----

10.

¿Cómo afectan los siguientes factores la productividad y expansión de su empresa?

Utilice la siguiente Escala

4= Muy importante
3= Importante
2= Poco importante
1= Sin importancia

- 1. Falta de capital
- 2. Falta de mercado
- 3. Falta de espacio
- 4. Exceso de restricciones de importación
- 5. Problemas laborales
- 6. Exceso de controles del Gobierno
- 7. Escasez de recursos humanos capacitados
- 8. Falta de materia prima
- 9. Falta de técnicas de producción apropiadas
- 10. Problemas de energía eléctrica
- 11. Falta de recursos de capacitación, incluso la tecnología
- 12. Otros

Especifique

Comentarios (Señalar sólo si el entrevistado destaca algún aspecto).

11. De los problemas anteriores, cuáles serían los tres más importantes según su juicio, en orden de prioridad.

12. ¿Cree usted que es importante realizar cursos de capacitación para los empleados de su empresa?

- 1. Si -----
- 2. No -----
- 3. Sin respuesta -----

C. DESCRIPCION DE PROGRAMAS DE CAPACITACION

13. ¿Realiza usted actividades de capacitación dentro de la empresa? (Si la respuesta es no, pasar a la pregunta 16).

- 1. Si -----
- 2. No -----
- 3. Sin respuesta -----

14. Si respondió positivamente, es su programa:

- 1. Formal -----
- 2. Informal -----
- 3. Combinación de formal e informal -----

15. Si usted suministra capacitación a sus trabajadores, que incentivos ofrece a los que completan con éxito los programas de capacitación? (Marque todos los necesarios).

- 1. Ascenso -----
- 2. Aumento -----
- 3. Responsabilidades diferentes -----
- 4. Otros -----

Especifique -----

16. Si usted no sufre de una capacitación, marque las razones principales por las cuales usted no ha hecho. Marque todas las necesarias

- 1. Mucho tiempo
- 2. No es necesario
- 3. Las capacitaciones no son necesarias
- 4. Otro

Especifique

17. ¿Cree que el sistema de capacitación que se utiliza en su empresa es el más adecuado para el negocio?

- 1. Si
- 2. No
- 3. Posiblemente
- 4. No aplica

18. ¿Cree que...

- 1. Sí
- 2. No
- 3. Posiblemente
- 4. No aplica

19. ¿Cree que...

20. ¿Solamente pregunte si tiene programa,
 (Cuáles son los principales problemas que ha
 tenido con su sistema de capacitación?)
 (Marque todos los necesarios).

- 1. Es muy costoso
 - 2. Toma mucho tiempo
 - 3. No representa beneficios para la empresa
 - 4. Es muy complicado
 - 5. No interesa al personal
 - 6. No tenemos buenos instructores
 - 7. Los empleados no aprenden
 - 8. Otros
- especifique _____

21. Seleccione las tres funciones principales que
 tiene la capacitación de su empresa:

- 1. Ascenso en la empresa
 - 2. Mejoramiento de la productividad
 - 3. Reducción industrial
 - 4. Mejoramiento de equipos
 - 5. Innovación
 - 6. Control de calidad
 - 7. Introduce habilidades nuevas
 - 8. Mejora la calidad de las habilidades
actuales
 - 9. Reduce costos
 - 10. Otros
- especifique _____

22. ¿Sabe usted dónde fueron educados sus empleados?
(Si la respuesta es No se pasa a la pregunta 24).

1. Si _____

2. No _____

23. ¿Cuál es su opinión en relación a la instrucción recibida por sus empleados en las siguientes instituciones?

Utilice	4= Muy Buena
la	3= Buena
siguiente	2= Regular
Escala	1= Mala

1. Escuela secundaria _____

2. Politécnico o escuela Técnica Profesional _____

3. Instituto Técnico Lovola (Politécnico Lovola) _____

4. Instituto Técnico Salesiano _____

5. Universidad _____

6. INFOTEP _____

7. Otras _____

Especifique _____

24. Si usted tiene algún puesto de trabajo para el cual la educación formal no es un requisito, preferiría usted emplear a una persona con educación formal?

1. Si _____

2. No _____

3. Sin respuesta _____

25. ¿Por qué? _____

D. CAPACITACION DE SUPERVISORES

26. ¿Cómo capacita a los supervisores en su empresa? Utilizando la siguiente escala. Indique el elemento porcentual que significa cada opción.

- | | |
|--------------|-------------|
| 1= 75 - 100% | 2= 50 - 74% |
| 3= 25 - 49% | 4= 1 - 24% |
| 5= 0% | |

1. En el trabajo, informalmente _____
2. En el trabajo, con instrucción organizada con sus propios instructores _____
3. En la fábrica, formalmente, en salones propios _____
4. En cursos de corto plazo en escuelas técnicas vocacionales locales _____
¿Cuáles escuelas? _____

5. Se mandan a capacitar al extranjero. _____

27. Si no los capacita, cuando tiene vacantes como los llenan? (Indique el que hacen con más frecuencia).

1. Se contratan ya capacitados de otras empresas _____
2. Se contratan ya capacitados de escuelas técnicas _____
3. Combinación de 1 y 2 _____
4. Los trae del extranjero _____
5. Otros _____

Especifique _____

28. ¿Cuál es el promedio de duración del programa de capacitación que Ud. requiere para sus supervisores?

1. Menos de un mes _____
2. 1 - 2 meses _____
3. 2 - 3 meses _____
4. Más de 3 meses _____

Si la respuesta es 4 especifique _____

29. ¿Cuántos supervisores capacitó su empresa en 1987?

1. Ninguno

2. 1

3. 2

4. Tres

5. Más de tres

E. CAPACITACION DEL PERSONAL TECNICO

30. ¿Cómo capacita a los técnicos de su empresa?

1= 75 - 100%

2= 50 - 74%

3= 25 - 49%

4= 1 - 24%

5= 0%

1. En el trabajo, informalmente

2. En el trabajo, con instrucción organizada con sus propios instructores

3. En la fábrica, formalmente, en salones propios

4. Se mandan a cursos de corto plazo en escuelas técnicas-vocacionales
¿Cuáles? _____

5. Se mandan a capacitar al extranjero

31. Si no los capacita, cuando tienen vacantes cómo las llenan? (Indique lo que hacen con más frecuencia).

1. Se contratan ya capacitados de otras empresas

2. Se contratan ya capacitados de escuelas técnicas

3. Combinación de 1 y 2

4. Los trae del extranjero

5. Otro

Especifique _____

32. ¿Cuál es el promedio de duración del programa de capacitación que usted requiere para sus técnicos?

- 1. Menos de un mes -----
- 2. 1 - 2 meses -----
- 3. 2 - 3 meses -----
- 4. Más de 3 meses -----

Si la respuesta es 4 especifique las características de este programa.

33. ¿Cuántos técnicos capacitó su empresa en 1987?

- 1. Ninguno -----
- 2. 1 a 3 -----
- 3. 4 a 5 -----
- 4. Más de 5 -----

F. CAPACITACION DEL PERSONAL SEMI-CALIFICADO

34. ¿Cómo capacita al personal semi-calificado en su empresa?

- 1= 75 - 100%
- 2= 50 - 74%
- 3= 25 - 49%
- 4= 1 - 24%
- 5= 0%

- 1. En el trabajo, informalmente -----
- 2. En el trabajo, con instrucción organizada con sus propios instructores -----
- 3. En la fábrica, formalmente, en salones propios -----
- 4. Se mandan a cursos de corto plazo en escuelas técnicas-vocacionales locales -----
- 5. Se mandan a capacitar al extranjero -----
- 6. Una combinación de estos -----

Especifique -----

35. Si no los capacita, cuando tiene vacantes, ¿ como los llenan? (Indique lo que hacen con más frecuencia).

1. Se contratan y capacitados de otras empresas _____

2. Se contratan y capacitados de escuelas técnicas _____

3. Otro _____

Especifique _____

36. ¿Cuál es el promedio de duración del programa de capacitación que Ud. requiere para el personal semi-calificado?

1. Menos de un mes _____

2. 1 - 2 meses _____

3. 2 - 3 meses _____

4. Más de 3 meses _____

5. La respuesta es 4 especifique _____

37. ¿Cuántos empleados semi-calificados capacitará en 1987?

1. Ninguno _____

2. 1 a 3 _____

3. 4 a 6 _____

4. 7 a 10 _____

5. Más de 10 _____

6. CAPACITACION DEL PERSONAL NO CALIFICADO

38. **Cómo capacita al personal no calificado en su empresa?**

- 1= 75 - 100%
- 2= 50 - 74%
- 3= 25 - 49%
- 4= 1 - 24%

- 1. En el trabajo, informalmente -----
- 2. En el trabajo, con instrucción organizada con sus propios instructores -----
- 3. En la fábrica, formalmente, en salones propios -----
- 4. Se mandan a cursos de corto plazo en escuelas técnico-vocacionales locales -----
¿Cuales? -----
- 5. Se mandan a capacitar al extranjero -----

39. **Si no los capacita, cuando tienen vacantes cómo las llenan? (Indique lo que hacen con más frecuencia).**

- 1. Se contratan ya capacitados de otras empresas -----
- 2. Se contratan ya capacitados de escuelas técnicas -----
- 3. Otros -----

Especifique -----

40. **¿Cuál es el promedio de duración del programa de capacitación que Ud. requiere para su personal no calificado?**

- 1. Menos de un mes -----
- 2. 1 a 2 meses -----
- 3. 2 - 3 meses -----
- 4. Más de 3 meses -----

Si la respuesta es 4 especifique: -----

W

41. ¿Cuántos empleados noificados capacitó su empresa en 1987?

- 1. Menos de 25 _____
- 2. 26 - 50 _____
- 3. 51 - 100 _____
- 4. Mas de 100 _____

42. ¿Esta usted satisfecho con las presentes actividades de capacitación y la forma en que las realiza?

- 1. Si _____
- 2. No _____
- 3. No aplica _____

43. Al encuestador, incluya comentarios y notas adicionales para describir como hacen la capacitación en esta empresa.

44. ¿Que beneficios principales brinda la empresa a sus empleados? (Marque todos los que aplican).

- 1. Plan medico _____
 - 2. Transporte _____
 - 3. Seguro de vida _____
 - 4. Comidas gratis o a precios módicos _____
 - 5. Uniformes _____
 - 6. Guardería (infantil) _____
 - 7. Otros _____
- Especifique _____
-

D. NECESIDADES DE CAPACITACION

45. ¿Cuáles de las siguientes áreas tienen la mayor urgencia de capacitación en su empresa? Marque todas las que soliciten:

1. Poder (sion) Personas Para (las) (las) (las)
2. Control de calidad
3. Asistencia (industriales) especial (las)
4. Correspondencia/Secretaría (las) (las)
5. Adaptación/Programación
6. (las) (las) (las) (las)

46. ¿Cuáles de los siguientes aspectos son problemas en su empresa?

Útil	1= Mucho (las) (las)
2=	3= Problema
siguiente	4= Poco (las) (las)
Escala	5= No (las) (las)

Actitudes y costumbres de (las) (las)

1. Resistencia (las) (las)
2. Pasividad (las) (las)
3. Iniciativa (las) (las)
4. Lealtad (las) (las)
5. Calidad del trabajo (las) (las)
6. Saber leer y escribir (las) (las)
7. Conocimientos técnicos (las) (las)
8. Habilidad manual (las) (las)

47. ¿Cuáles de estos aspectos (las) (las) (las) cree usted se pueden mejorar al (las) de la capacitación? Indique los (las) (las) (las) (las)

48. ¿Cuáles son los trabajos permanentes que tienen la mayor fuga de personal? (Especificar si área).

1. Supervisores _____

Especifique _____

2. Técnicos _____

Especifique _____

3. Mano de obra semi-calificada _____

Especifique _____

4. Mano de obra sin calificar _____

Especifique _____

49. Razones de la fuga de personal en estas áreas.

50. ¿Es temporal este fenómeno de fuga de personal? (Durante una época del año o siempre).

1. Si _____

2. No _____

3. Sin respuesta _____

54. (Sólo para las Zonas Francas).
 ¿Estaría usted dispuesto a realizar los pagos a INFOTEF que hacen las otras empresas con el fin de atender las necesidades de capacitación?

- 1. Si -----
- 2. No -----
- 3. No sé -----
- 4. Sin respuesta -----

55. Si respondió positivamente, ¿que condiciones?

5c. (Sólo hacer esta pregunta si prefiere la capacitación dentro de la empresa)
 Si está pensando en capacitar a sus empleados dentro de su empresa, clasifique en orden de necesidad los tipos de ayuda que requiere para organizar cursos de capacitación DENTRO de la misma.

 Utilice la siguiente Escala
 4= Muy importante
 3= Importante
 2= Poco importante
 1= Sin importancia

- 1. Instructores -----
- 2. Equipo -----
- 3. Materiales de capacitación -----
- 4. Fondos -----
- 5. Tecnología de capacitación (aparatos) -----
- 6. Ayudas didácticas (gráficas, películas, etc.) -----
- 7. Mejores instalaciones -----
- 8. Desarrollo de Planes de Estudio -----
- 9. Identificación de necesidades específicas de capacitación -----
- 10. Otros -----

Especifique -----

58. ¿Cuáles son las tres ayudas de más urgencia en orden de prioridad?

1. _____
2. _____
3. _____

59. ¿Qué consejos o recomendaciones daría usted a nuevos empresarios que fueran a establecerse en las Zonas Francas Industriales, en términos de la capacitación de sus empleados?

1. Traer sus propios instructores _____
 2. Contratar instructores locales _____
 3. Mandar los empleados a cursos de corta duración a las escuelas técnicas locales _____
 4. Mandar los empleados al extranjero _____
 5. Otros _____
- Especifique _____

60. Si en respuesta 59 fue 4, especifique qué niveles de empleados:

E. FINANCIAMIENTO DE LA CAPACITACION

61. Haga un estimado de los recursos utilizados por la empresa en capacitación de sus empleados en el año pasado.

1. 0 a 5,000 _____
2. 5,001 a 10,000 _____
3. 10,001 a 20,000 _____
4. 20,001 a 50,000 _____
5. Más de 50,001 _____

62. ¿Tiene su empresa un gerente o supervisor de capacitación o su equivalente?

- 1. Si _____
- 2. No _____
- 3. Sin respuesta _____

63. ¿Tiene su empresa un presupuesto de capacitación o mantiene una cuenta aparte de los gastos efectuados para la capacitación?

- 1. Si _____
- 2. No _____
- 3. Sin resp. _____

64. ¿Que porcentaje del presupuesto total representan estos gastos?

- 1. 0 - 5% _____
- 2. 6 - 10% _____
- 3. 11 - 20% _____
- 4. 21 - 30% _____
- 5. Más de 30% _____

65. De los obreros no-calificados que recibieron entrenamiento el año pasado, favor dar las siguientes informaciones: (Si no hay números exactos buscar lo más aproximado a la necesidad).

- 1. Número de personas capacitadas _____
- 2. Tiempo promedio de duración de los cursos (en horas) _____
- 3. Número de instructores participantes _____
- 4. Pago por hora promedio a estos instructores _____
- 5. Pago por hora promedio dado a los empleados durante el periodo de capacitación _____
- 6. Comparación porcentual con su sueldo regular _____
- 7. No aplica _____

F. ORGANIZACIONES DE CAPACITACION

66. ¿Tiene usted conocimientos específicos acerca de instituciones o empresas donde se puede conseguir capacitación para sus necesidades en la empresa?

- 1. Si _____
- 2. No _____
- 3. Sin respuesta _____

67. ¿Pertenece su empresa a alguna asociación comercial o industrial?

- 1. Si _____
- 2. No _____
- 3. Sin respuesta _____

68. Cuando necesita capacitar fuera de su empresa a sus empleados, ¿qué instituciones utiliza con ese fin?

69. Eliminando las limitaciones existentes, preferiría usted hacer formación:

- 1. Dentro _____
- 2. Fuera _____
- 3. No necesito capacitación _____
- 4. Otro _____
- 5. Especifique _____

70. Si contesto DENTRO (1) en la pregunta anterior, por qué preferiría esta modalidad? (Marque todas las necesarias.)

- 1. Más control del contenido _____
- 2. Más barato y eficiente _____
- 3. Puede programar las horas mejor _____
- 4. Otro _____

Especifique _____

71. Si contesto FUERA (2) en la pregunta #69, por qué preferiría esta modalidad? (Marque todas las necesarias).

- 1. Mejores instructores _____
- 2. Tecnología más avanzada _____
- 3. Más barato _____
- 4. Otro _____

Especifique _____

72. Nacionalidad del Gerente de Planta.

73. Nivel de estudios alcanzado por éste.

- 3. Universitario _____
- 2. Secundaria completa _____
- 1. Sin Secundaria completa _____

AL ENCUESTADOR

FAVOR DE DAR SUS COMENTARIOS SOBRE SUS OBSERVACIONES ACERCA DE COMO LA EMPRESA CONDUCE SU ADIESTRAMIENTO O CAPACITACION.

Enero de 1988
mob.

PREGUNTAS ESPECIALES PARA HERRERA

1. ¿Utiliza su empresa a personas que han trabajado en las Zonas Francas Industriales?

- 1. Si -----
- 2. No -----
- 3. Sin respuesta -----

Si la respuesta es SI, responda las siguientes preguntas:

2. ¿A qué niveles lo hace?

- 1. Supervisores -----
- 2. Técnicos -----
- 3. Obreros calificados -----
- 4. Obreros no-calificados -----
- 5. Otros -----

Especifique -----

3. ¿En qué tipo de oficios específicamente

4. ¿Con qué resultados?

- 4. Bueno -----
- 3. Regular -----
- 2. Deficiente -----
- 1. Malo -----

78. ¿Produce su empresa insumos para las industrias de Zonas Francas?

- 1. SI -----
- 2. NO -----
- 3. Sin respuesta -----

79. Si es NO en 78, ¿tiene planes de hacerlo?

- 1. SI -----
- 2. NO -----
- 3. Sin respuesta -----

80. Si es SI en 78, ¿que porcentaje de su producción total es a las Zonas Francas?

¿Cuáles son los obstáculos más apremiantes que enfrenta en sus esfuerzos por exportar y vender insumos a las empresas de zona franca?

APPENDIX A-4.

FIRMS SURVEYED

SURVEY NO.	TYPE OF INDUSTRY	FIRM	LOCATION	SIZE
001*	Textil	Internacional Textil	Santiago	Medium
002	Textil	AM Industrian S.A.	Santiago	Medium
003	Electronic	Caribbean Electric	Santiago	Medium
004	Textil	Bend'n Stretch, Inc.	Santiago	Large
005	Textil	Interamericana Products	Santiago	Large
006	Correas	Taino Leather	Santiago	Small
008	Textil	Brentwood Clothes	Santiago	Large
009	Carteras	Safari	Santiago	Medium
010	Cigarros	Manufactura de Tabaco "Matasa"	Santiago	Medium
014	Medidas y Empaque Tabaco	Shade Leaf Processors	Santiago	Medium
016	Manufactura Productos Tabaco	Cullin Tabaco Processing Dominicana	Santiago	Medium
018	Zapatos	RFC Ware House	Santiago	Large
019	Textil	Mayra Manufacturing	Santiago	Medium
020	Zapatos	Caribe M.F.	Santiago	Large
021	Textil	Faro Manufacturing	Santiago	Small
022	Textil	Debbie's Fashion	Santiago	Medium
023	Textil	Tropical Manufacturing	Santiago	Medium
024	Cigarros	Tabacalera de Indias (Tabin, S.A.)	Santiago	Small
025	Textil	Continental Manufactura	Santiago	Medium
026	Emblemas y Letras Deportivas	Sewn Products inc.	Santiago	Medium
027	Textil	Bertha Sport C.x.A.	Santiago	Medium
028	Carteras	Merengue Handbags	Santiago	Medium
029	Zapatos	Mauran Rochet. C.x.A.	Santiago	Small
030	Grapas Industriales	DF Internacional	Santiago	Small
031	Textil	Seb Corp	Santiago	Medium
032	Textil	L'Ecole Knit Works	Santiago	Large
033	Textil	Zep Caribbean Inc.	Santiago	Medium
034	Textil	Chaura, S.A.	Santiago	Medium
035	Cigarros	Tabacalera A. Fuente	Santiago	Medium

*List is grouped according to location. The survey codes as presented are not sequential.

036	Abrigos	Dir Manufacture	Santiago	Small
	Pieles			
037	Zapatos	Dom Jet	Santiago	Large
038	Textil	Union Manufacture	Santiago	Medium
039	Textil	Empresas T & M	Santiago	Large
040	Textil	Modas New York	Santiago	Medium
041	Textil	Trans Continental	Santiago	Medium
007	Zapatos	Antilles Shoe	Puerto Plata	Small
011	Textil	Yhu Hwa Honduras	Puerto Plata	Large
012	Pieles	International Vision	Puerto Plata	Medium
	Vison			
013	Prendas	Rope by Mario Dominicana	Puerto Plata	Small
	Oro			
015	Textil	Trans Continental	Puerto Plata	Medium
		Apparel		
017	Carteras	Especialidades en Pieles	Puerto Plata	Small
042	Textil	H.I.J. S.A.	San Pedro	Small
043	Forros Ta-	Gi Gi Production	San Pedro	Small
	blas Plancha			
044	Textil	Western Intertrade	San Pedro	Medium
045	Textil	S.D.C.	San Pedro	Small
046	Textil	Oxford International	San Pedro	Medium
		Dominicana		
047	Cristales	M.I. Pradu	San Pedro	Small
	Pulidos			
052	Ceramica	Ceramica Dominicana	San Pedro	Small
053	Textil	Tas Cana	San Pedro	Small
056	Textil	Rodney Ind.	San Pedro	Medium
057	Zapatos	Frontier	San Pedro	Large
058	Zapatos	Frontier	San Pedro	Large
059	Textil	Camisas Dominicana	San Pedro	Medium
060	Textil	Fabrics Unlimited	San Pedro	Medium
061	Sombreros	Dominicana Fashions	San Pedro	Medium
062	Gazas y	Hermitage Dominicana	San Pedro	Small
	Algodon			
063	Textil	Alpha Leus	San Pedro	Medium
064	Joyas	N Y B Jewerly	San Pedro	Medium
065	Accesorios	Plumes de Belgique	San Pedro	Small
067	Zapatos	Carter Dominicana	San Pedro	Large
068	Zapatos	Jumping Jacks	San Pedro	Medium
069	Textil	Hanes Panama	San Pedro	Medium
070	Abrigos de	S. F. Furs	San Pedro	Small
	Piel			
071	Textil	Suprema Manufactor	San Pedro	Medium
072	Zapatos	G. C. y Sport Shoes, R.D.	San Pedro	Small
073	Textil	Kukje Apparel	San Pedro	Medium
074	Textil	Manufacturera Borinquena	San Pedro	Medium
077	Textil	Kirk Robarts	San Pedro	Medium
078	Gazas	Fabritek La Romana, inc.	San Pedro	Small
	Medicas			
079	Dulces	Caribena de Carmelas	San Pedro	Small
080	Fibra de	Coreglia Industria	San Pedro	Small
	Vidrio			

081	Gafas de sol y Monturas	Rafael Pool	San Pedro	Small
082	Maletas	Clover	San Pedro	Small
083	Electronica	Information Magnetics	San Pedro	Small
084	Textil	Royal Textil Inc.	San Pedro	Small
085	Textil	Royal Textil Inc.	San Pedro	Small
092	Confeccion Ropa	Lulin Fashions	San Pedro	Medium
094	Dimantes	P.A.D. of Panama	San Pedro	Medium
097	Joyas	I.R.C. Jewelry	San Pedro	Medium
129	Textil	Basola Corporation	San Pedro	Large
048	Textil	S.M.C. S.A.	La Vega	Medium
049	Textil	Domino Ropas	La Vega	Small
050	Textil	Compania de Tension del Pacifico	La Vega	Small
051	Textil	Cannon	La Vega	Small
054	Textil	Three Star	La Vega	Small
055	Textil	Corresa Fashions	La Vega	Small
075	Textil	Eucigema Fashions	La Vega	Small
076	Textil	A & GD C.X.A.	La Vega	Small
086	Textil	Philadelphia	Bani	Medium
087	Textil	Kamchong Textile	Bani	Medium
088	Textil	Bamena Textil	Bani	Small
089	Textil	Rayma	Bani	Small
090	Muebles Ratan	Inter Espace	Bani	Small
091	Textil	Philmoro Dominicana	Bani	Small
093	Encuadernacion Libros	Editora Corripio	Herrera	Medium
095	Textil	Conex Port S.A.	Herrera	Medium
096	Tubos Alumino	Envases El Caribe	Herrera	Small
098	Envases Plasticos Desechables	Envases Plasticos	Herrera	Small
100	Textil	Manufacturas Diversas	Herrera	Large
101	Otros	Johnson y Cia.	Herrera	Small
102	Electrica	Climatec	Herrera	Small
113	Metalmecanica	Aceros Dominicana	Herrera	Small
114	Helados y Mermeladas	Helados Bon	Herrera	Small
115	Textil	Industrias de Confecciones	Herrera	Medium
116	Electrica	Ray- O -Vac	Herrera	Small
117	Electrica	Alambres y Cables	Herrera	Small
118	Chiclets	Rocco Kapano	Herrera	Small
123	Etiquetas Industriales	Empresas Unidas	Herrera	Small
124	Plasticos	CONVERT (Envases Plasticos)	Herrera	Small
125	Muebles	Corona Industrial	Herrera	Medium
127	Zapatos	Boston Internacional	Herrera	Small

136	Apparel	Jose Blanco	Herrera	Large
099	Textil	Romana Systems	Romana	Medium
103	Cigarros	Tabacalera Garcia LTD	Romana	Large
104	Electronica	NCI National Com.	Romana	Large
105	Textil	Two 0-0 Enterprises	Romana	Large
106	Electrica Int.	Integrated Electronics	Romana	Medium
107	Textil	Chavon Inds	Romana	Large
108	Textil	C D F Industries	Romana	Large
109	Textil	Romana MFG	Romana	Large
110	Textil	E L S Empire Atlantic	Romana	Large
111	Textil	Tortoni Manufacturing	Romana	Medium
112	Textil	Welcome Industries SA	Romana	Medium
120	Textil	Cen - Tex	Romana	Large
121	Batas medicas dese hables	Fabritek La Romana Inc.	Romana	Large
122	Pinceles	Binney and Smith Inc.	Romana	Medium
126	Textil	Hanes Caribe Inc.	Itabo	Small
128	Farmacaceutica	BAXTER	Itabo	Small
131	Electronica	Westinghouse	Itabo	Medium
132	Electronica	Q-Tel	Itabo	Small
135	Electronica	Sylvania	Itabo	Small
119	Textil	Carter Galvi	San Isidro	Small
130	Electronica	Ingosa	San Isidro	Small
133	Electrical	Winchester	San Isidro	Small
134	Electronica	Prime Tech	San Isidro	Small

**APPENDIX A-5
FOCUS GROUP PARTICIPANTS**

San Pedro de Macoris:

Angel Castillo, President and Manager, Old Chearri and President of the Association of Industries of San Pedro IFZ
Arturo Peguero, consultant to the Association of Industries
Manolin Lorente, Manager, Fabritek Romana Inc.
Jose Torres, V.P. Offshore, Kirk Roberts Inc.
Fernando A. Flaquer, Director of Dominican Affairs/Development, Oxford Industries Inc.
Alfredo Castillo and Jaime Ponton, Bali/Hanes Panama
Rafael S. Fernandez P., General Administrator, Leader Industries
Samuel Martin, General Manager, Undergarment Fashions
Geltrudris Pereyra, General Manager, Plumes de Belgique
Rafael Romero, General Manager, Frontier Inc.
Antonio Centeno, President and General Manager, Manufacturera Borinquena
Miguel Angel Pichardo, consultant to CFI
Freddy Martinez, Assistant Director, CFI
Sylvia Vargas, Administrator (CFI), San Pedro de Macoris IFZ
Grecia Geronimo, Operators Training Program, UCE
Bertran de Windt, Coordinator, Human Resource Development Program, Fundacion APEC
Rosa Maria Almonte, Fundacion APEC
Nancy LaTurner, USAID/HRD

Santiago, Puerto Plata, La Vega:

Federico Carlos Alvarez, President, Empresas T&M, Santiago IFZ
Alina Lavandier, Personnel Director, Trap Rain, Santiago IFZ
Eddy de Luna, Administrator, Santiago IFZ
Jose Polanco, Gen. Manager, International Vison, Pto. Plata IFZ
Mario Espinosa, General Manager, Rope by Mario, Pto. Plata IFZ
Ramon Gilbert, President of Board of Directors, Administration of Puerto Plata IFZ
Rafael Ramos, General Manager, MDH, La Vega and V.P. of Association of Industries, La Vega IFZ
Aramis Vega M., Executive Director, ASINTEX
Victor Brens, Vice Rector for Administration and Finance, UCCM
Renato Nunez, Vice Rector for Planning, UCCM
Toni C. Wagner, USAID/HRD

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San Isidro, Itabo, Bani:

Virginia Esteban, Director of Personnel, San Isidro Office Park
and IFZ

Gil Canario, Winchester Industries, San Isidro IFZ

Jesus A. del Castillo, Administrator, Itabo IFZ

Jacquelyne Almonte, Director of Personnel, Itabo IFZ

Ima Sanchez, Assi. Human Resource Manager, Westinghouse,
Itabo IFZ

Luis Manuel Tejeda, President, Zona Franca Banileja

Toni C. Wagner, USAID/HRD

Bertran de Windt, FUNDAPEC

Herrera:

Antonio Isa Conde, Economic Advisor to AIHE

Luis Sanchez Noble, President, AIHE

Luis Marte, IPC/AIHE coordinator

Jose A. Turull, Envases Plasticos, S.A.

Oswaldo Diaz F., Executive Director, AIHE

Arelis Rodriguez, Executive Director, IPC

Bertran de Windt, FUNDAPEC

Information Services Interviews:

Alvaro Nadal, Director, Business Development, CODETEL

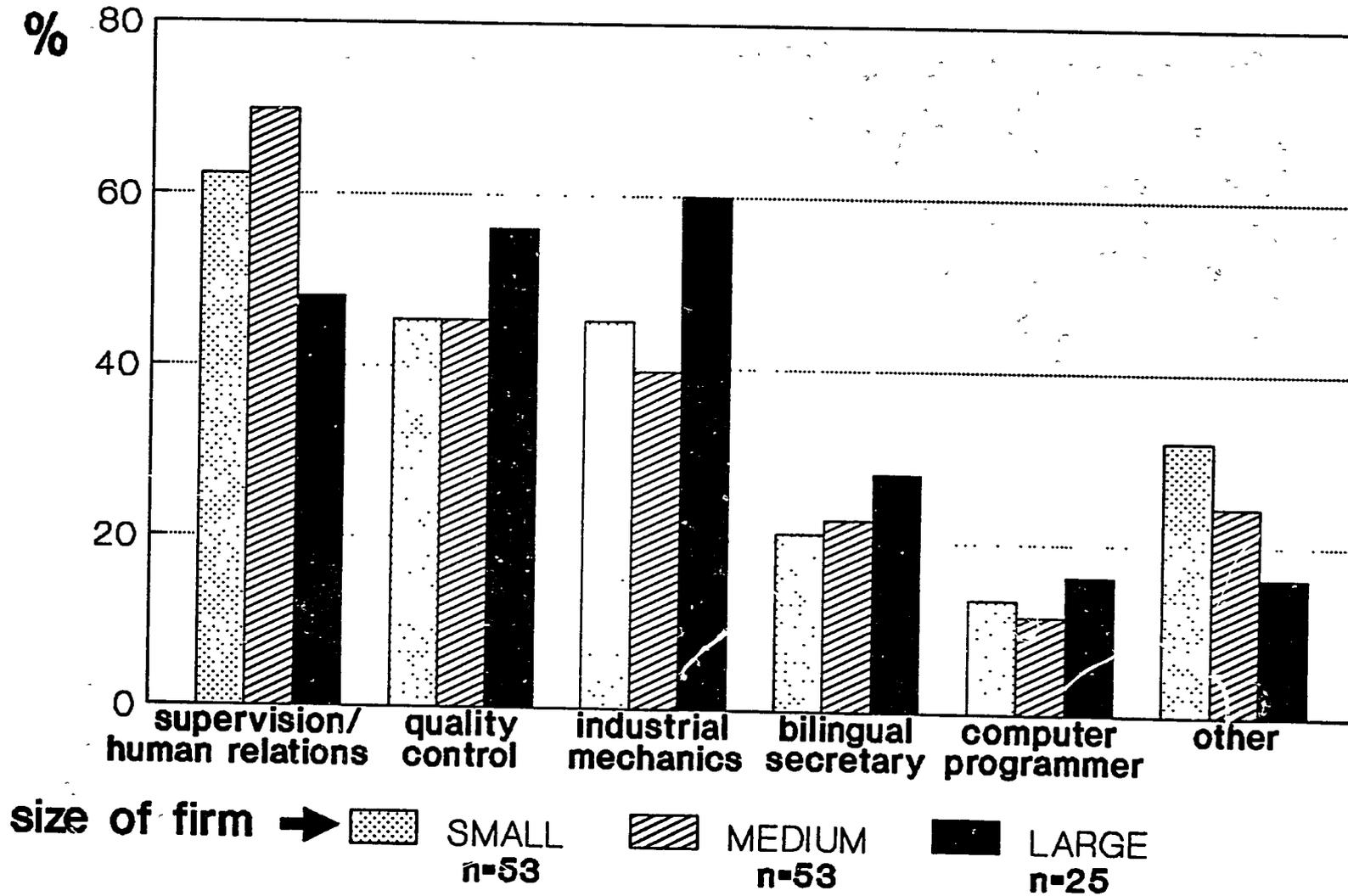
Luis Heskey, Controllor, Caribbean Data Services,
San Isidro Office Park

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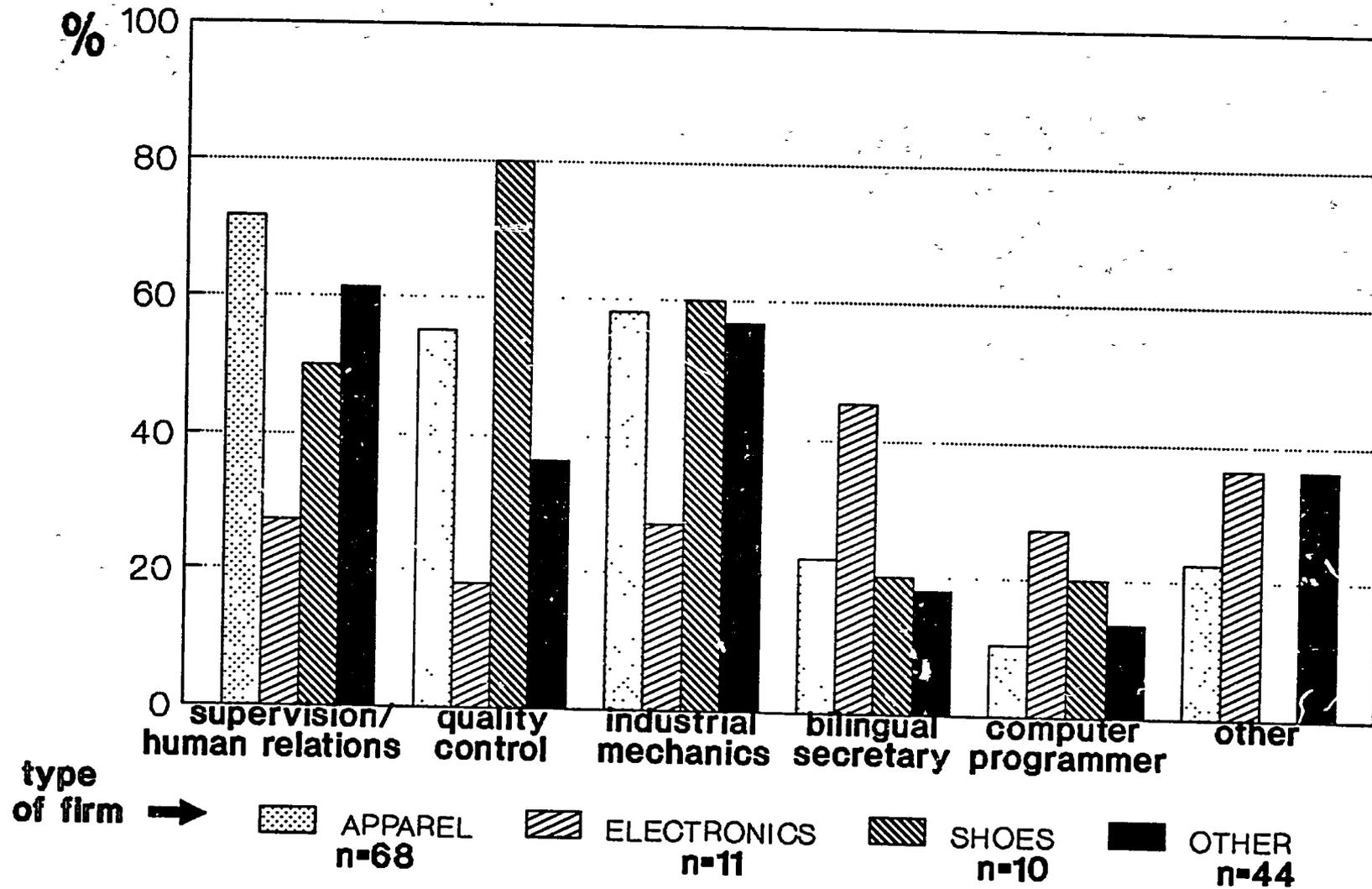
APPENDIX B
ADDITIONAL TABLES AND FIGURES

FIGURE B3-1

TRAINING NEEDS By Size of Firm



TRAINING NEEDS By Economic Activity



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TABLE B3-3
Q51 - CRITICAL JOBS IN MOST DEMAND, BY LOCATION

Puerto Plata

011. Operarios de maquinas de coser industrial
Tecnicos electricista
Planchadores

012 Operarios de maquinas de coser industrial
Operarios de costura a mano

013 Tecnicos de fabricacion de prendas

015 Operarios de maquinas industriales de costura

017 Operarios de maquinas de coser industrial

007 Supervisores
Mano de obra semi-calificada

La Vega

076 Tecnicos en mecanica industrial (maquinas de coser industrial)

048 Operarios de maquina de coser industrial
Supervisores, manejo de personal

049 Operarios de maquina de coser industrial

050 Secretaria Bilingue
Tecnicos en mecanica industrial-reparacion de maquinas de coser y hacer hojales

051 Supervisores de personal

054 Tecnicos en mecanica industrial en area de confeccion

055 Tecnicos en mecanica industrial en area de confeccion
Tecnicos en costura

075 Tecnicos en reparacion de maquinas de costura industrial

085 Supervisores

La Romana

- 103 **Ingeniero Industrial**
 Mecanico Industrial en reparacion de maquina
- 111 **Entrenadores**
 Mecanico industrial en reparacion of mantenimiento
 Supervisores
- 110 **Tecnico en maquina de coser industrial**
- 109 **Operarios en confeccion de ropa**
- 108 **Tecnicos electro mecanico**
- 107 **Electricista**
 Plomero
 Tecnico de maquinas industrial/mantenimiento
 Secretaria Bilingue
- 106 **Secretaria Bilingue**
- 105 **Operario de maquina de coser industrial**
 Supervisores
- 104 **Tecnica en Ingenieria Electrica**
- 112 **Operario de maquina de costura industrial**
- 120 **Tecnico mecanico industrial -- area-confeccion**
 Supervisor
- 121 **Supervisor**
 Mecanica Industrial - mantenimiento
- 122 **Obreros con destreza manipulativa**

Bani

- 089 **Operarios de maquinas de coser industrial**
- 086 **Supervisor - manejo de personal**
 Mecanico industrial
- 087 **Supervisor**
 Operarios de maquinas de coser industrial
 Secretaria Bilingue
- 088 **Mecanico industrial - mantenimiento de maquinas de**
 confeccion industrial
 Gerente de Planta
- 090 **Tecnico industrial - mantenimiento**
 Operarios - confeccion

091 Tecnico mecanico industrial - confeccion
Supervisor

Itabo

126 Gerente de Planta
Secretaria Bilingue
Mecanico de mantenimiento-confeccion

128 Gerente de Produccion
Secretaria Bilingue

132 Secretaria Bilingue
Tecnico de informatica y programacion
Tecnico en electronica

135 Gerente de Planta
Tecnico en electro-mecanica
Secretaria Bilingue

San Isidro

130 Supervisores
Ingenieros Industrial
Secretaria Bilingue

119 Personal semi calificado - cortadores de tela

134 Tornero
Ingeniero en electronica
Tecnicos en electromecanica

135 Supervisor - experiencia en soldadura
Ingeniero en electromecanica
Tecnicos en electromecanica

Herrera

Supervisores de Linea - costura
Mecanicos de mantenimiento de maquinas de costura
industrial
Personal de oficina auxiliar

93 Tecnico mecanico de Prensa y Fotoconica

102 Ingeniero
Mecanico de refrigeracion
Maestros hojalateros

118 Mecanicos Industrial

101 Supervisores
Herreros
Soldadores

- 117. **Mecanico de mantenimiento industrial
Supervisores**
- 127 **Gerente de Contabilidad
Secretaria Bilingue
Supervisor - Ingeniero en Diseno
Mecanico - Tecnico Tornero
Secretaria Bilingue**
- 125 **Operarios de Maquina
Ebanistas
Tapiceros
Tecnicos de produccion**
- 113 **Supervisores de Linea**
- 136 **Supervisor
Mecanica industrial**
- 98 **Tecnicos
Supervisores**
- 124 **Supervisor**
- 114 **Tecnicos de Refrigeracion**
- 116 **Secretaria Bilingue**
- 115 **Mecanicos de Maquinas Industrial
Operarios de Industria de confeccion**
- 95 **Operarios de maquina de coser industrial
Supervisores**
- 123 **Prensista
Fotomecanico
Guillotista**

Santiago

- 003 **Tecnicos Electricistas y Electronicos**
- 004 **Operario de costura
Tecnico de mecanica de mantenimiento**
- 005 **Mecanico de mantenimiento en maquinas especiales de
hojales y bolsillos
Supervisor medio**
- 010 **Gerente de produccion
Mecanico Industrial - confeccion**
- 014 **Secretaria Bilingue**

032 Operario de maquina de Tejido
Operario de Tejido a mano
Supervisores
Tecnologo industrial - ingeniero

034 Operario de maquina de coser

036 Operario de maquina de coser
Secretaria bilingue
Mecanico industrial

037 Mecanico industrial
Operario en costural industrial
Secretaria bilingue

039 Ingeniero industrial
Tecnologo industrial
Ingeniero electro-mecanica
Computacion

040 Supervisor
Secretaria bilingue

041 Supervisor
Mecanica industrial

035 Tecnico tabaquero
Cigarrero

036 Tecnico en control de calidad
Mecanico industrial

002 Mecanico industrial
Tecnico refrigeracion industrial

019 Mecanica industrial - confeccion
Supervision

020 Costurera
Mecanica industrial-confeccion

021 Supervision
Operarios en costura industrial
Mecanica industrial - confeccion

022 Supervision
Tecnologo industrial

023 Supervisor
Mecanica industrial - confeccion

008 Operarios de maquina de coser
Operarios de costura a mano

009 Costureros
 Mecanicos

024 Personal semi-calificado en produccion del tabacco

025 Operarios capacitado en confeccion de ropa

026 Operario semi calificado - confeccion

027 Supervisores
 Tecnicos

028 Costureros

029 Supervisores
 Mecanico industrial - mantenimiento de maquina

030 Mecanico de taller
 Mecanico de maquina
 Supervisores

018 Supervisores
 Mecanica industrial - confeccion
 Operarios

San Pedro de Marcoris

065 Operarios
 Tecnicos en maquina de aguja

046 Supervisores de control de calidad
 Mecanicos de maquina de coser curva
 Patronista

080 Pintores de estatuas
 Moldeo

081 Operarios de maquinas de pulik

082 Operarios de maquinas de coser maletos
 Supervisor - tecnico

083 Electro- industrial mecanicos

084 Supervisores
 Tecnicos mecanicos
 Operarios

099 Mecanico industrial - confeccion

092 Mecanica de aguja

043 Operarios de maquina de coser industrial

044 Supervisor de control de calidad

045 Contable
Patronista

047 Tallador
Disenador de cristal

053 Tecnico en ceramica

056 Mecanico industrial en confeccion

057 Mecanico industrial - confeccion

058 Operario en costura de Zapato

059 Mecanicos electricista
Plumeros
Supervisores

061 Costurero (semi calificado)
Operario de maquina

063 Supervisor de Produccion
Mecanicos en maquinas mero

064 Mecanico industrial - confeccion

066 Operario de maquinas de costura

067 Mecanico tecnico en mantenimiento

068 Cortadores calificado

069 Mecanicos de aguja
Supervisores

072 Mecanico tecnicos en maquinas industriales

071 Supervisores
Mecanicos industriales

070 Operarios de abrigo

071 Mecanico de maquina de coser industrial

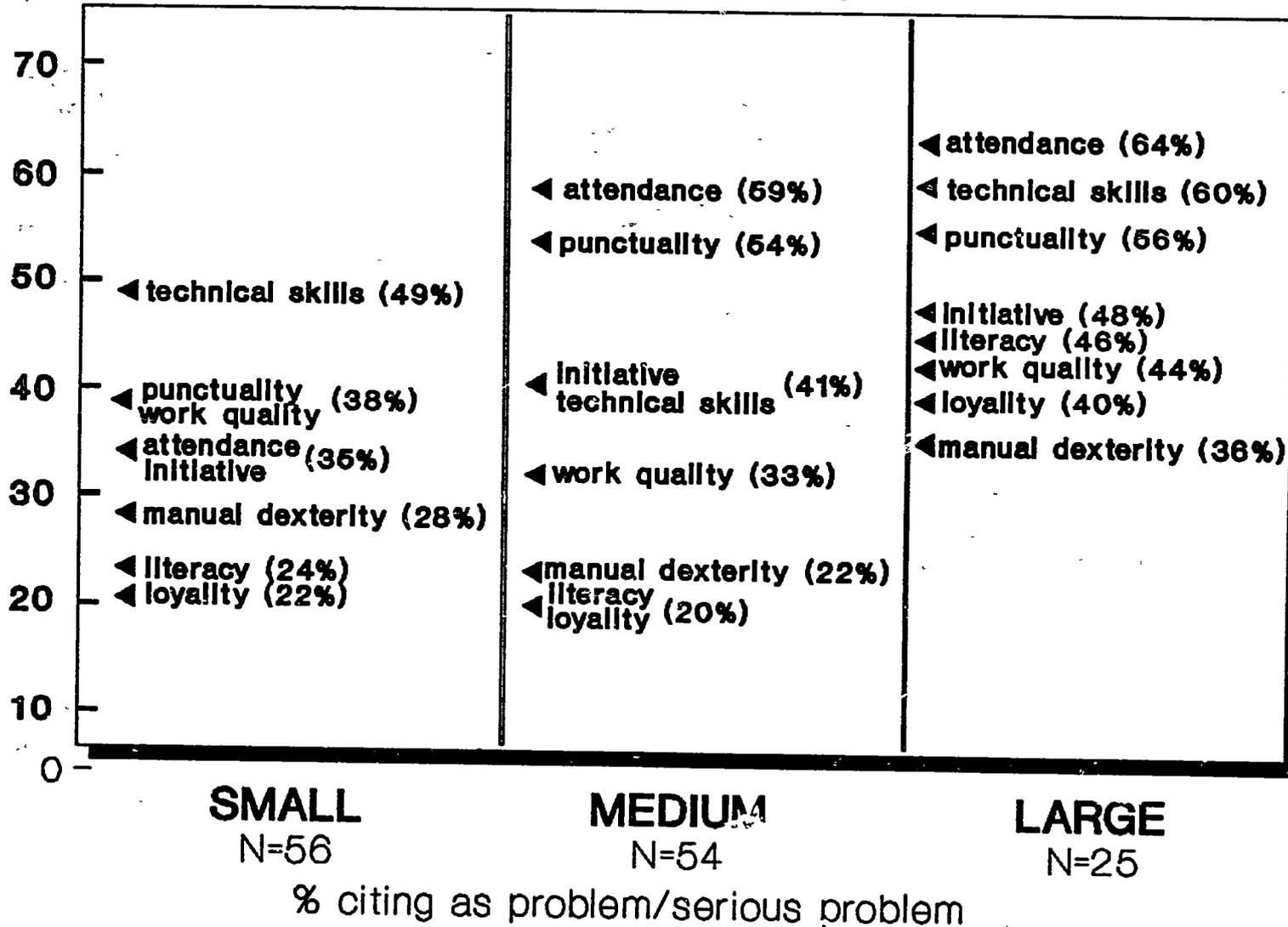
077 Mecanico industrial
Instructores de costura industrial

078 Supervisores

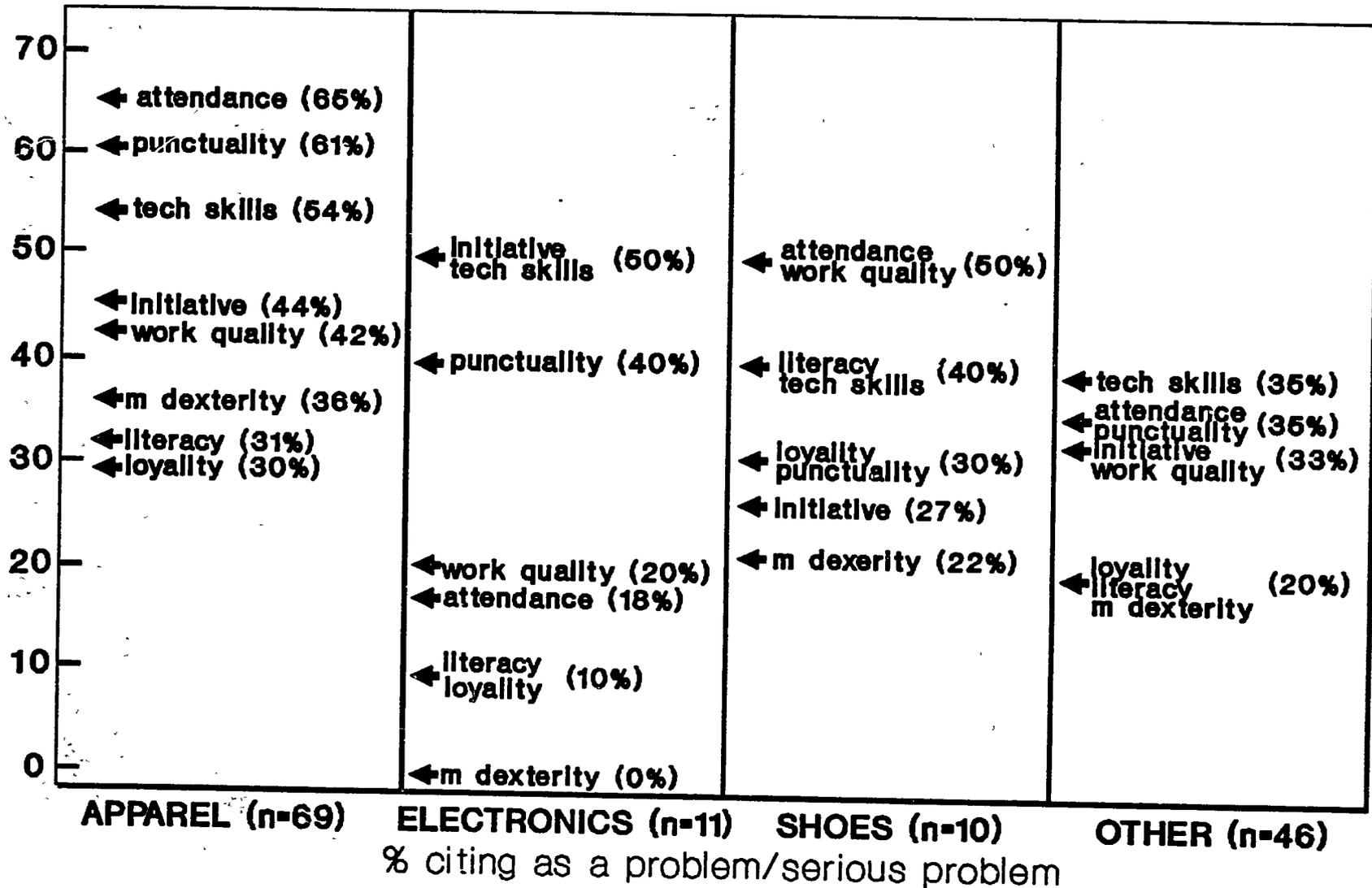
079 Mecanicos industrial en mantenimiento de maquinas de
coser
Tecnico en control de calidad (Joyeria)

042 Operarios de maquinas industrial mero
129 Operarios de ruedo y Bolsillo - confección
Costurero

Employers' Problems with Selected Labor/Work Ethic Issues: By Size of Firm



Employers' Problems with Selected Labor/Work Ethic Issues: By Economic Activity



149

FIGURE B3-6

Employers' Current Methods for Conducting Training (n=134)

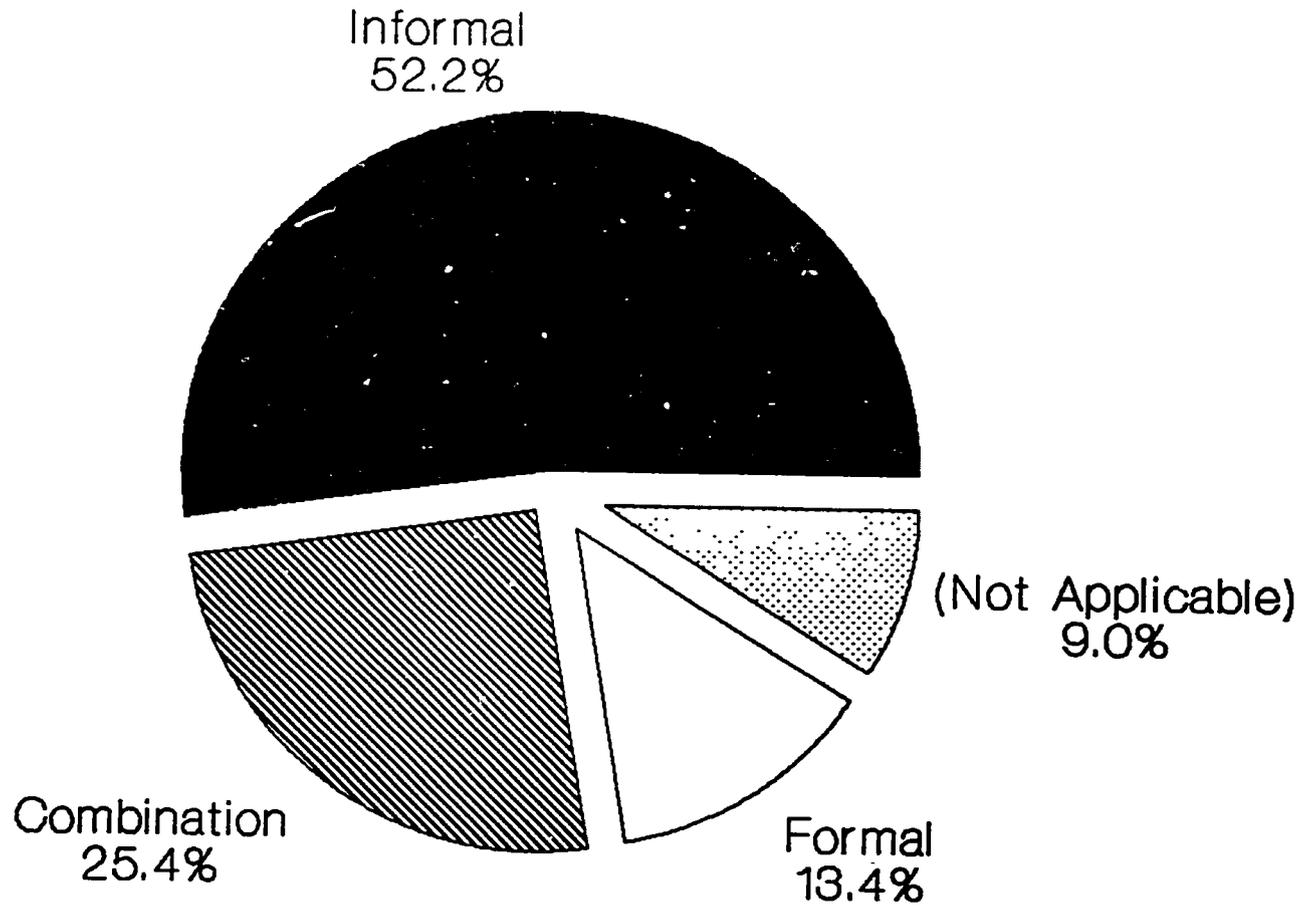
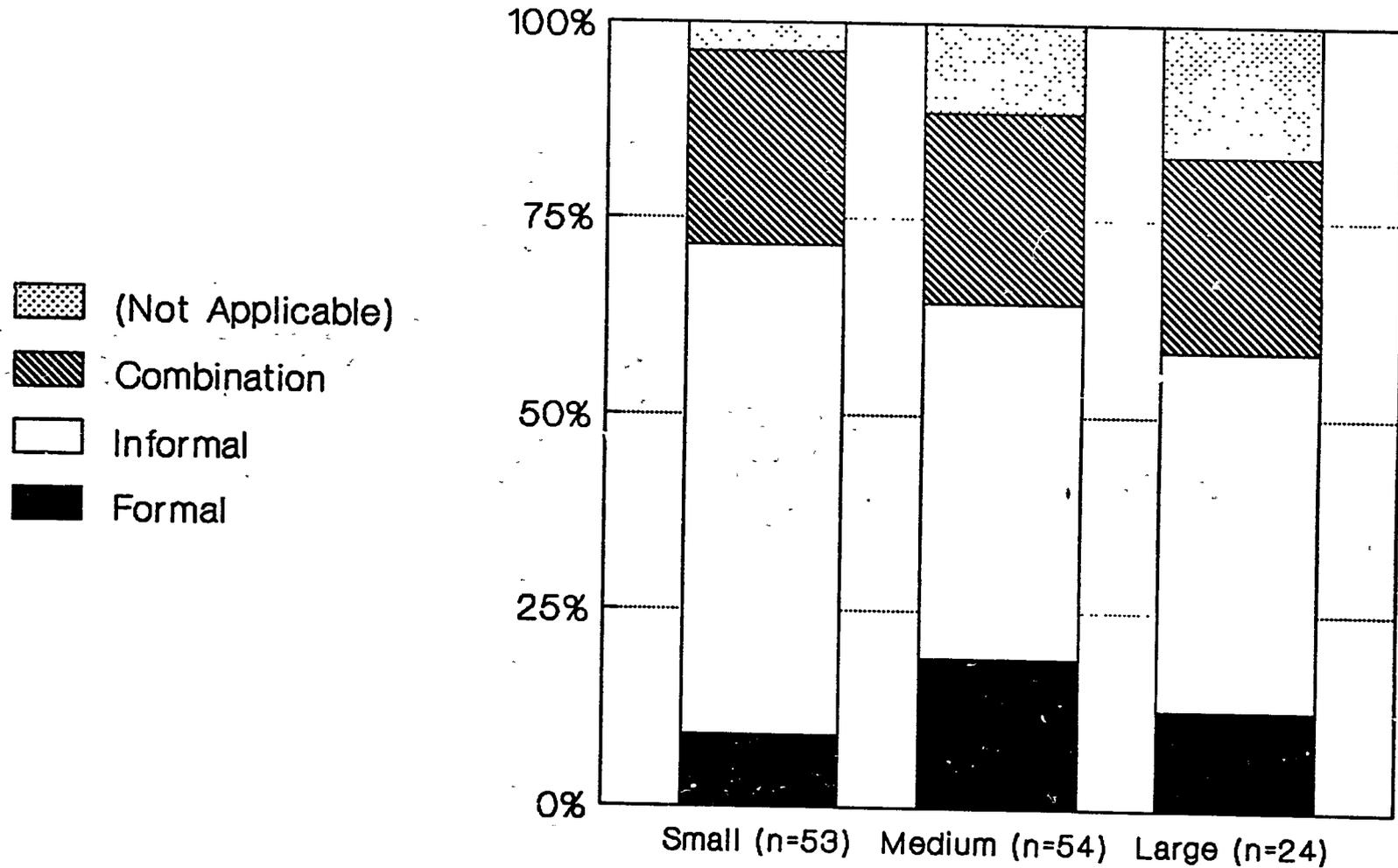


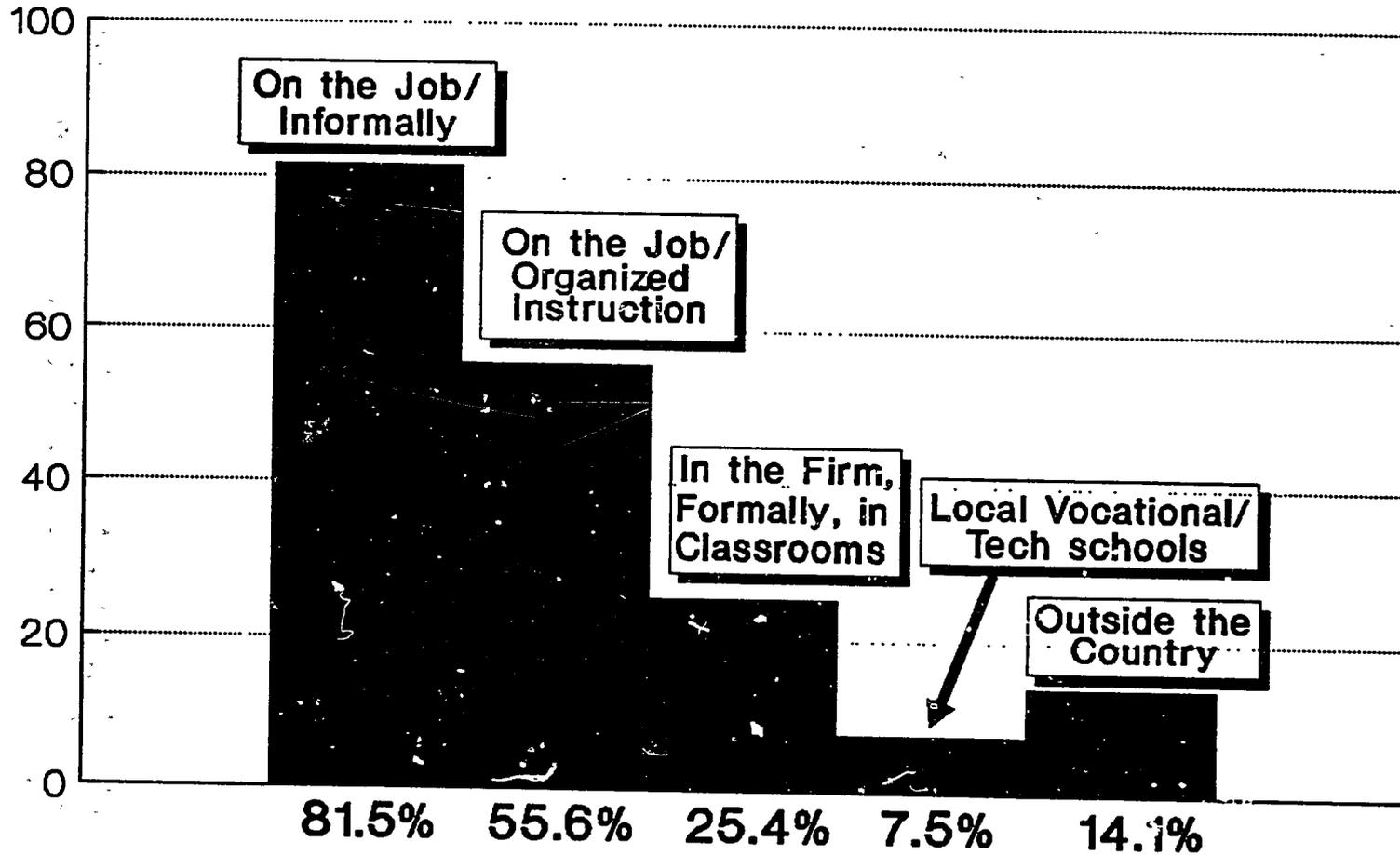
FIGURE B3-7

Employers' Current Method for Conducting Training: By Size of Firm



151

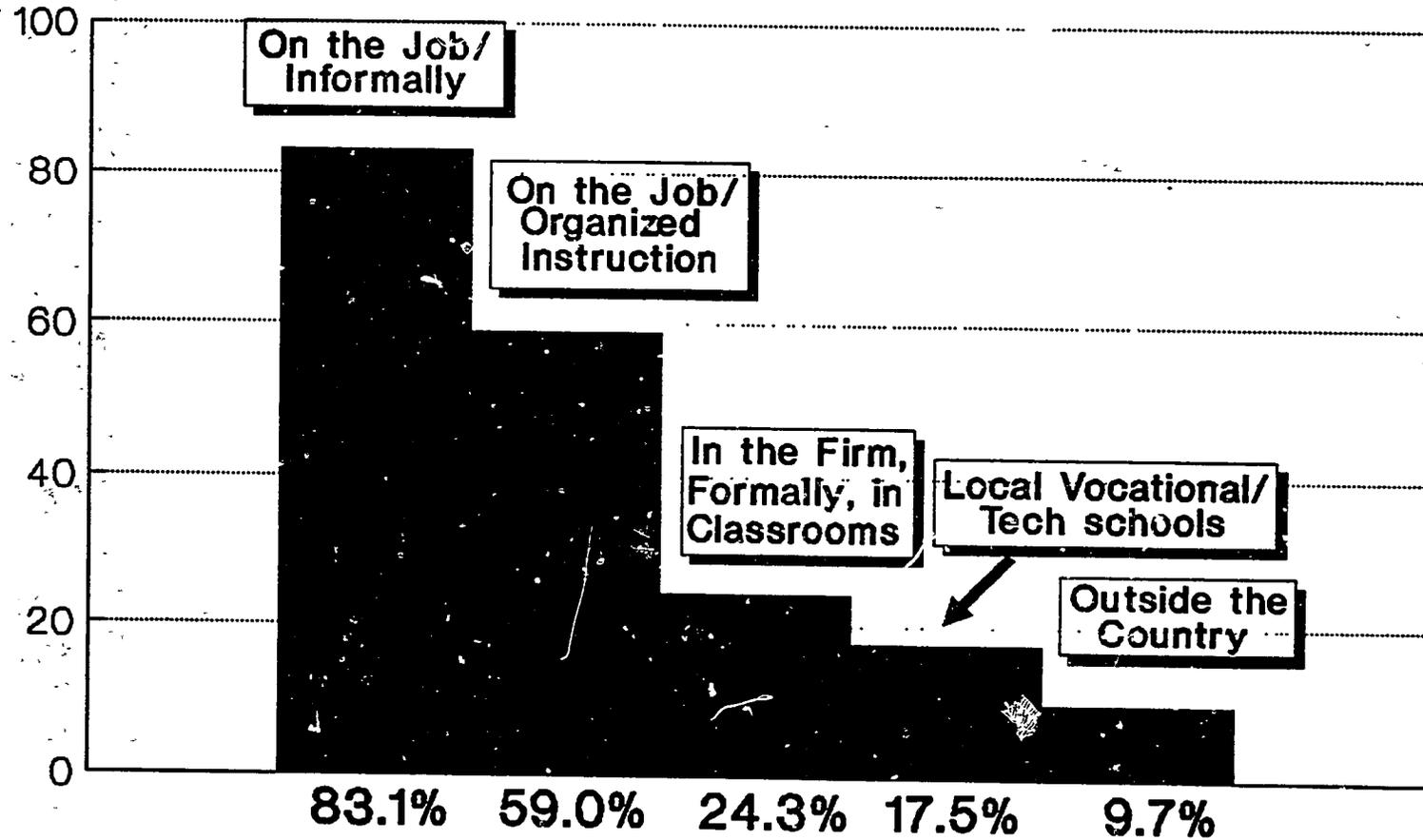
Employers' Current Training Methods for Supervisors (N=135)



% of firms utilizing these methods

152

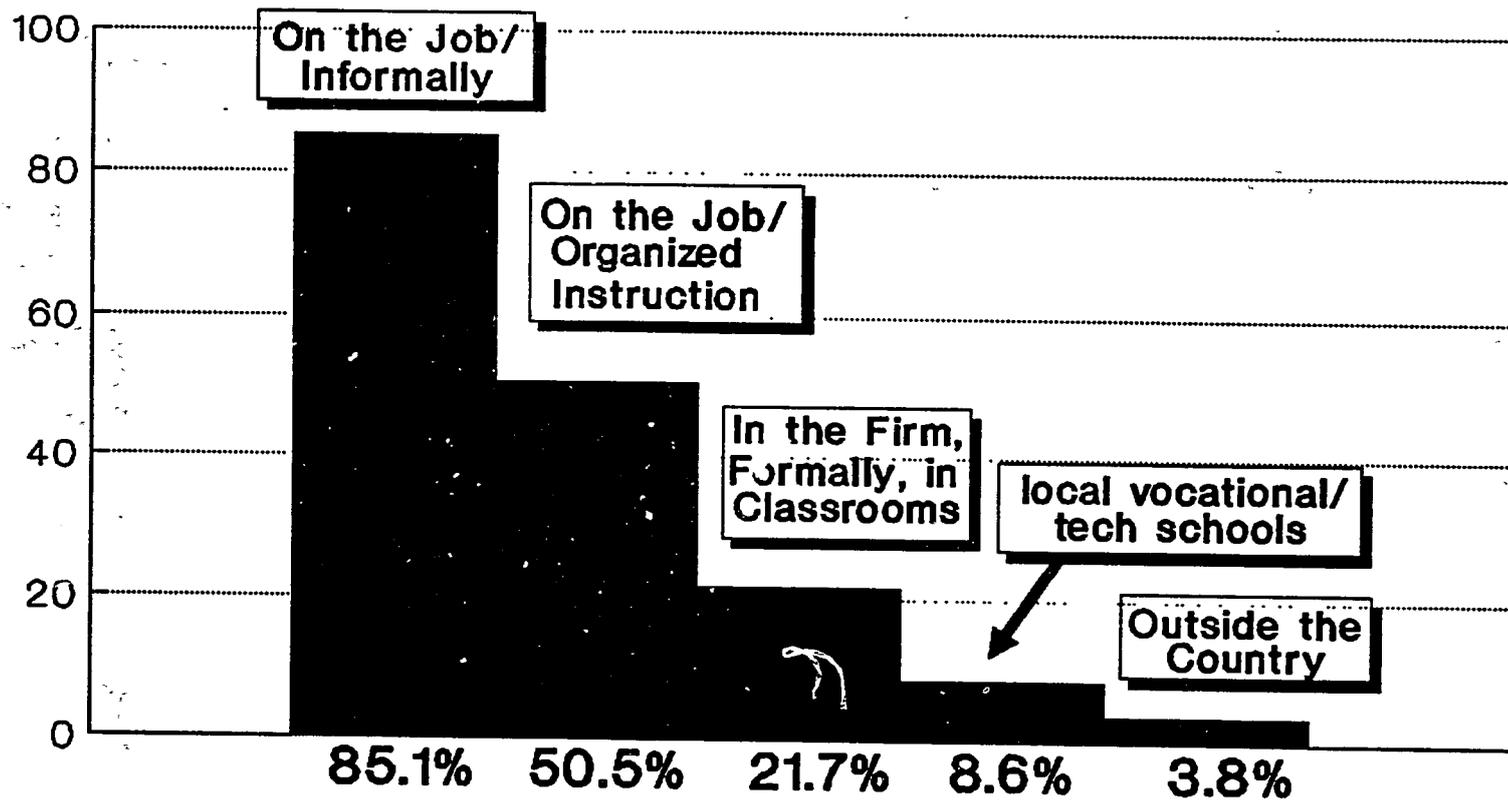
Employers' Current Training Methods for *Technicians* (N=118)



% of firms utilizing these methods

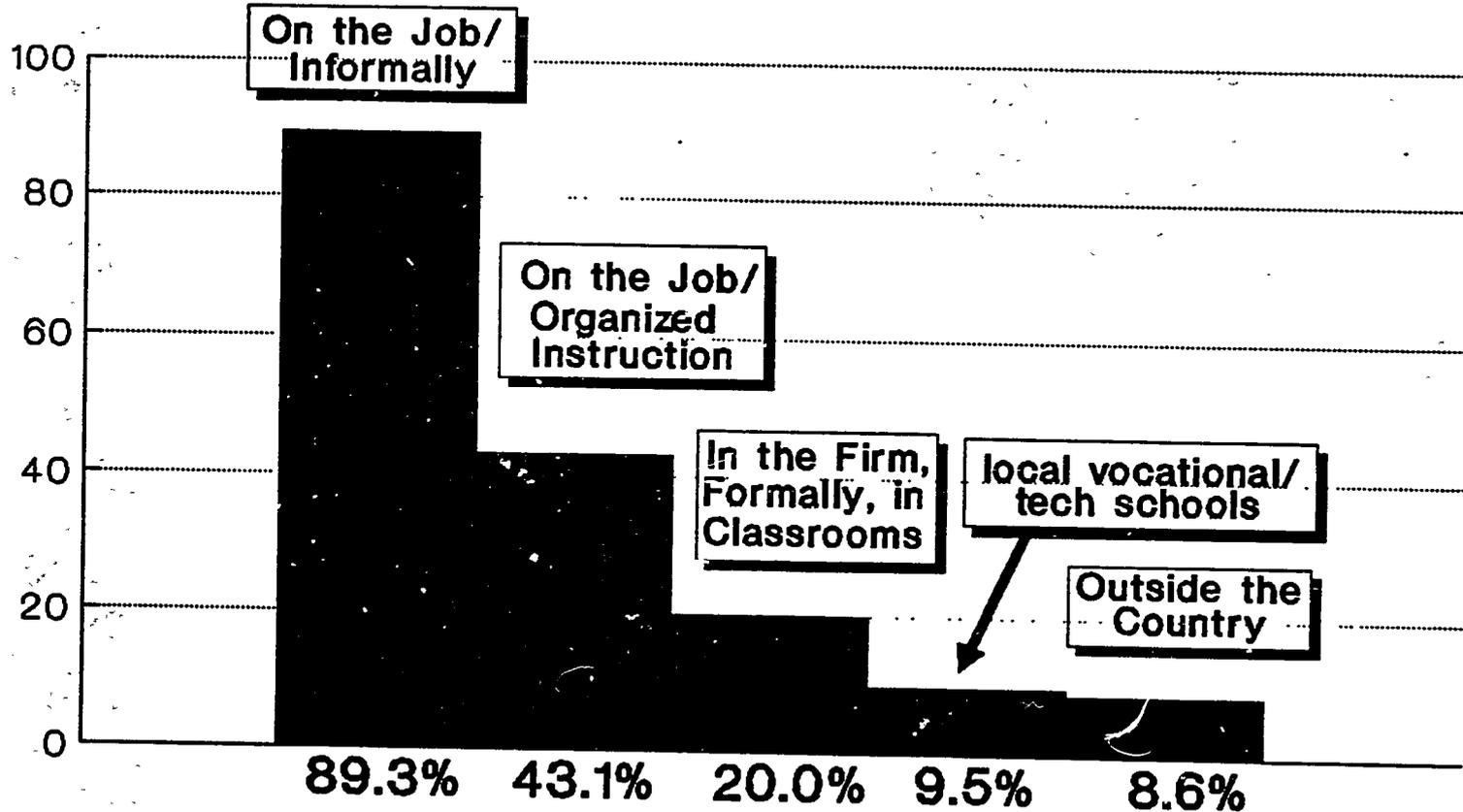
153

Employers' Current Training Methods for Semi-Skilled Workers (n=123)



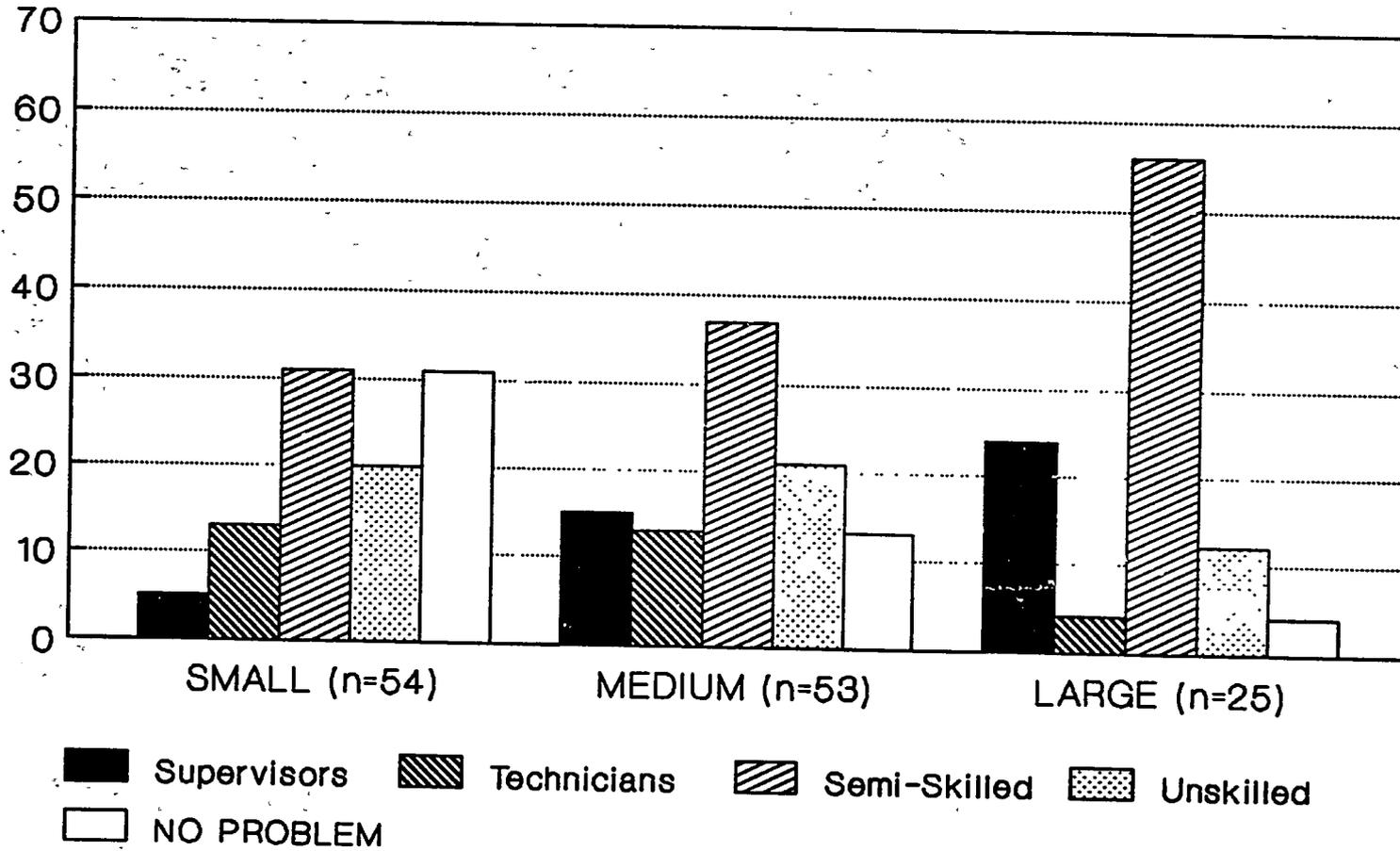
1024

Employers' Current Training Methods for Unskilled Workers (n=123)



155

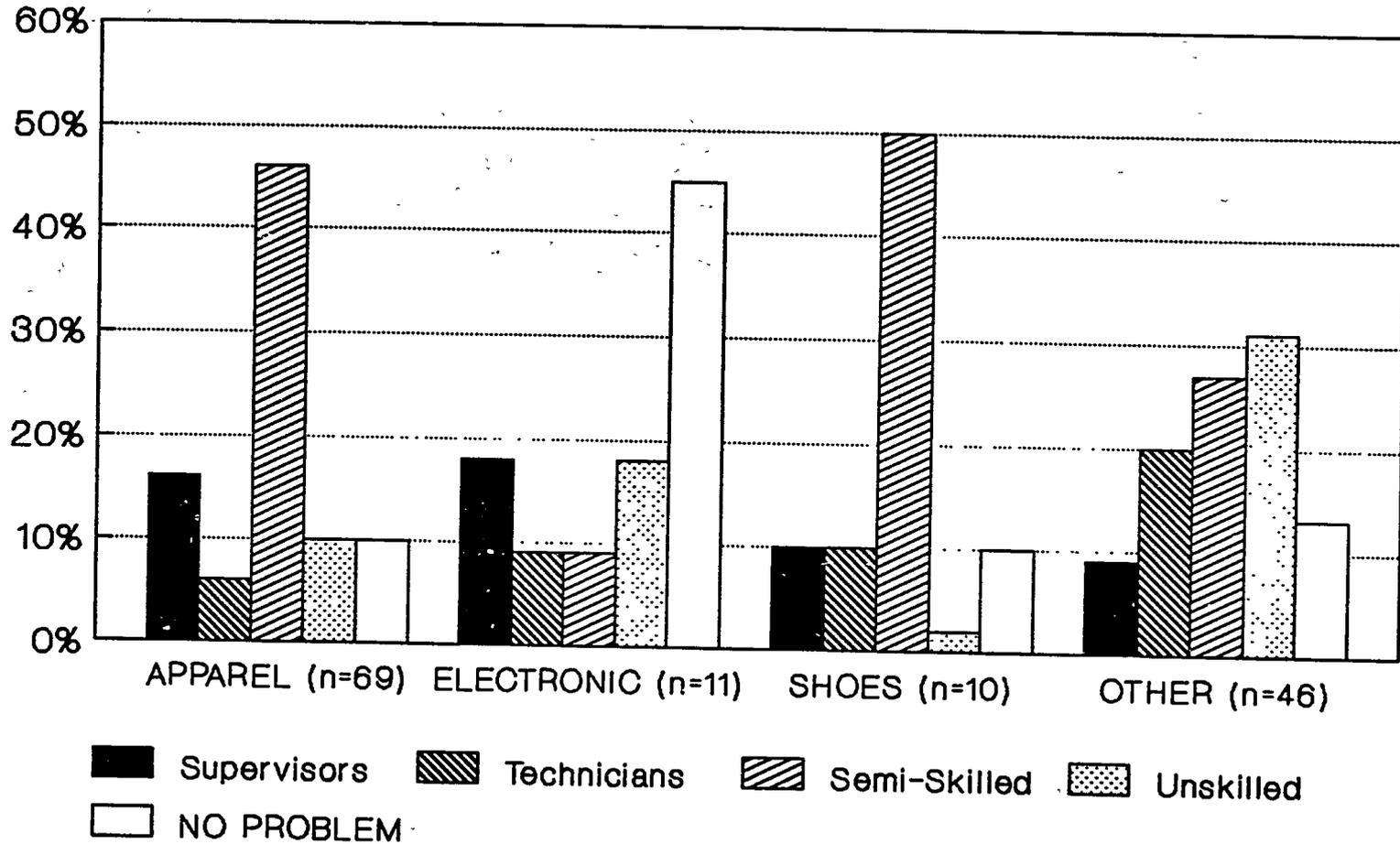
Turnover Rate of Employees By Size of Firm



% citing category as having highest rate

12

Turnover Rate of Employees By Economic Activity



% citing category as highest

151

TABLE B3-14
ESTIMATED IN-PLANT TRAINING COST
PER HOUR OF INSTRUCTION

ESTADÍSTICAS DE FOM RAME

ZONA	RAMO	TAMANO	ENTREN.	DIRECTO	COSTO	IND	TOTAL	PERS/ENT	% SUELD	HORAS
La Vega	Alimentos	Medium	Si	-	-	-	-	280	50	480
La Vega	Alimentos	Small	No	-	-	-	-	-	-	-
La Vega	Bebidas	Small	Si	3.33	2.19	-	5.52	10	100	120
TOTAL 3	M	P	2	3.33	2.19	-	5.52	290		
PROMEDIO	1	2	66.00%	3.33	2.19	-	5.52	145	75	300
La Vega	Cigarrillos	Small	No	-	-	-	-	-	-	-
La Vega	Cigarrillos	Small	No	-	-	-	-	-	-	-
La Vega	Cigarrillos	Small	Si	-	1.75	-	-	280	80	180
Herrera	Tabaco	Small	Si	-	-	-	-	25	100	-
Herrera	Tabaco	Small	Si	-	-	-	-	30	-	35
Herrera	Tabaco	Small	No	0	-	-	-	-	-	-
TOTAL 6	6		2	0	1.75	0	0	335		
PROMEDIO		1	66.00%	0	1.75	0	0	111.67	90	97.50
		6								
La Vega	Electrica	Small	Si	3	1.25	-	4.25	90	60	180
La Romana	Electrica	Medium	Si	-	2.19	-	-	20	100	30
La Romana	Electrica	Large	Si	2.21	1.87	-	4.6	120	25	30
La Romana	Electronica	Large	Si	-	2.19	-	-	75	50	240
La Romana	Electronica	Large	Si	3	1.38	-	4.38	100	74	28
La Romana	Electronica	Medium	Si	25	1.35	-	26.35	40	74	40
La Romana	Electronica	Large	Si	3.5	1.83	-	4.33	75	100	-
La Romana	Electronica	Large	Si	2.5	1	-	3.5	50	89	100
La Romana	Electronica	Large	Si	2.2	1.86	-	4.06	20	89	500
La Romana	Electronica	Large	Si	5	1.84	-	6.84	300	100	352
La Romana	Electronica	Medium	No	-	-	-	-	-	-	-
La Romana	Electronica	Medium	Si	5	1.73	-	6.73	100	100	500
TOTAL 12	6	12	11	52.01	18.67	-	65.22	1000		
PROMEDIO	P	M	G	91.67%	5.77889	1.69727	7.24667	90.9091	86.73	263.2
	1	4	7							
La Romana	Farmacéutica	Large	Si	-	2.18	-	-	35	100	640
La Romana	Farmacéutica	Large	Si	2.19	1.64	-	3.83	40	75	450
La Romana	Farmacéutica	Medium	Si	4	1.81	-	5.81	35	79	528
Santiago	Farmacéutica	Medium	No	-	-	-	-	-	-	-
TOTAL 4	4		3	6.19	5.63	-	9.64	110		
PROMEDIO	M	G	75.00%	3.095	1.87667	-	4.82	36.6667	84.67	549.33
	2	2								
San Isidro	Muebles	Small	No	-	-	-	-	-	-	-
San Isidro	Muebles	Small	Si	154.2	3.5	-	157.7	20	100	160
TOTAL 2	6	12	1	154.2	3.5	-	157.7	20		
PROMEDIO		P	50.00%	154.2	3.5	-	157.7	20	100	160
		2								
Bani	Pieles	Medium	Si	4.06	1.15	-	5.21	150	46	90
Bani	Pieles	Medium	Si	-	1.12	-	-	35	60	130
Bani	Pieles	Small	Si	2.5	1.56	-	4.06	35	85	60

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Bani	Pieles	Medium	Si	3	1.5	4.5	40	20	135	
Bani	Pieles	Small	Si	22.5	2.17	24.67	35	75	60	
Bani	Pieles	Small	Si	2.5	1.56	4	75	75	405	
Pto. Plata	Pieles	Small	Si	-	2.17	-	100	100	120	
Pto. Plata	Pieles	Large	Si	-	1.84	-	50	75	150	
Pto. Plata	Pieles	Medium	Si	9.38	3.13	12.51	30	100	960	
Pto. Plata	Pieles	Small	Si	3.13	1.09	4.22	20	50	160	
Pto. Plata	Pieles	Medium	Si	-	1.09	-	50	50	360	
Pto. Plata	Pieles	Small	Si	-	2.17	-	70	60	80	
Herrera	Pieles	Large	Si	4.05	1.8	5.85	400	50	132	
Herrera	Pieles	Large	Si	3.15	1.84	4.99	150	50	40	
TOTAL 14	14			14	54.27	24.05	70.03	1240		
PRONEDIO	P	M	G	100.00%	6.03	1.71786	7.78111	88.57	68.43	203.71
	6	5	3							
Herrera	Plasticos	Medium	Si	3.75	1.56	5.31	75	82.4	120	
Herrera	Plasticos	Small	Si	4.06	2.17	6.25	100	100	40	
Herrera	Plasticos	Small	Si	3.1	2.36	5.46	19	100	60	
Herrera	Plumas	Small	Si	3.75	2.17	5.94	70	100	30	
Herrera	Textil	Small	No	-	-	-	-	-	-	
Herrera	Textil	Medium	Si	-	1.87	-	35	60	320	
Herrera	Textil	Small	Si	11.62	2.17	13.86	2	100	320	
Herrera	Textil	Small	Si	3.2	1.5	4.7	50	70	60	
Herrera	Textil	Small	No	-	-	-	-	-	-	
Herrera	Textil	Medium	No	-	-	-	-	-	-	
Herrera	Textil	Small	Si	7.5	2.17	9.67	15	100	70	
Herrera	Textil	Small	Si	5	-	-	15	100	20	
Santiago	Textil	Large	No	-	-	-	-	-	-	
Santiago	Textil	Large	No	-	-	-	-	-	-	
Santiago	Textil	Small	No	-	-	-	-	-	-	
Santiago	Textil	Large	No	-	-	-	-	-	-	
Santiago	Textil	Medium	No	-	-	-	-	-	-	
Santiago	Textil	Medium	Si	3.17	1.32	4.49	18	100	220	
Santiago	textil	Medium	Si	-	-	-	60	100	616	
Santiago	Textil	Medium	Si	-	2.17	-	100	100	40	
Santiago	Textil	Large	Si	3	1.84	100	-	600	500	
Santiago	Textil	Medium	Si	3.9	3.33	7.23	175	60	72	
Santiago	Textil	Large	Si	3.5	2.5	6	200	40	180	
Santiago	Textil	Medium	Si	3.5	1.84	5.34	50	60	24	
Santiago	Textil	Small	No	-	-	-	-	-	-	
Santiago	Textil	Medium	Si	3.4	1.36	4.76	40	50	160	
Santiago	Textil	Medium	Si	3.75	1.87	5.62	50	70	170	
Santiago	Textil	Medium	Si	3.5	2	5.5	400	100	160	
Santiago	Textil	Medium	Si	2.5	1.85	4.35	150	100	380	
Santiago	Textil	Medium	Si	2.5	1.85	4.35	200	100	380	
Santiago	Textil	Large	Si	2.27	1.31	3.58	300	72	27	
Santiago	Textil	Medium	Si	-	2.17	-	75	100	240	

ESTADÍSTICAS ZF POR RAMO

Santiago	Textil	Medium	Si	-	2.19	-	100	100	10
Santiago	Textil	Medium	Si	4	1.5	5.5	100	50	40
Santiago	Textil	Small	Si	4.3	1.5	6.18	25	50	340
Santiago	Textil	Large	Si	3.8	1.75	5.55	100	30	120
Santiago	Textil	Medium	Si	2.63	1.8	4.43	120	85	30
Santiago	Textil	Large	Si	3	1.84	4.84	300	100	120
Santiago	Textil	Medium	Si	5	1.31	6.31	150	75	80
Santiago	Textil	Medium	Si	2.56	1.52	4.28	100	75	180
S.P. Macoris	Textil	Small	Si	-	1.09	-	50	50	44
S.P. Macoris	Textil	Small	Si	6.25	2.19	8.44	100	100	120
S.P. Macoris	Textil	Medium	Si	3.75	2.19	5.94	50	100	20
S.P. Macoris	Textil	Small	Si	4.35	1.87	6.25	30	60	30
S.P. Macoris	Textil	Medium	Si	3.75	2.19	5.94	200	100	30
S.P. Macoris	Textil	Small	Si	5.65	2.21	8.04	50	60	30
S.P. Macoris	Textil	Small	Si	3.75	2.19	5.94	48	88	720
S.P. Macoris	Textil	Small	No	-	-	-	-	-	-
S.P. Macoris	Textil	Medium	No	-	-	-	-	-	-
S.P. Macoris	Textil	Large	Si	2.25	1.56	3.81	50	80	187
S.P. Macoris	Textil	Large	Si	-	2.22	-	500	100	150
S.F. Macoris	Textil	Medium	Si	-	2.19	-	50	75	180
S.P. Macoris	Textil	Medium	Si	5	1.55	6.95	100	84	40
S.P. Macoris	Textil	Medium	Si	3.5	1.31	3.5	40	71	176
S.P. Macoris	Textil	Small	Si	3.25	2.35	5.6	60	100	500
S.P. Macoris	Textil	Medium	Si	4	1.75	5.75	75	80	15
S.P. Macoris	Textil	Medium	Si	62.5	45	107.5	150	50	30
S.F. Macoris	Textil	Small	Si	-	-	-	30	100	360
S.P. Macoris	Textil	Medium	Si	3	2.19	5.19	80	50	135
S.P. Macoris	Textil	Large	Si	3.75	1.57	5.32	250	50	160
S.P. Macoris	Textil	Medium	Si	-	2.19	-	20	100	44
S.P. Macoris	Textil	Medium	Si	3.6	2.19	5.99	100	100	120
S.P. Macoris	Textil	Small	No	-	-	-	-	-	-
S.P. Macoris	Textil	Medium	Si	-	2.19	-	150	100	160
S.P. Macoris	Textil	Small	Si	2.5	2.19	4.69	100	100	120
S.P. Macoris	Textil	Medium	Si	5	1.14	6.14	100	50	576
S.P. Macoris	Textil	Medium	Si	3.75	2.18	5.93	100	50	-
S.F. Macoris	Textil	Medium	No	-	-	-	-	-	-
S.P. Macoris	Textil	Small	Si	-	2.19	-	50	50	480
S.P. Macoris	Textil	Small	Si	-	1.97	-	25	90	90
S.P. Macoris	Textil	Small	Si	3.75	2.18	5.93	15	100	24
S.P. Macoris	Textil	Small	Si	3.13	2.19	5.32	100	50	16
S.P. Macoris	Textil	Small	Si	2	2.19	4.19	100	100	40
S.F. Macoris	Textil	Medium	Si	62.5	1.56	64.06	201	71	22.44
S.P. Macoris	Tubos	Small	Si	-	1	-	50	45	100
S.F. Macoris	Vidrio	Small	No	-	-	-	-	-	-
S.P. Macoris	Zapatos	Medium	Si	25	2	27	32	100	20
S.P. Macoris	Zapatos	Medium	Si	3	2.02	5.02	3	100	20

ESTADISTICAS ZF POR RAMO

S.P. Macoris	Zapatos	Large	Al	-	-	-	70	100	480	
TOTAL 79	6	12	11	99.38	17.3	111.52	646			
PROMEDIO	P	M	G	91.67%	16.5633	1.92222	64.6	84.6	129.244	
	29	38	12							
OTRAS										
La Vega	Ceramica	Small	No	-	-	-	-	-	-	
Santiago	Fibras Vidrio	Medium	No	-	-	-	-	-	-	
Santiago	Gafas	Medium	Si	10	-	-	28	100	20	
Itabo	Impresos	Small	Si	-	2.19	-	95	100	-	
Itabo	Impresos	-	Si	-	3.19	-	150	100	60	
Itabo	Jovas	Small	Si	12.85	3.5	16.25	250	100	-	
Itabo	Jovas	Medium	Si	8.31	1.46	9.77	350	26	450	
Itabo	Jovas	Small	Si	2.5	1.3	4.3	90	100	264	
San Isidro	Metalurgia	Medium	Si	-	1.83	-	20	100	52	
Herrera	Pinceles	Medium	Si	8	1.64	5.64	20	100	-	
TOTAL 10	6	12	11	41.66	15.61	40.06	1036			
PROMEDIO	P	M	SC	91.67%	8.332	2.23	10.015	129.5	90.75	187.2
	4	5	1							

ESTADÍSTICAS TOTALES ZONAS FRANCAS

ZONA	RAMO	TAMAÑO	ENTREN.	DIRECTO	COSTO IND	TOTAL	% SUELD	HORAS	PERS/ENT
La Vega	Textil	Medium	Sí	-	-	-	50	480	280
La Vega	Textil	Small	No	-	-	-	-	-	-
La Vega	Textil	Small	No	-	-	-	-	-	-
La Vega	Textil	Small	No	-	-	-	-	-	-
La Vega	Textil	Small	No	-	-	-	-	-	-
La Vega	Textil	Small	Sí	-	1.75	-	80	160	280
La Vega	Textil	Small	Sí	3.33	2.19	5.52	100	120	10
La Vega	Textil	Small	Sí	3	1.25	4.25	60	160	90
La Romana	Textil	Medium	Sí	-	2.19	-	100	30	20
La Romana	Cigarrillos	Large	Sí	2.81	1.87	4.6	88	90	130
La Romana	Electrónica	Large	Sí	-	2.19	-	80	240	75
La Romana	Textil	Large	Sí	3	1.36	4.36	74	260	100
La Romana	Electrónica	Medium	Sí	25	1.35	26.35	74	400	40
La Romana	Textil	Large	Sí	3.5	1.83	4.33	100	-	75
La Romana	Textil	Large	Sí	2.5	1	3.5	89	100	50
La Romana	Textil	Large	Sí	2.2	1.86	4.06	89	500	20
La Romana	Textil	Large	Sí	5	1.84	6.84	100	352	300
La Romana	textil	Medium	No	-	-	-	-	-	-
La Romana	Textil	Medium	Sí	5	1.93	6.93	100	500	100
La Romana	Textil	Large	Sí	-	2.18	-	100	640	35
La Romana	Farmacéutica	Large	Sí	2.19	1.64	3.83	75	480	40
La Romana	Pinceles	Medium	Sí	4	1.81	5.81	79	528	35
Santiago	Textil	Medium	No	-	-	-	-	-	-
Santiago	Textil	Medium	No	-	-	-	-	-	-
Santiago	Electrónica	Medium	Sí	10	-	-	100	80	28
Itabo	Textil	Small	Sí	-	2.19	-	100	-	98
Itabo	Farmacéutica	-	Sí	-	3.19	-	100	60	180
Itabo	Electrónica	Small	Sí	12.85	3.5	16.35	100	-	250
Itabo	Electrónica	Medium	Sí	8.31	1.46	9.77	26	480	350
Itabo	Electrónica	Small	Sí	2.5	1.8	4.3	100	264	90
San Isidro	Textil	Medium	Sí	-	1.83	-	100	52	20
San Isidro	Electrónica	Small	No	-	-	-	-	-	-
San Isidro	Electrónica	Small	Sí	154.2	3.5	157.7	100	160	20
Bani	Textil	Medium	Sí	4.06	1.15	5.21	48	90	150
Bani	Textil	Medium	Sí	-	1.12	-	60	130	35
Bani	Textil	Small	Sí	2.5	1.56	4.06	85	60	35
Bani	Textil	Medium	Sí	3	1.5	4.5	80	135	40
Bani	Muebles	Small	Sí	22.5	2.19	24.69	75	60	35
Bani	Textil	Small	Sí	2.5	1.56	4	75	405	75
Pto. Plata	Pieles	Small	Sí	-	2.19	-	100	120	100
Pto. Plata	Textil	Large	Sí	-	1.64	-	75	120	50
Pto. Plata	Pieles	Medium	Sí	9.38	3.13	12.51	100	960	30
Pto. Plata	Joyas	Small	Sí	3.13	1.09	4.22	50	160	20
Pto. Plata	Textil	Medium	Sí	-	1.09	-	50	360	50
Pto. Plata	Pieles	Small	Sí	-	2.19	-	60	80	70
Herrera	Textil	Large	Sí	4.05	1.8	5.85	50	132	400
Herrera	Textil	Large	Sí	3.15	1.84	4.99	50	40	150
Herrera	Textil	Medium	Sí	8	1.64	9.64	100	-	20
Herrera	Textil	Medium	Sí	3.75	1.56	5.31	83.4	120	75
Herrera	Plásticos	Small	Sí	4.06	2.19	6.25	100	40	100

ESTADÍSTICAS TOTALES ZONAS FRANCAS

Herrera	Plásticos	Small	Sí	3.1	2.36	5.46	100	60	19
Herrera	Plásticos	Small	Sí	3.75	2.19	5.94	100	30	70
Herrera	Eléctrica	Small	Sí	-	-	-	100	-	25
Herrera	Eléctrica	Small	Sí	-	-	-	-	35	30
Herrera	Eléctrica	Small	No	-	-	-	-	-	-
Herrera	Impresos	Small	No	-	-	-	-	-	-
Herrera	Impresos	Medium	Sí	-	1.87	-	60	320	35
Herrera	Alimentos	Small	Sí	11.62	2.19	13.86	100	320	2
Herrera	Alimentos	Small	Sí	3.2	1.5	4.7	90	60	50
Herrera	Pieles	Small	No	-	-	-	-	-	-
Herrera	Muebles	Medium	No	-	-	-	-	-	-
Herrera	Tubos	Small	Sí	7.5	2.19	9.69	100	70	15
Herrera	Metalurgia	Small	Sí	5	-	-	100	20	15
Santiago	Textil	Large	No	-	-	-	-	-	-
Santiago	Textil	Large	No	-	-	-	-	-	-
Santiago	Pieles	Small	No	-	-	-	-	-	-
Santiago	Textil	Large	No	-	-	-	-	-	-
Santiago	Pieles	Medium	No	-	-	-	-	-	-
Santiago	Tabaco	Medium	Sí	3.17	1.32	4.49	100	220	18
Santiago	Tabaco	Medium	Sí	-	-	-	100	616	60
Santiago	Tabaco	Medium	Sí	-	2.19	-	100	40	100
Santiago	Pieles	Large	Sí	3	1.84	100	600	500	-
Santiago	Textil	Medium	Sí	3.9	3.33	7.23	60	72	175
Santiago	Pieles	Large	Sí	3.5	2.5	6	40	180	200
Santiago	Textil	Medium	Sí	3.5	1.84	5.34	80	24	50
Santiago	Cigarros	Small	No	-	-	-	-	-	-
Santiago	Textil	Medium	Sí	3.4	1.36	4.76	50	160	40
Santiago	Textil	Medium	Sí	3.75	1.87	5.62	70	170	50
Santiago	Textil	Medium	Sí	3.5	2	5.5	100	160	400
Santiago	Pieles	Medium	Sí	2.5	1.85	4.35	100	360	150
Santiago	Textil	Medium	Sí	2.5	1.85	4.35	100	380	200
Santiago	Textil	Large	Sí	2.27	1.31	3.58	72	27	300
Santiago	Textil	Medium	Sí	-	2.19	-	100	240	75
Santiago	Textil	Medium	Sí	-	2.19	-	100	10	100
Santiago	Cigarros	Medium	Sí	4	1.5	5.5	50	40	100
Santiago	Pieles	Small	Sí	4.3	1.8	6.18	50	340	25
Santiago	Pieles	Large	Sí	3.8	1.75	5.55	80	180	100
Santiago	Textil	Medium	Sí	2.63	1.8	4.43	85	80	120
Santiago	Textil	Large	Sí	3	1.84	4.84	100	120	300
Santiago	Textil	Medium	Sí	5	1.31	6.31	75	80	150
Santiago	Textil	Medium	Sí	2.56	1.32	4.28	75	180	100
S.P. Macorí	Textil	Small	Sí	-	1.09	-	50	44	50
S.P. Macorí	Textil	Small	Sí	6.25	2.19	8.44	100	120	100
S.P. Macorí	Textil	Medium	Sí	3.75	2.19	5.94	100	20	50
S.P. Macorí	Textil	Small	Sí	4.38	1.87	6.25	60	30	70
S.P. Macorí	Textil	Medium	Sí	3.75	2.19	5.94	100	30	200
S.P. Macorí	Vidrio	Small	Sí	5.83	2.21	8.04	60	30	50
S.P. Macorí	Cerámica	Small	Sí	3.75	2.19	5.94	88	720	48
S.P. Macorí	Textil	Small	No	-	-	-	-	-	-
S.P. Macorí	Textil	Medium	No	-	-	-	-	-	-
S.P. Macorí	Textil	Large	Sí	2.25	1.56	3.81	80	189	50

ESTADISTICAS TOTALES ZONAS FRANCAS

S.P. Macorí	Pieles	Large	Sí	-	2.22	-	100	180	500
S.P. Macorí	Textil	Medium	Sí	-	2.19	-	75	160	50
S.P. Macorí	Textil	Medium	Sí	5	1.95	6.95	84	40	100
S.P. Macorí	Textil	Medium	Sí	3.5	1.31	3.5	71	176	40
S.P. Macorí	Farmacéutica	Small	Sí	3.25	2.35	5.6	100	500	60
S.P. Macorí	Textil	Medium	Sí	4	1.75	5.75	80	15	75
S.P. Macorí	Joyas	Medium	Sí	62.5	45	107.5	50	30	180
S.P. Macorí	Plumas	Small	Sí	-	-	-	100	360	30
S.P. Macorí	Textil	Medium	Sí	3	2.19	5.19	50	135	80
S.P. Macorí	Zapatos	Large	Sí	3.75	1.57	5.32	50	160	250
S.P. Macorí	Zapatos	Medium	Sí	-	2.19	-	100	44	20
S.P. Macorí	Textil	Medium	Sí	3.8	2.19	5.99	100	120	100
S.P. Macorí	Pieles	Small	No	-	-	-	-	-	-
S.P. Macorí	Textil	Medium	Sí	-	2.19	-	100	160	150
S.P. Macorí	Zapatos	Small	Sí	2.5	2.19	4.69	100	120	100
S.P. Macorí	Textil	Medium	Sí	5	1.14	6.14	50	576	100
S.P. Macorí	Textil	Medium	Sí	3.75	2.18	5.93	50	-	100
S.P. Macorí	Textil	Medium	No	-	-	-	-	-	-
S.P. Macorí	Farmacéutica	Small	Sí	-	2.19	-	90	480	50
S.P. Macorí	Dulces	Small	Sí	-	1.97	-	90	90	25
S.P. Macorí	Fibras Vidrio	Small	Sí	3.75	2.18	5.93	100	24	15
S.P. Macorí	Gafas	Small	Sí	3.13	2.19	5.32	50	16	100
S.P. Macorí	Pieles	Small	Sí	2	2.19	4.19	100	40	100
S.P. Macorí	Electrónica	Medium	Sí	62.5	1.56	64.06	71	22.44	201
S.P. Macorí	Textil	Small	Sí	-	1	-	45	100	50
S.P. Macorí	Textil	Small	No	-	-	-	-	-	-
S.P. Macorí	Textil	Medium	Sí	25	2	27	100	20	32
S.P. Macorí	Joyas	Medium	Sí	3	2.02	5.02	100	20	3
S.P. Macorí	Textil	Large	Sí	-	-	-	100	480	70

TOTAL	Yes	102	\$643.31	\$221.81					
PROMEDIO	No	<u>38</u>	\$8.35	\$2.34	\$12.08	87.01	190.53	96.23	
	Total	130							

APPENDIX C
INFORMATION SERVICES SECTOR

APPENDIX C INFORMATION SERVICES SECTOR

Current Operations

Currently there are three major information service operations in the Dominican Republic: Caribbean Data Services (CDS), the Dominican Telephone Company (CODETEL) and SDC. Caribbean Data Services, a subsidiary of American Airlines, is doing slower turnaround data entry work (source documents and computerized data transported by air freight). CODETEL, a subsidiary of GTE Corporation, is carrying out more sophisticated data conversion work in the area of computer-aided engineering design (CAD). They also pioneered the use of 800-number voice center answering services and have plans to do faster turnaround data entry work (source documents and computerized data transmitted electronically) in the future. SDC, a subsidiary of Westinghouse, is carrying out software design work.

CDS, located in San Isidro Office Park, is the only operation physically located in an IFZ. Aside from San Isidro Office Park, three other IFZs have specifically targeted information services as part of their promotional strategy: Itabo, Villa Mella (under construction) and Las Americas (under construction). CODETEL's information services operations are located in Santo Domingo and operate under CODETEL's bilateral contract with the Dominican government. CODETEL has also sought approval as a "Special IFZ" for its future data entry activities. SDC operates under a special extension of Westinghouse's operations in the Itabo IFZ.

Both Caribbean Data Services and CODETEL were interviewed during the course of this study. The following section discusses in more detail their specific labor and training needs.

Labor and Training Needs

Labor and training needs is one of the major factors affecting the productivity and expansion of CDS's data entry operations.² The most critical need of CDS is for unskilled/semi-skilled workers or "keyers". Leaders, supervisors and shift managers can be promoted from within current employees as the firm expands its operations.

² The major factor affecting CDS's productivity is lack of adequate transportation for workers in the zone. The problem has been addressed and partially resolved, but at a high cost to the worker. According to CDS calculations, the average worker spends approximately 16 percent of their salary on transportation.

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CDS is currently facing two major problems with keyers which has caused the firm to reevaluate its recruitment and training policy:

- o The productivity of keyers often declines with time as workers get sloppy, pick up bad habits or begin to experiment with established guidelines. CDS has had to invest additional funds in retraining these workers;
- o There has been a fairly high turnover among workers (20 - 25 percent), due to the rigid workschedule and opportunities for alternative employment in the growing financial sector in Santo Domingo. CDS is seen only as a temporary training ground.

As a result of these two problems, CDS is considering two alternative solutions: 1) recruit less qualified workers, which will increase initial training costs but lead to lower turnover rates as workers will be more interested in job security; or 2) keep the current recruitment standards, with the understanding that the high turnover will require the maintenance of a continuous training program.

One recommendation made by CDS was for USAID/HRD to assist in upgrading the Liceo Victor Estrella Luz (a state-owned commercial school) by providing computer hardware. CDS has been satisfied with the quality of students from the school, with most typing 60 w.p.m. However, they have limited, if any, experience with computers due to lack of hardware.

Keyers are not required to have previous computer or English training, although CDS prefers that they at least be familiar with the computer. Trainees must be able to type a minimum of 12 w.p.m. During the training period the trainees must increase their speed to at least 30 w.p.m.

Training is conducted in-plant by CDS staff over a 12-week period. It consists of practical training on the CDS systems and equipment and a one month apprenticeship. Training costs are approximately \$3,000 to \$4,00/year per worker.

Previous computer experience is also not mandatory for supervisors. However, they must be bilingual as they serve as a vital link between the English-speaking client and the Dominican workers³.

³ CDS in the Dominican Republic carries out contract data entry work for outside clients, unlike American Airlines operation in Barbados which handles only in-house work. Each job is slightly different in terms of its specifications. They must be thoroughly understood by the supervisor and communicated to the leaders and keyers in an effective and timely manner.

CDS currently employs approximately 300 persons. They plan to add one additional shift in 1988 and to double the size of their operations by 1989. The following table summarizes additional employment projections for 1988 and 1989:

PROJECTED EMPLOYMENT NEEDS FOR CDS, 1988 and 1989

	<u>1988</u>	<u>1989</u>
Shift manager	1	3
Supervisors	3-4	9-16
Leaders (semi skilled)	12	36
Keyers	120	360

Though not a major problem, CDS has experienced some labor problems (attempted strikes), partially related to the transportation problems. Management attributes this to the fact that their workers are better educated than the average worker in the apparel and assembly operations, and therefore have higher expectations of services which the employer should provide.

Unlike CDS, managers of CODETEL's computer-aided design operation do not consider labor shortages or training to be a major constraint to growth and expansion. In fact, management stated that they have actually had an excess of qualified workers.

CAD work is more labor intensive and requires skills superior to those of data entry operators. Normally, CAD firms require personnel with some engineering training, although they prefer that it not be too advanced as this encourages higher turnover. The major skill categories in CODETEL's operation are: keyers, supervisors and analysts (which prepare the information for keying). There are currently about 300 persons employed in this operation. In summary:

- o Keyers are students with background in architecture, design, computer science. CODETEL management estimated that there are approximately 7,000 students of computer science in Dominican universities at present time.
- o CODETEL initially had a problem with hiring of analysts. They were hiring 4th and 5th year university engineering which were overqualified. This led to a high turnover. Current analysts are normally 1st to 3rd year students.
- o The initial supervisors for the CAD operation were CODETEL employees brought in from other divisions. Supervisors are now promoted from within the current ranks of employees.

- o In the early stages of start up, CODETEL did have difficulty in finding certain technical staff. In at least 2 cases, when qualified candidates were found they were sent to the U.S. to further develop their expertise and have come back to train others.

As with CDS, CODETEL prefers not to hire personnel with outside computer training. It can take more time and resources to unlearn bad habits than to train a worker totally unfamiliar with computers. All training is conducted in-house. Initially, a packaged training or tutorial program was used and over time has been modified to meet the specific needs of CODETEL's operations. Analysts receive 4 weeks of training - 3 weeks in the classroom and 1 week of practical training on-the-job. Keyers receive general training.

CODETEL has plans to expand its computer graphics operation in 1988 and will require the following personnel: 1 administrator, 5 supervisors, 10 analysts and 40 keyers.

Growth Areas

Slower turnaround data entry and computer graphics/computer-aided design are the current growth areas for information services in the Dominican Republic. Other emerging sectors, according to a report by consultants to the Investment Promotion Council, are voice center operations, fast turnaround data entry services, translation services and software services⁴. Translation services is a small market.

Expansion into most of these areas by the Dominican Republic will depend on upgraded and competitively priced telecommunications services, as the data is transmitted by facsimile. The necessary upgrading has been accomplished through the construction of the Jupiter Teleport, located near Santo Domingo. This teleport, constructed by GTE/CODETEL, can provide the country with lower cost, higher quality telecommunication services, depending on final tariff rates which have not yet been established. Once the prices are established, these services will be marketed to all IFZs in the Dominican Republic.

The growth of voice center and quick turnaround data entry in particular will depend on prices set by the international telecommunications service provider (CODETEL or other private company). It is not recommended that USAID move to establish training programs to meet the needs of these industries until rates have been set. If rates established are competitive with U.S. rates, the growth of these industries will bring an increase

⁴ Please refer to "Sector Profile: Information Industries in the Dominican Republic", Investment Promotion Council of the Dominican Republic, November 1987.

in demand for bilingual secretarial skills, and more advanced English training (with an emphasis on verbal skills) for voice center operations.

Employment Projections

With an aggressive telecommunications pricing strategy, it is estimated that 10,000 jobs could be created in the information services sector over the next 10 years. Current CDS and CODETEL operations are large by industry standards - the average offshore data entry operations employs 100 workers compared to 200 for CODETEL and 300 in the case of CDS. However, 100 has proven to be a manageable operational size, and pool of future clients as large as CODETEL and CDS is quite small. Using the industry average of 100 as a guide, approximately 100 new firms would be expected to install in the IFZs during the next 10 years.

APPENDIX D

IFZ PERSONNEL AND RECRUITMENT SERVICES

APPENDIX D
IFZ RECRUITMENT SERVICES IN THE DOMINICAN REPUBLIC

Recruitment services offered by the industrial free zones (IFZ) in the Dominican Republic range from simple manual systems to more complex screening and maintenance of computerized data banks. Most of the IFZs offer basic assistance to candidates in filling out employment applications, and make those applications available to firms upon request. This work is usually carried out by the receptionist and/or secretaries in the zone administrative offices.

The new, "higher end" zones such as San Isidro and Itabo also offer initial screening of candidates and employ full time Recruitment and Personnel Directors. The San Isidro Office Park and Industrial Free Zone maintain a Personnel Office outside the zone, in the Ozama area. The office is open five days a week, from 8 - 5 p.m., and provides a convenient alternative to applicants who would otherwise have to make the longer trip to the zone. The office recruits personnel and carries out initial screening of applicants through appropriate aptitude, dexterity, psychological and English language testing. Information on available candidates is maintained in a computerized data bank by job type, level of experience and name. Client firms in the Office Park and IFZ are charged a flat fee for each person recruited through the Personnel Office.

Initial recruitment in San Isidro was conducted through door-to-door canvassing in the eastern neighborhoods of Santo Domingo (Ozama, Villa Duarte, Las Americas, Los Minas, San Isidro, Maney). As a result, approximately 15,000 applications for unskilled, semi-skilled and skilled positions were received. Recruitment in other IFZs has also been done through radio and newspaper advertising. In Bani, 3 days of radio announcements regarding openings in the new free zone attracted 5,000 applicants.

APPENDIX E
SUMMARY OF TRAINING CENTERS VISITED

APPENDIX E
SUMMARY OF TRAINING CENTERS VISITED

1. FORMAL, HIGH SCHOOL LEVEL TECHNICAL TRAINING INSTITUTIONS

<u>Instituto Tecnico Salesiano</u>	340 Students
Contact: Padre Julio Soto	Santo Domingo
Areas of Training: Electronics	March 7, 1988
Electricity	
Metal Mechanics*	
Graphic Arts	
(Includes Welding)	

Strengths: Well run center with 4 Salesian priests and access to Salesian's world wide vocational-technical curricula network. Nearly 100% job placement of graduates with generally well equipped shops and dedicated teaching staff. Individualized training materials are used in electricity and electronics (Phillips). Production is integrated with instruction to help cover educational expenses, employing 12 instructors and approximately 30 workers.

Weaknesses: Budget limitations which do not allow the institution to offer more than one training shift (in the formal mode) from 7:30 A.M. to 4:00 PM and shortages of shop materials for training. Welding shop does not appear to receive much use, as compared to other shops. Individualized training materials in electronics and electricity are very dated (1972).

Observations: This center is currently only offering one shift of training on the formal, secondary level with no nonformal or evening programs. The institution is willing to contract training for Fee Zone (FZ) firms as long as contracts are clearly defined with appropriate resources being provided for training.

They have a small computer lab with 20 computers and are integrating computer instruction with all areas of study, as a complementary tool for a skilled trades person or supervisor. However, Graphic Arts does not have computerized desk top publishing or type setting. Similarly, metal mechanics has no CAD-CAM equipment or software, but this technology is reportedly being used by some FZ firms.

The welding shop has no MIG, TIG or flux core welding capability. It can be argued that existing equipment meets current needs for training young people as precision mechanics who eventually work themselves into supervisory positions because these graduates are rarely employed as welders. However, if nonformal training is to be offered in the evenings and on weekends, and to assure that other metal mechanics students are familiar with modern welding techniques, equipment updating should be considered for this shop.

The electronics lab lacks communications training equipment and digital electronics training stations are limited (5 micro processors).

Instructors are often former graduates of the institution have had some private sector experience. Technically these instructors seem to be well prepared but the pedagogical preparation of these instructors has been minimal. Appropriate, short-term pedagogical training could help enhance the quality and efficiency of training.

Instituto Politecnico Loyola

2,500 Students

Contact: Director of Voc. Ed; Senor Polanco

San Cristobal

Areas of Training: Primary School

Secondary School (Academic & Technical)

Electricity

Electronics

Metal Mechanics

Diesel Motor Mechanics

Strengths: A very well run school with a staff of 16 Jesuits and nearly 100% job placement. A strong community outreach program with three levels of nonformal skill training (1) INFOTEP programs taught by IPL instructors; (2) private sector contracted training; and (3) other nonformal programs organized by IPL.

Generally well equipped shops, dedicated instructors, and vocational technical programs in two shifts 7:45-1:45 (Formal) & 4:00-8:30 (Nonformal) and Saturdays for additional nonformal training. Electronics students are using English language training materials by their final year of studies, which makes these graduates particularly valuable because of their ability to read equipment manuals in English for servicing and repairing equipment.

Weaknesses: Wood working, welding, metal mechanics, and foundry shops are dated. Foundry, wood working, and welding shops do not appear to receive much use, as compared to the shops. Like many other centers, there is a relatively high staff turnover rate of technical instructors because of low salaries.

Observations: While this institution already has a program for contracted training, they are also open to doing more in this area. They could benefit from shop equipment updating, in most of the same areas mentioned above for the Instituto Tecnico Salesiano. Also, like the Salisian training center, short term instructor training programs could be beneficial because this institution also hires its own graduates as instructors, instructors have little pedagogical preparation, and the turnover rate for instructors is 4-5 years.

This center is also very interested in obtaining assistance for financing nonformal training for low income students. Current

provisions for student loans require financial guarantees which many lower income people cannot provide.

The center would also appreciate assistance in developing closer ties with industry for obtaining training materials for students.

Politecnico Nuestra Senora de la Merced

2,000 Students

Contact: Madre Sebastiana Estebez

Santiago

Areas of Training: Primary School

March 8, 1988

Secondary School

(Academic and Technical)

Accounting

Sewing

Cosmetology

Strengths: Well run school, recognized as providing quality education and confirmed by high job placement rates for those who choose to practice their trades. In addition to the traditional academic, secondary accounting and secretarial programs, this politecnico offers nonformal training using individualized training programs for sewing; allowing students to learn at their own pace.

Weaknesses: Although many of the nonformal sewing graduates obtain employment in the FZ or are currently working in the FZ, the school has no industrial sewing equipment. Recently, an FZ firm offered to provide several industrial sewing machines but the school has not yet received the equipment. They have also had difficulty in supplying sufficient material for students.

Requisites for receiving training are based on academic achievement (completing the 8th grade) which may be disqualifying many people who have the capability of becoming very productive machine operators. Normally, training participants for this type of training, for employment in apparel industries, are selected on the basis of manual dexterity test rather than academic achievement levels.

Observations: Nonformal training programs in sewing are offered in the afternoons and evenings. The same religious order has a small nonformal training facility in a poorer section of town, training young women in sewing, many of whom obtain employment in the FZ. This smaller training facility could also use additional resources (training equipment and student selection materials). The Director also expressed her interest in contracting training for FZ firms, providing that the required resources, and establishing closer ties with the private sector.

Escuela Salesiana de la Vega
Contact: Padre Romero
Training Area: Agriculture

200 Students
La Vega
March 58, 1988

Strengths: This school is located directly in front of the La Vega FZ and has excellent facilities for agricultural instruction.

Weaknesses: Traditionally, most of the school's graduates were hired by the government as agricultural extension agents. Over the past several years, however, the government has not been hiring additional employees in this area. As a consequence, only about 50% of the school's graduates obtain employment.

Observations: The school is interested in diversifying its course offerings, preferably in agro-industrial areas, and also developing production activities which could cover a larger portion of their recurrent costs. Technical assistance in these areas could be particularly beneficial for the future of this center, for exploring formal and nonformal training and technical assistance opportunities for meeting regional development and training needs.

School personnel have attended several meetings with FZ firms and have expressed their willingness to assist in training programs but the FZ firms have not been clear on their training needs or contractual arrangements for providing training. While the school has only one classroom/shop available for training and no equipment or instructors for training industrial sewing machine operators, Father Romero expressed his willingness to enter into a contract relationship with FZ firms and search out the required resources if the contract would clearly state what training is to be provided and cover the school's expenses.

2. Nonformal Training Institutions*

*Note: Two of the institutions mentioned above (Instituto Politecnico Loyola and Politecnico de Nuestra Senora de la Merced) also offer nonformal training.

<u>Escuelas Vocacionales de las Fuerzas Armadas</u>	3,208 Students
Contact: Col Richardson	Santo Domingo
Areas of Training	Bani
	Barahona
Refrig. & Air C.	Romana
Radio/TV Repair	Victoria*
Tailoring	Miches
Dress Making	Moca
Welding	Nagua
Upholstery	Pimental
Plumbing	San Pedro
Motorcycle Mech.	Santiago*

*(Prison School)

Strengths: These are well run schools with community outreach programs for enrolling young people and adults who are seeking to learn a trade in a short period of time (9 months), with civilians making up about 90% of the enrollment. Completion and job placement rates are high, and estimated to be about 90% and 80% respectively.

Weaknesses: Classes begin at 8:00 AM but shop facilities are normally not in use after 1:00 PM. While the 9 month training period is attractive for people seeking a quick training program for obtaining employment, extending the training day until 4 or 5 PM could assure that students would reach higher level of proficiency in their trades.

Observations: INFOTEP funding or FUNDAPEC'S student loans could allow these schools to extend their training day and offer additional courses in the evenings. Personnel in Santo Domingo expressed interest in meeting with FZ firms to help fill training needs and would consider redesigning some of the schools' training curricula based on FZ employment opportunities.

This network of schools could be a very important resource for meeting some FZ training priorities because of the number of schools in various geographic locations. The school in Santo Domingo also has some excellent training equipment (Lab Volt for Industrial Electricity and Radio/TV Repair; and Tecnovate for Refrigeration & Air Conditioning), but they do not have all of the accompanying training manuals for this equipment.

INFOTEP

7,000 Students

Contact: Ing. Eddy Matos; Dir. of Operations
Areas of Training: All basic training areas

Santo Domingo
Mobil Centers

Strengths: INFOTEP funds nonformal training programs in other training institutions and also contracts special instructors for meeting special needs. This major source of financing could be extremely important for meeting FZ and other private sector training needs.

Weaknesses: At 9:30 AM very few shops at the national center were in use and some shops reportedly receive little use throughout the year. Comparatively high training costs at about L.P.60 per participant hour of instruction, the highest training costs recorded of any of the institutions visited. (Note: It was not possible to identify capital investments or obtain other information on the current budget; calculations were based on budgets from former years and this year's courses were made by the contractor and 6,500 people in skill upgrading courses estimated to be approximately 90 hours in length by INFOTEP personnel).

Observations: The INFOTEP personnel interviewed were not able

(or willing?) to provide information on their budget, operating costs, or capital investments. Their annual report for 1986 is still under preparation and the last available report is for 1985. It was also explained that INFOTEP did not have to respond directly to all of the private sector's training needs or priorities because the private sector also has a responsibility to do its own training.

When asked if they would then consider reducing private sector payroll taxes when an individual firm financed its own training programs, as allowed under the INFOTEP law and Reglamento No. 1984, it was explained that the private sector had to meet its responsibilities for training as well. While it would be difficult to argue that an institution like INFOTEP does not have social responsibilities or should not serve the nation's society as a whole, there did not appear to be a great deal of enthusiasm for responding directly to private sector training priorities. This is a disconcerting position for an institution to take, when it receives its financing from a 1% payroll tax on employers and a 0.5% tax on employee's wages.

On the more positive side, INFOTEP is establishing two mobile apparel industry training facilities which will be able to go directly to FZ locations for both job entry level and skill upgrading training. INFOTEP's supervisor training program is also an important resource. This course was developed based on the Colombian SENA model, which is respected throughout Latin America, and INFOTEP instructors are also contracted by APEC University to provide supervisory training.

Another very important training resource which INFOTEP can offer is through contracting existing centers for delivering training programs, as they are doing with the Institute Politecnico Loyola. Through this mechanism INFOTEP could assure that training needs will be met for all existing FZs and those under construction; using Liceos, colegios, or even warehouses with contracted training. Under a strategy of this type, INFOTEP should not be encouraged to build additional training centers but make more appropriate use of existing centers and other public sector buildings which can be used for vocational-technical training.

Instituto Dominicano de Tecnologia (IDT)

Contact: Ing Eduardo Sagredo

Areas of Training: Diesel Mechanics

Electricity

Metal Mechanics*

Computer Maintenance & Repair

*(Includes Welding)

1,000 Students

Santo Domingo

Strengths: This nonprofit training center offers an important training option for lower income students. It is a good example of what can be done on a very limited budget at a current cost of about P.500 per annual participant, with no public sector subsidy. The nonformal mode of instruction also benefits young people and adults who do have the time or the academic background for enrolling in a formal vocational training institution.

Weaknesses: Facilities and equipment are very limited. Investments are needed for improving the quality and relevance of instruction. With 1,000 students and about 200 graduates per year, this suggests a low completion rate of about 50%.

Observations: A job entry level training alternative of this nature is very important for young people and adults who cannot meet requisities for enrolling in formal or more advanced nonformal educational institutions. An investment of approximately P.3,000,000 could provide much improved facilities and equipment while doubling the institution's training capacity from 1,000 to 2,000.

Calculating the depreciation of these investments over 20 years for buildings and 8 years for equipment, with a soft interest loan, should not increase annual participant training costs by more than L.100 while improving the quality of instruction significantly. Instructor training and curriculum upgrading investments should also be encouraged for improving what appears to be low internal efficiency (high dropout rates). This center is also willing to contract training for FZ firms but until upgrading investments are made, it is doubtful that they could meet many of the FZ firms' needs.

Instituto Gregg

Contact: Rosa de Herrera

Areas of Training: Bilingual Secretary
Typing
Drawing
Social Graces

700 Students
Santo Domingo

Strengths: This proprietary school is run as a nonprofit institution. Initial job placement services and follow-up job placement services are provided for graduates. Bilingual secretaries are trained within a relatively short training period (17 months), with about an 80% completion rate and nearly a 100% job placement rates for graduates.

Weaknesses: Students must complete their high school training (Bachillerato) to enroll at the Gregg Institute, and this restricts admissions for lower income groups. Similarly, dependence on U.S. textbooks in some areas and the P.135 monthly tuition rate can become a heavy financial burden on lower income families.

Observations: While some facility upgrading could be made, this is not the key for the success of this institution. The personal attention and care given to facilities and instruction has made comfortable learning environments within existing limitations. This institution is also prepared to contract its services to FS firms, and provide trained bilingual secretaries.

Tecnologia y Sistemas (TESIS)

780 Students
Santo Domingo

Contact: Lic. Anibal Perez (Director Academico)

Areas of Training: Electricity
Electronics
Refrigeration
Industrial Technician
Accounting
Bilingual Secretary
Commercial Secretary
Executive Secretary

Strengths: This nonprofit training center was founded in 1982 in the industrial zone of Herrera which has over 200 industries. Based on interviews with surrounding industries, TESIS recently developed a new course offering (Industrial Technician) which included electricity, electronics and refrigeration. Tuition costs are very low at P. 25 per month. The center serves low income, unemployed students and while the facilities are limited, they are well cared for. This is another example of what can be done on a very limited budget without receiving public sector subsidies.

Weaknesses: Internal efficiency is low with about a 40% annual dropout rate. External efficiency is also low with about 60% of TESIS graduates practicing their trades.

Observations: Technical courses are only one year in length, five hours per week, with less than 250 hours of instruction. This is a very limited time for teaching a person a trade and low placement rates are one of the consequences. Non-the less, this type of a training center reaches low income sectors of society which under other circumstances might not have an opportunity to learn a trade. Strengthening the curriculum and giving several exit points could have a positive effect on retention and job placement rates. Equipment investments, curricula upgrading, and instructor training should be considered for improving the internal and external efficiency of the institution. The center is willing to contract its services to the private sector and has done some work in this area. However, it is doubtful that this center could meet FZ training needs without additional resources.

3. Post-Secondary (University) Training

Universidad Catolica Madre y Maestra
Contact: Vice-Rector for Academic Affairs

10,500 Students
Santiago

Strengths: The university has organized a Center for Entrepreneurial Studies and Services (CEYSE) with the goal of contracting its training and technical assistance services to the private sector in technical areas (machine operation, automotive/diesel mechanics, electronics, industrial mechanics, tourism, etc.) and in administrative/supervisory areas.

The university is also considering beginning a Bachillerato level technical training program and has 3 sub-campuses for extending its radius of influence.

Weaknesses: Although the university's facilities are relatively new and well cared for, the laboratory and training equipment available is dated in some areas. They would like to get into CAD-CAM and telecommunications technologies but lack the equipment and training. Similarly, they sense a need for continuing exchanges with more advanced universities for upgrading personnel and training new instructors. The university also experiences some difficulties in holding on to well qualified faculty members because of higher pay scales in the private sector -- which makes exchanges and the training of both existing and new faculty members more urgent.

Observations: The university organized a seminar last year for the apparel industry to establish closer ties with FZ firms. They have also been conducting interviews with FZ firms on electronics and electro-mechanical training needs. Several years ago, four firms were considering coming to an FZ and had offered to provide the equipment for the university to train middle technical level personnel who would be employed by the firms. Apparently, a factor in the firms not deciding to locate in the country was the lack of this installed training capability. Similarly, the university hoped to establish a program for training people in the maintenance and repair of industrial apparel industry equipment but a lack of funding for equipment prevented the university from implementing this program.

The university is very interested in contracting its training services in technical and supervisory training curricula should be encouraged.

University personnel also noted that FZ firms do not seem to be very well organized for requesting technical assistance or training as a group, but tend to approach the university on an individual basis. While these individual contacts should also be encouraged, there would be opportunities for economies of scale if several firms with similar needs could obtain training under a contractual agreement.

The university might also be a good choice for providing instructor upgrading training for vocational training centers through its Department of Education. This department is also interested in developing Competency Based Instruction (CBI) capabilities for needs in both training center and industry specific training. (Note: the Honduran Council for Human Resource Development (AID Project 522-0257) could provide training materials (written and audio-visual), curriculum development and instructor training guidance in Spanish by late 1988). However, if CBI and instructor training are to be considered for this university, it would be advantageous to involve personnel for EEBC, INFOTEP, the Salesians and Jesuits on the work team to encourage both a wider dissemination and acceptance of the training materials which evolve and take advantage of the existing resources and experiences.

Universidad APEC

March 11, 1988

Contact: Rafael Romero (Director of Technology and Engineering)
Noris Cespedes (Director of Secretarial Courses)

Areas of Training: Normal University Offerings
Supervisor Training
Bilingual Secretarial Program
Electronics

Strengths: UNAPEC offers a 2 year associate or technical degree in electronics (6 trimesters), and engineering degree (9 trimesters), and bilingual secretarial training with high job placement rates. Instructional costs are low at just P.1.3 to P.2 per participant hour of instruction. They also have various university extension courses for meeting FZ and general private sector for diagnosing training needs and designing programs to meet these needs. Additional community outreach programs could be provided with appropriate resources.

Weaknesses: Although the bilingual secretarial program has very high job placement rates, it has not received appropriate attention, has low enrollments and has high dropout rates because of difficulties with the English language. Curricular reforms and equipment upgrading are required. The university also needs equipment upgrading to expand its offerings in quality control and industrial maintenance.

Observations: UNAPEC is an important resource for meeting FZ and general private sector training needs on both the job entry level and for skills upgrading. Investments for meeting these needs should be encouraged.

Personnel expressed interest in revising the bilingual secretary curricula and investing in an improved language laboratory and computers for word/data processing. If enrollments and completion rates can be increased these investments would be warranted. Current instructional costs are quite low at just

P.1.3 per participant hour of instruction.

UNAPEC is also prepared to offer programs in quality control, electronics, telecommunications, and industrial engineering but will require appropriate resources for doing so. Investments in these areas should also be encouraged.

Universidad Tecnologica de Cibao
Contact: Lic. Holguin

1,800 Students
La Vega
March 8, 1988

Strengths: This young university (1983) has very good private sector ties, making use of private sector industry shops for several of its university level training programs; placing emphasis on supervisory and technical skills. They have developed a two year, post secondary, associate degree program for technicians based on a survey of training needs with both FZ and non-FZ private sector firms. They also hope to begin a two year nonformal or secondary (formal) training program for "peritos" in electricity and mechanics this year, beginning in July. They are doing a great deal with very limited resources with costs of only about P.800 per participant semester. Very high job placement rates for graduates were reported by university personnel (97%).

Weaknesses: This small university was established to reduce unemployment and meet private sector training needs. Given this initial orientation and purpose, the institution is not restrained by traditional university norms or traditions, shows more innovation than many U.S. community colleges and is providing instruction at a cost of P.800 per participant semester.

Investments in these types of institutions, and also in the nonformal training centers mentioned above, should be encouraged. But they should be considered very carefully not only on the basis of cost-benefits as compared to larger institutions, but also in the light of how certain investments might foment more traditional, more costly and less flexible curricula and training strategies -- thereby threatening the innovative nature of these institutions.

APPENDIX F
FOCUS GROUP TECHNIQUE

APPENDIX G
BIBLIOGRAPHY

APPENDIX G
BIBLIOGRAPHY

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APPENDIX H

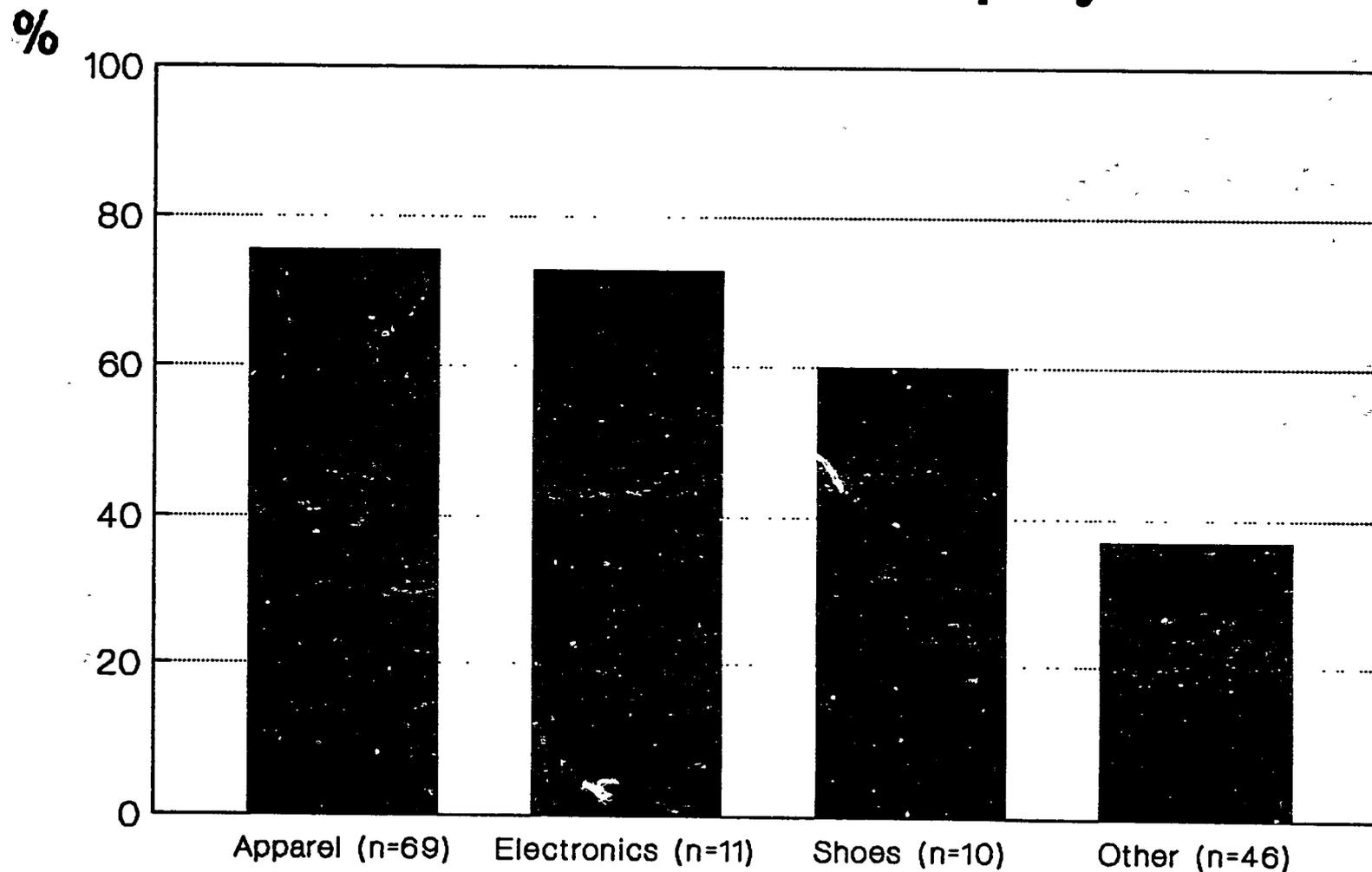
FIGURES AND TABLES NOT REFERENCED IN THE REPORT

SURVEY SAMPLE BY LOCATION, SIZE, ECONOMIC ACTIVITY

<u>Location</u>	<u>Apparel</u>			<u>Elec/Electronic.</u>		
	<u>Sm.</u>	<u>Med.</u>	<u>Lg.</u>	<u>Sm.</u>	<u>Med.</u>	<u>Lg.</u>
Bani	3	2	-	-	-	-
San Isidro	-	1	-	3	-	-
Itabo	1	-	-	-	2	1
S.P. de Macoris	5	13	1	1	-	-
La Romana I,II	-	3	6	-	1	1
La Vega	6	2	-	-	-	-
Santiago I,II	1	13	5	-	1	-
Puerto Plata	-	1	1	-	-	-
Herrera	-	2	2	3	-	-
Total	16	37	15	7	4	2

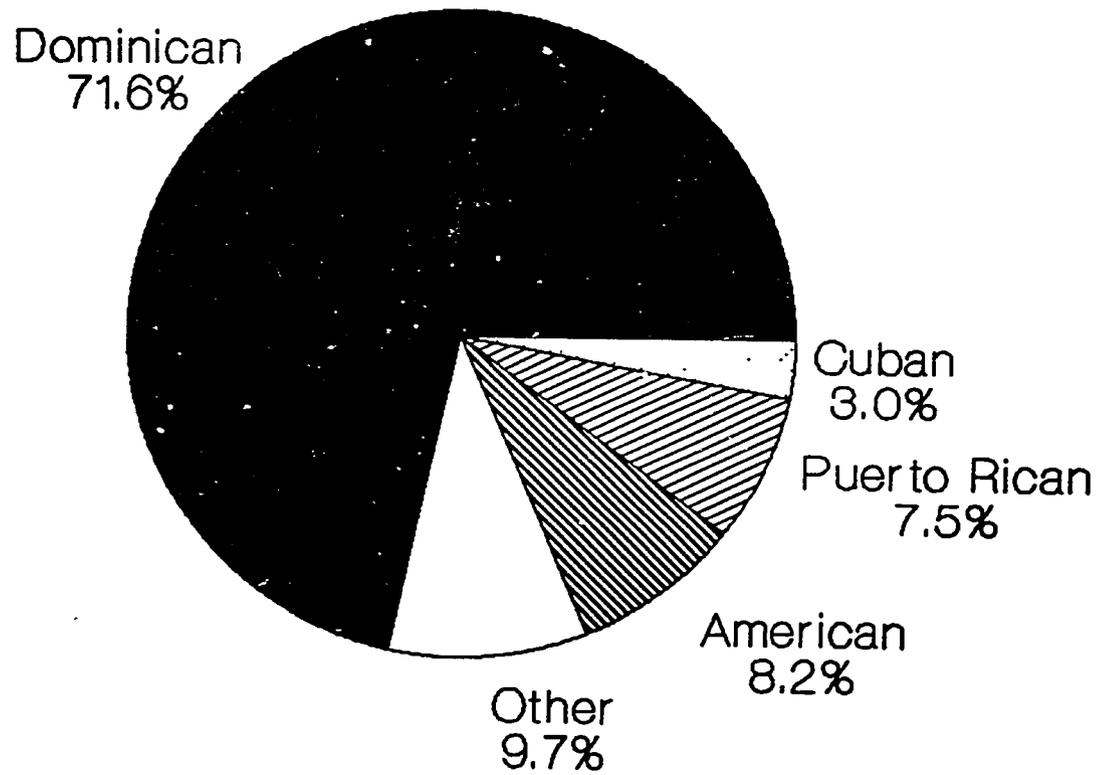
<u>Location</u>	<u>Shoes</u>			<u>Other</u>		
	<u>Sm.</u>	<u>Med.</u>	<u>Lg.</u>	<u>Sm.</u>	<u>Med.</u>	<u>Lg.</u>
Bani	-	-	-	1	-	-
Itabo	-	-	-	1	-	-
S.P. de Macoris	1	1	3	11	4	-
La Romana I,II	-	-	-	-	1	2
Santiago I,II	1	-	3	4	7	-
Puerto Plata	1	-	-	2	1	-
Herrera	1	-	-	8	2	-

Proportion of Firms Having More Than 50% Female Employees



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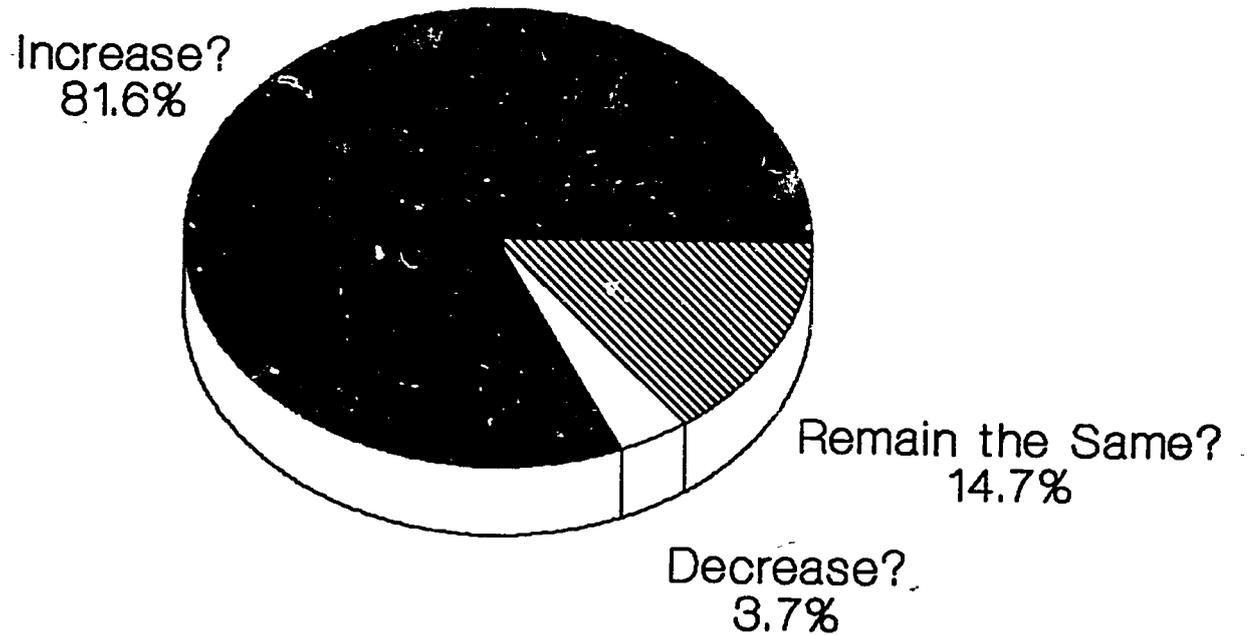
Nationality of Manager (n=136)



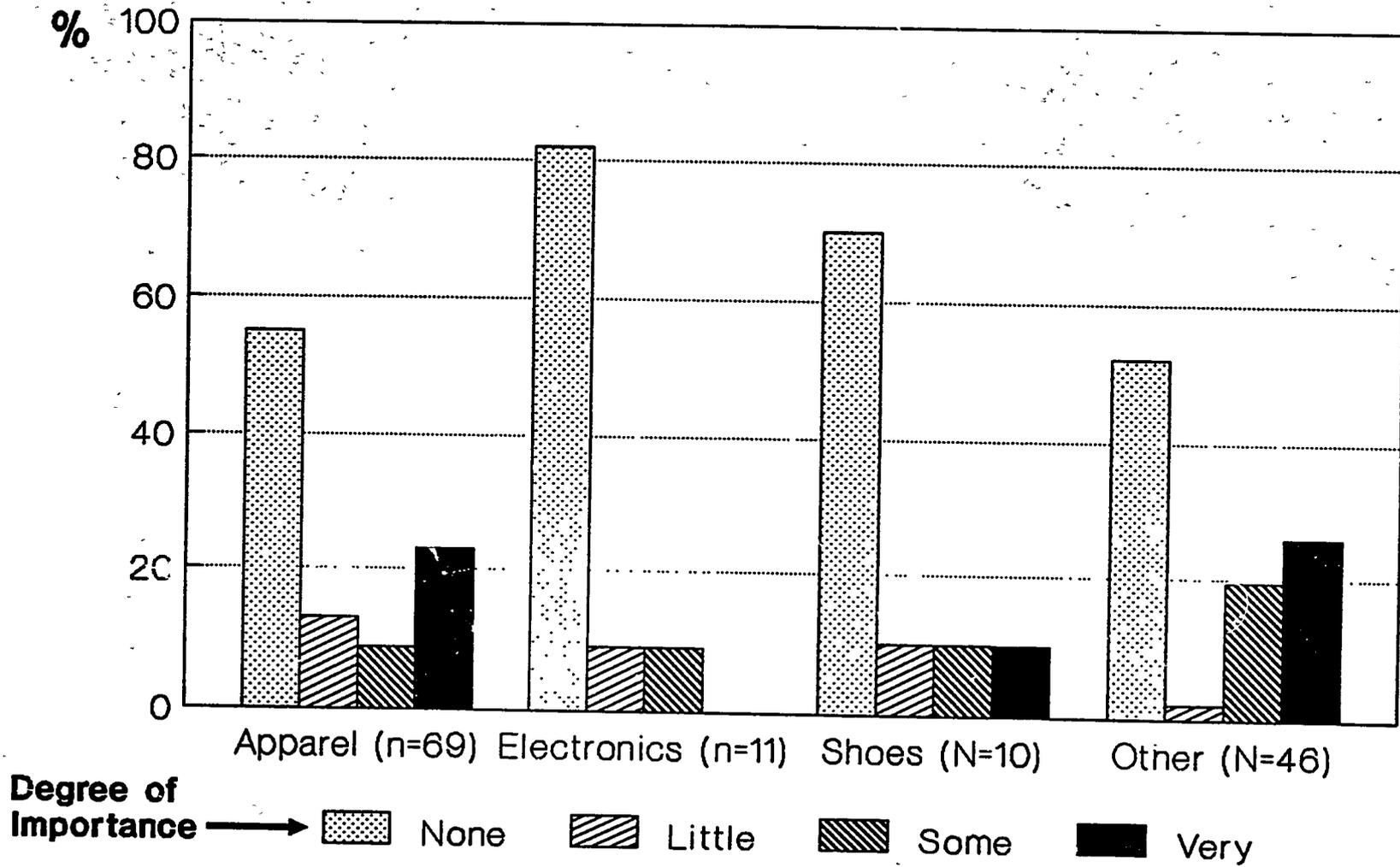
Business Expectations for 1988

"Do you expect your business to..."

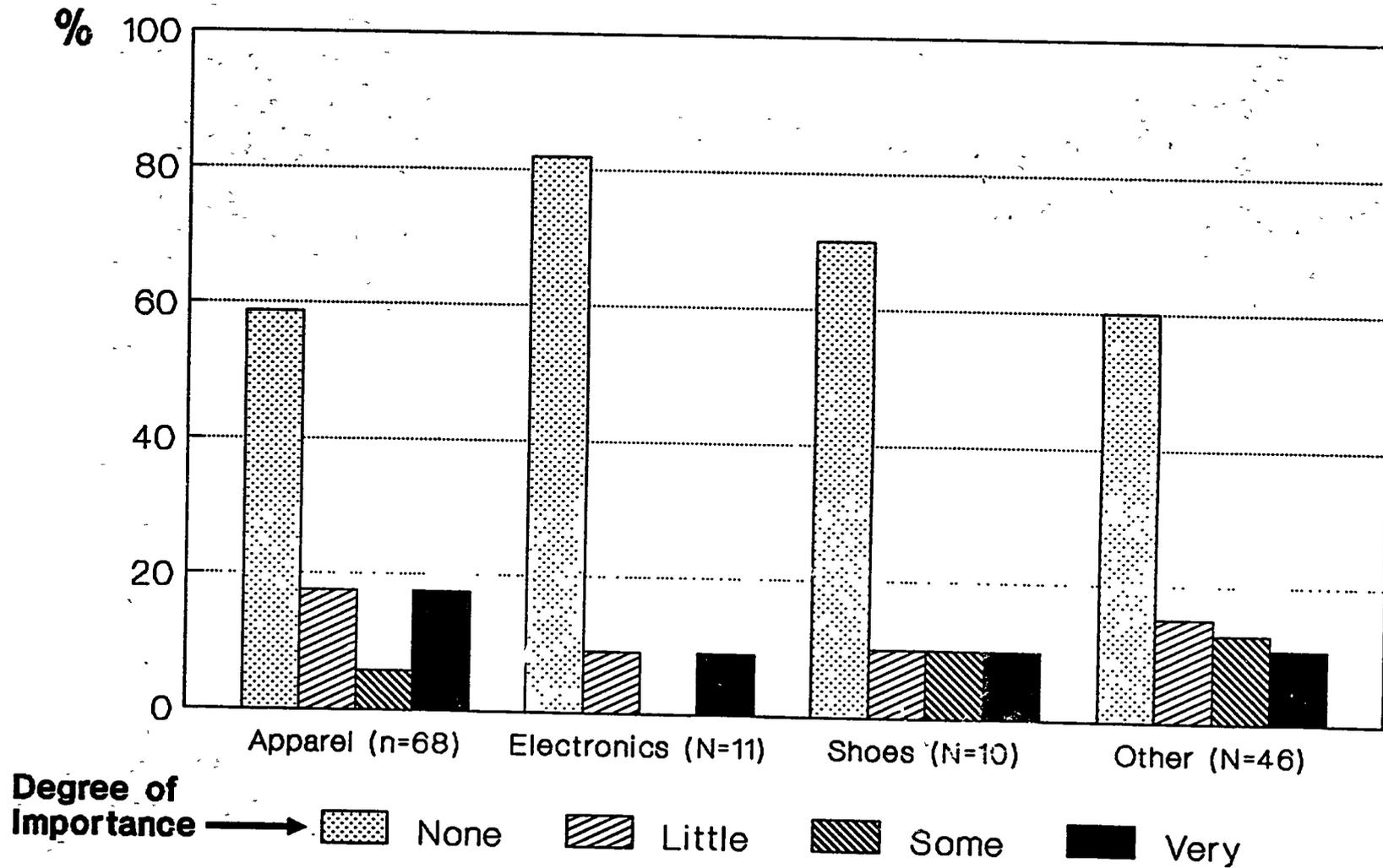
(n=136)



LACK OF CAPITAL By Economic Activity

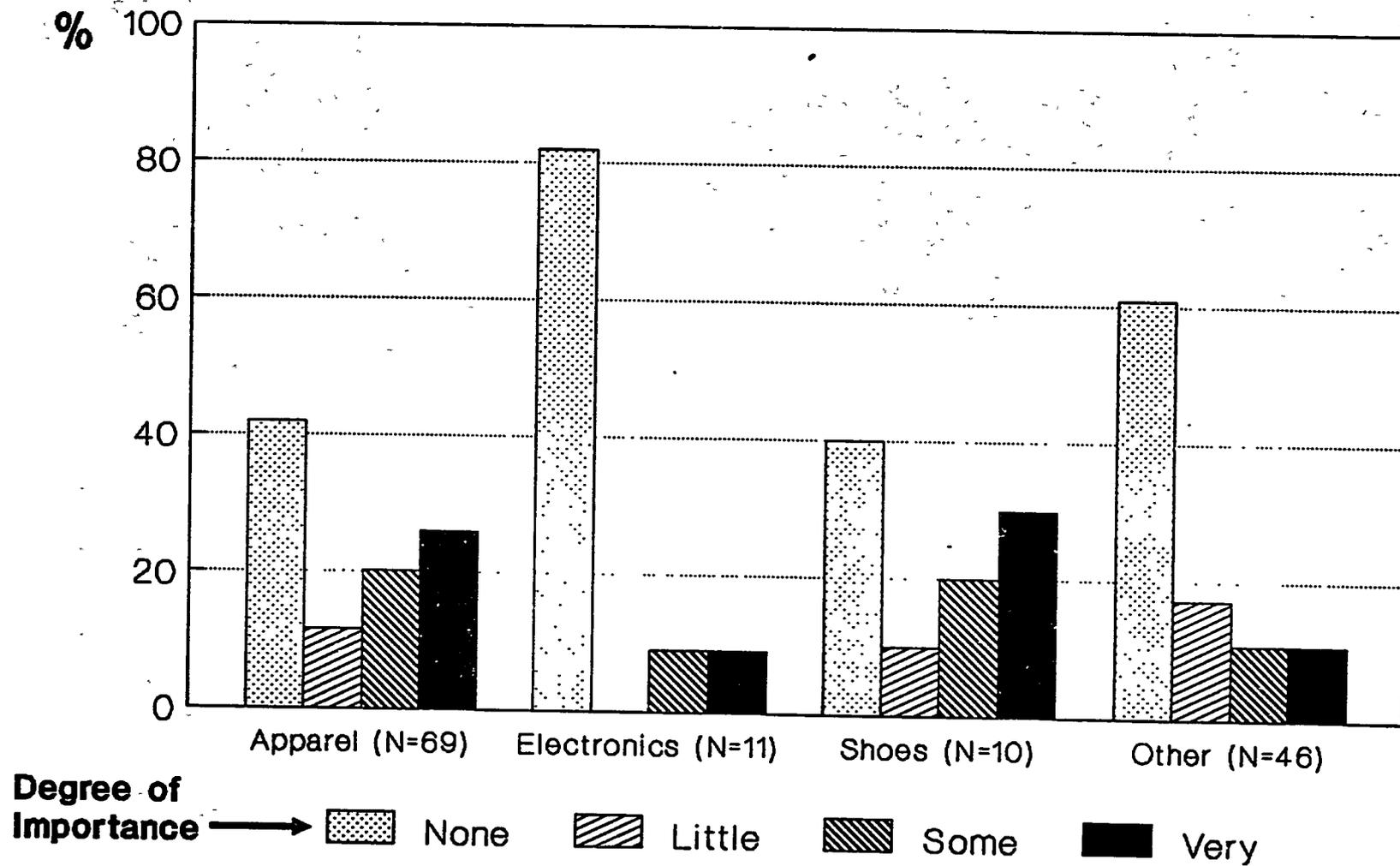


LACK OF MARKET By Economic Activity

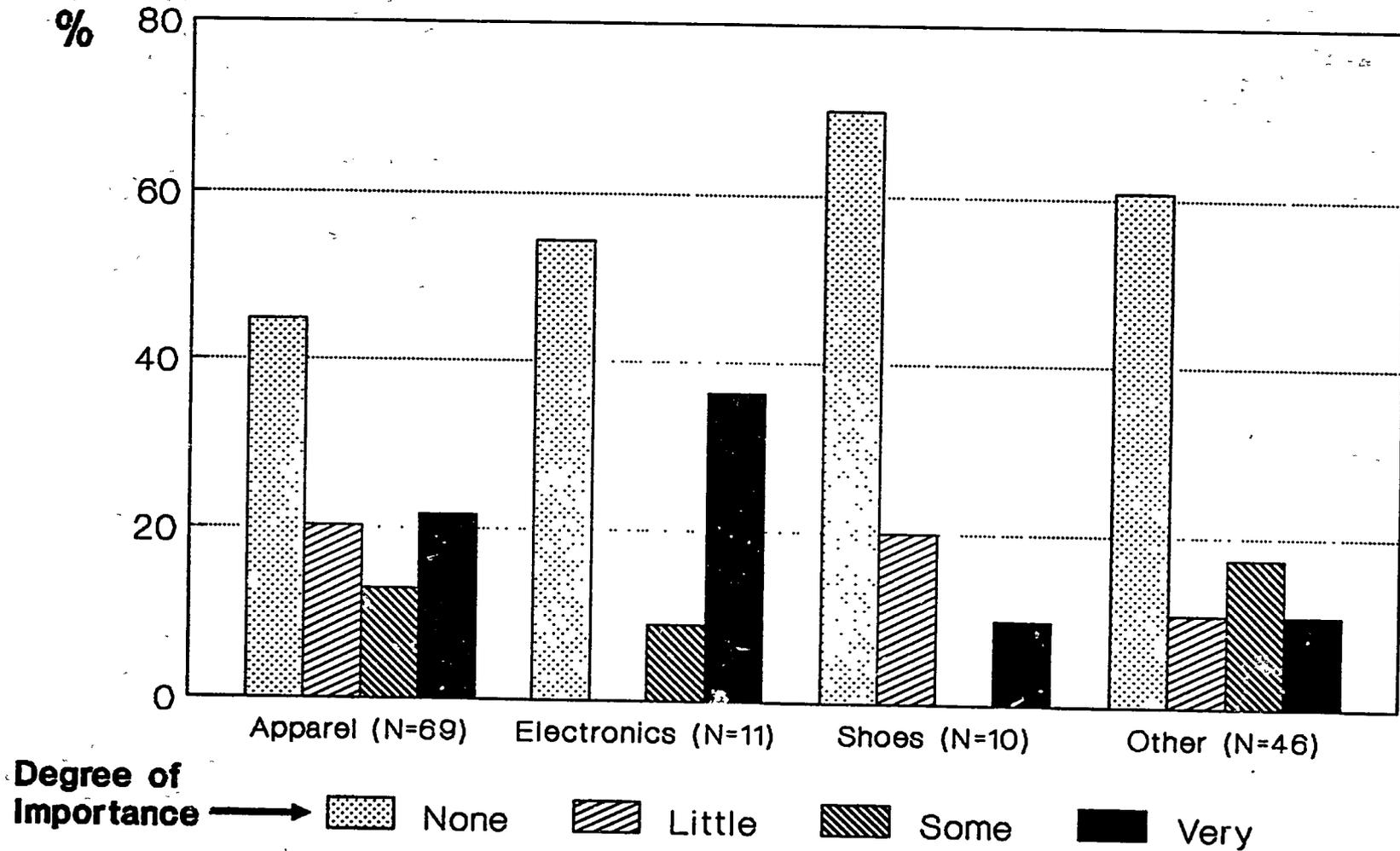


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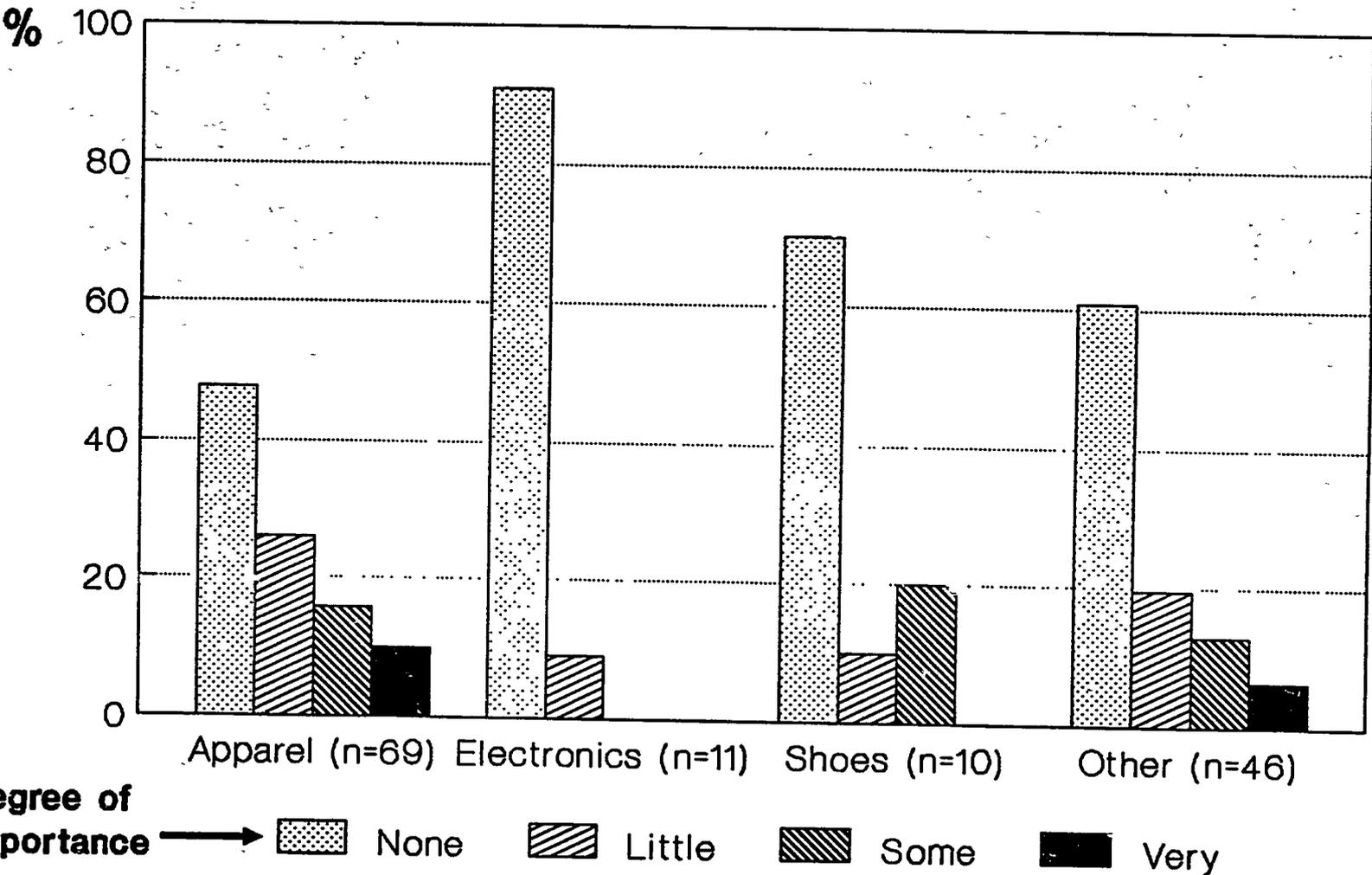
LACK OF SPACE By Economic Activity



IMPORT RESTRICTIONS By Economic Activity

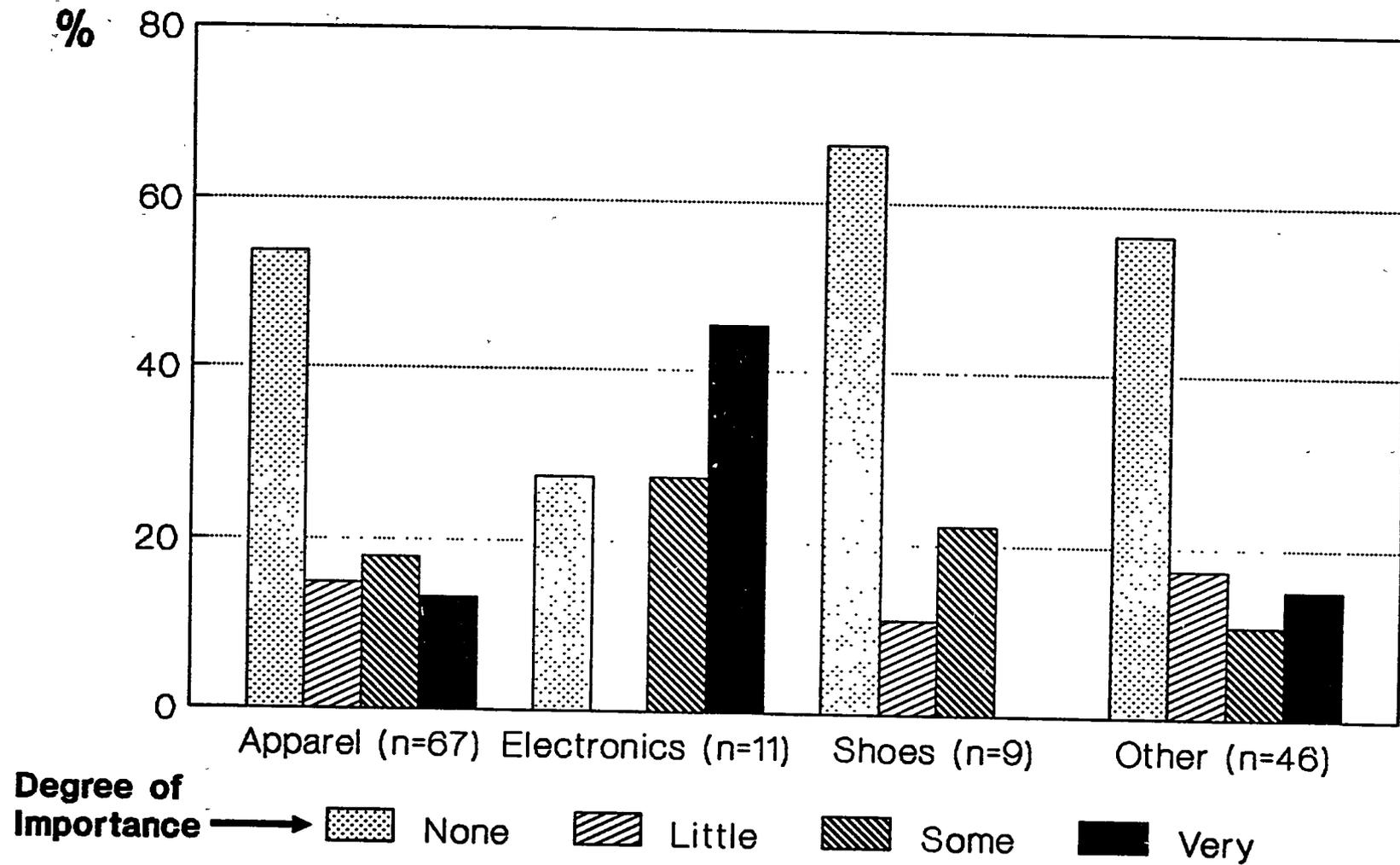


LABOR PROBLEMS By Economic Activity



GOVERNMENT CONTROLS

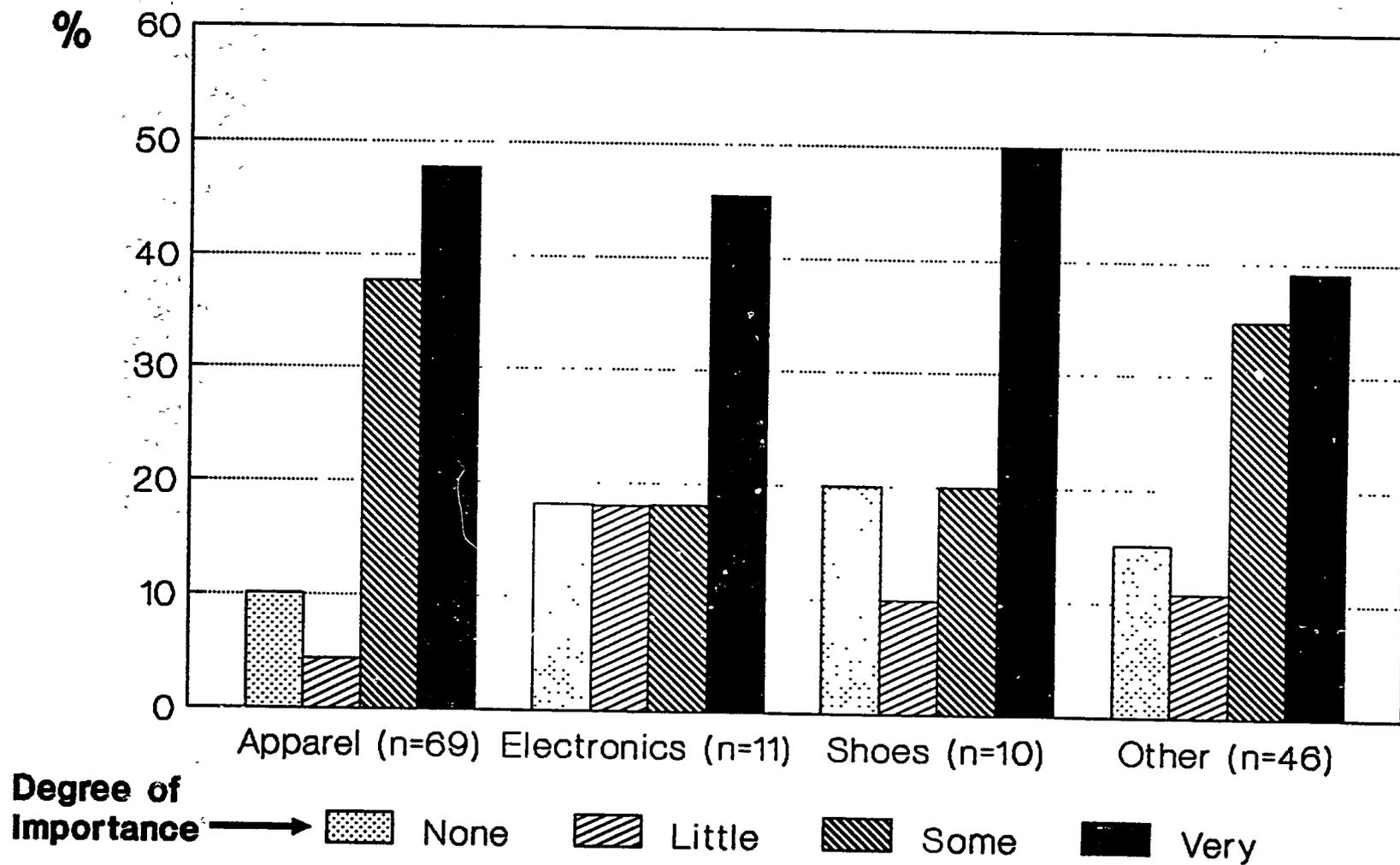
By Economic Activity



199

LACK OF SKILLED LABOR

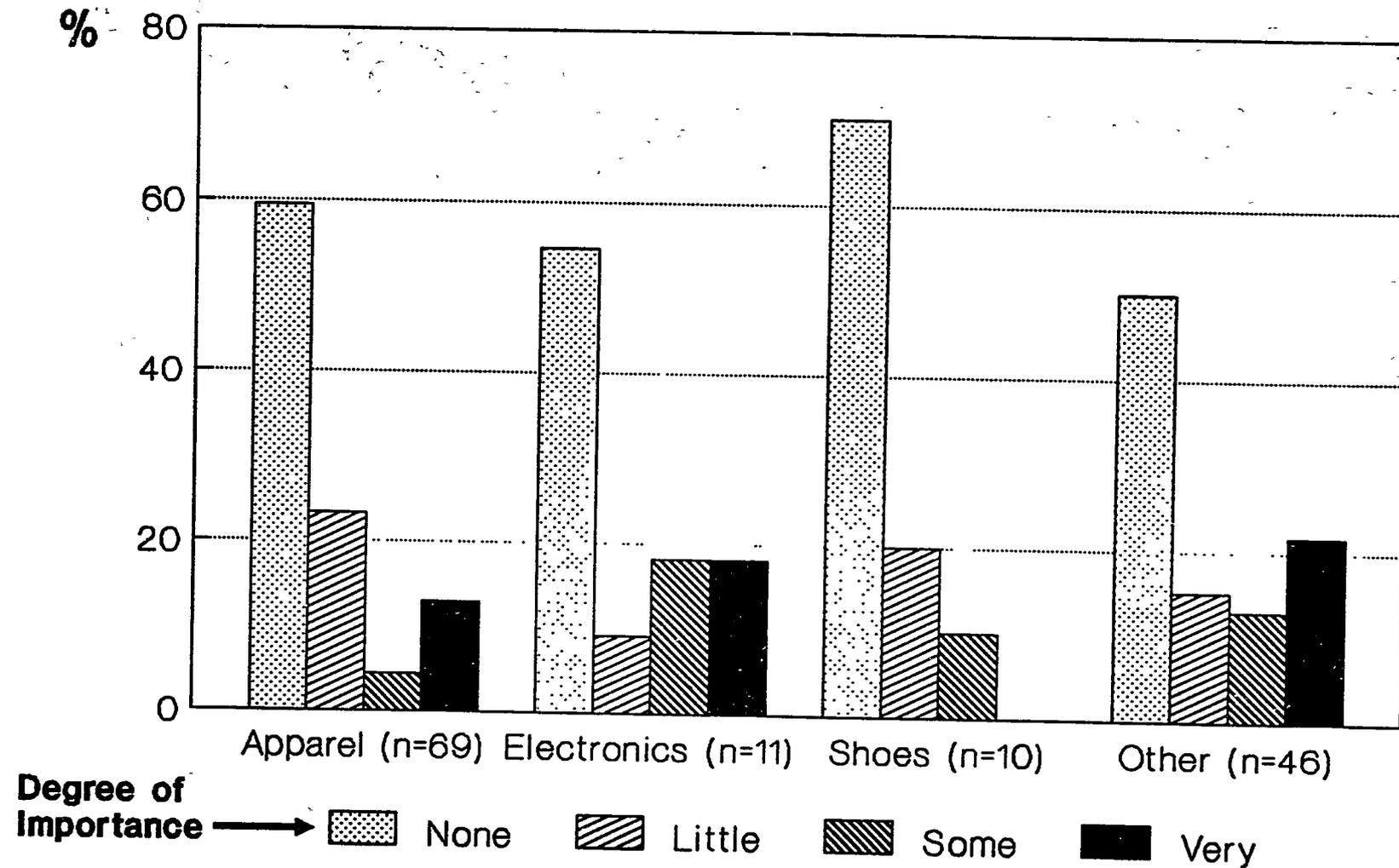
By Economic Activity



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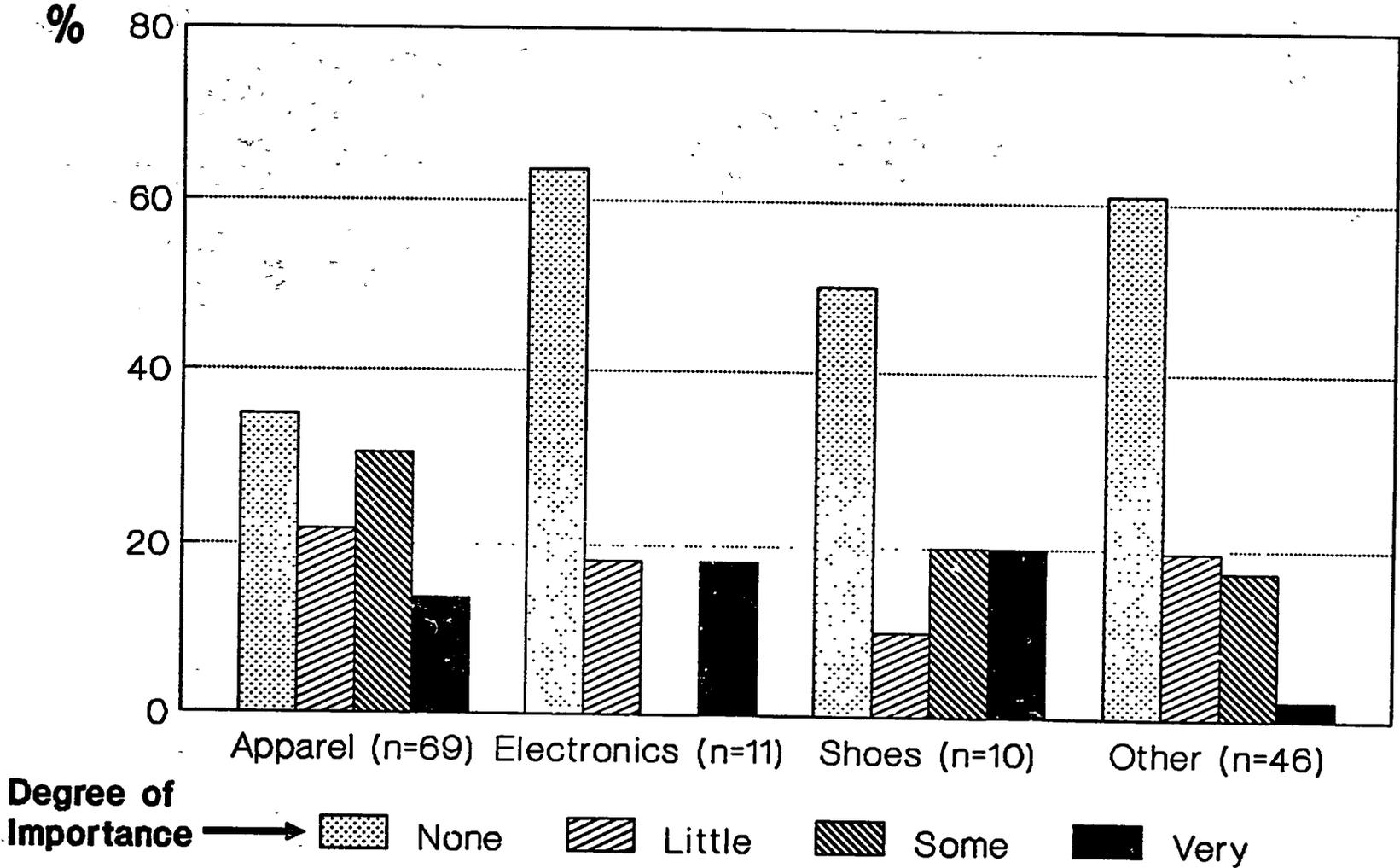
LACK OF RAW MATERIALS

By Economic Activity



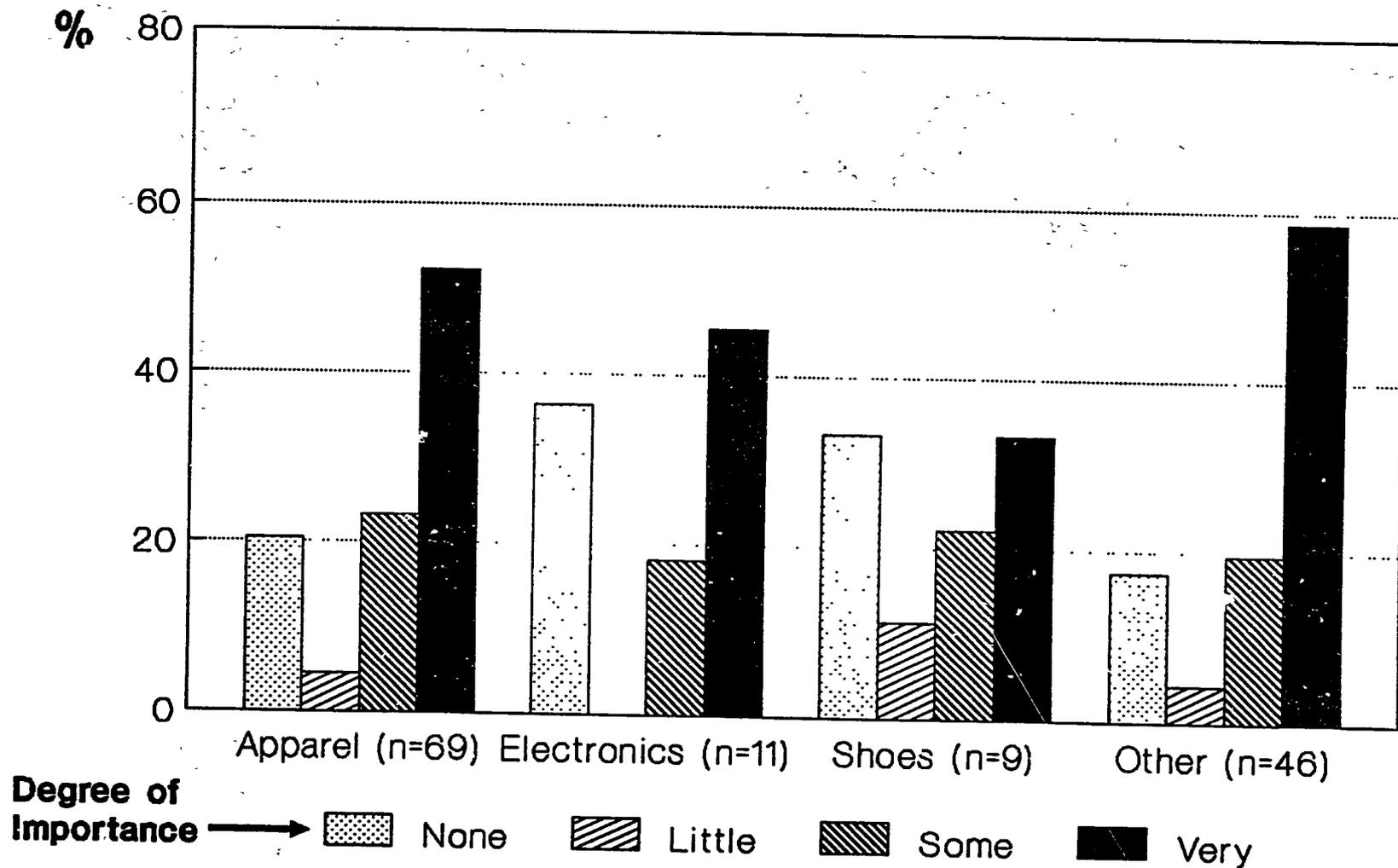
101

LACK OF TECHNOLOGY By Economic Activity

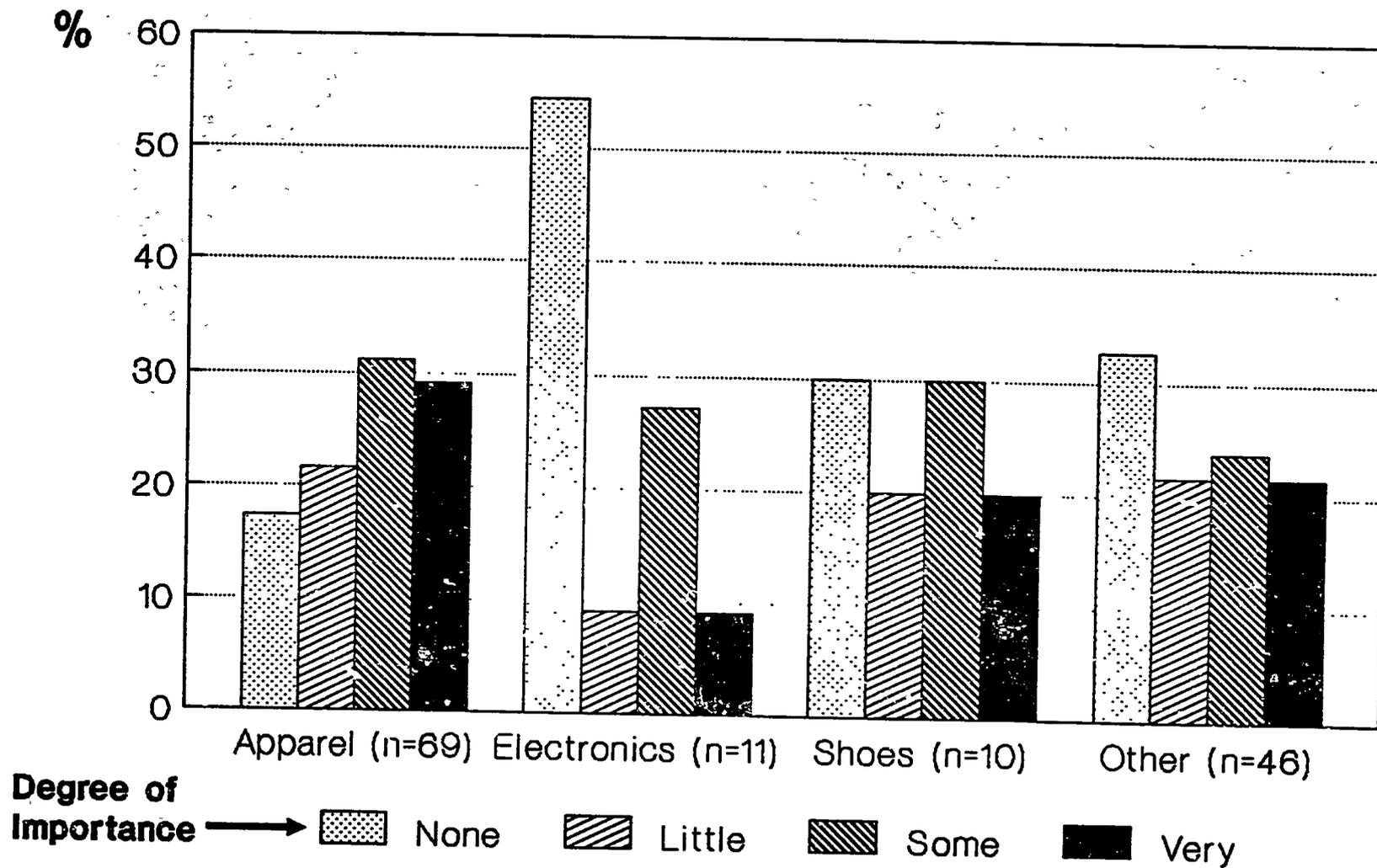


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ELECTRIC POWER PROBLEMS By Economic Activity



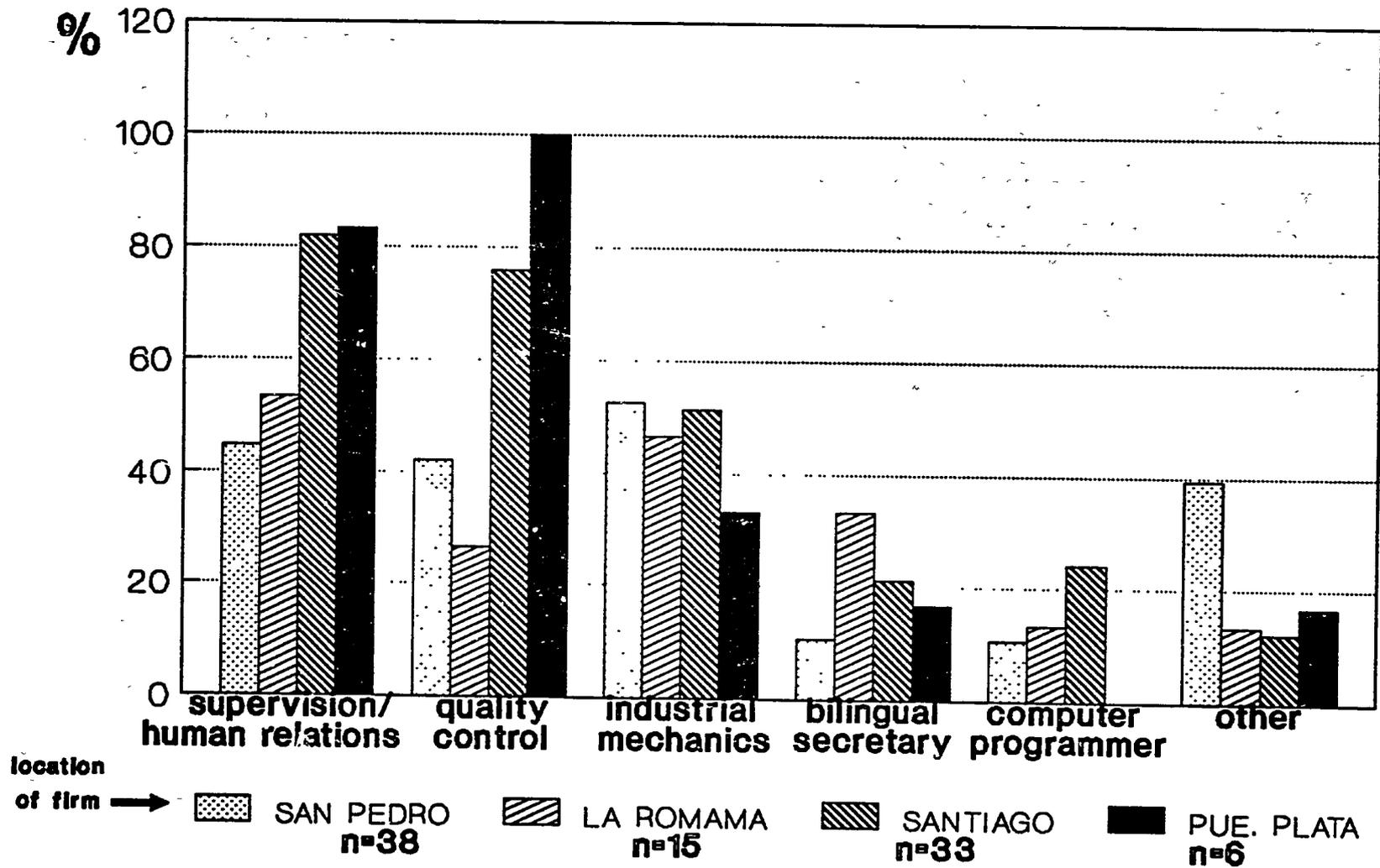
LACK OF TRAINING RESOURCES By Economic Activity



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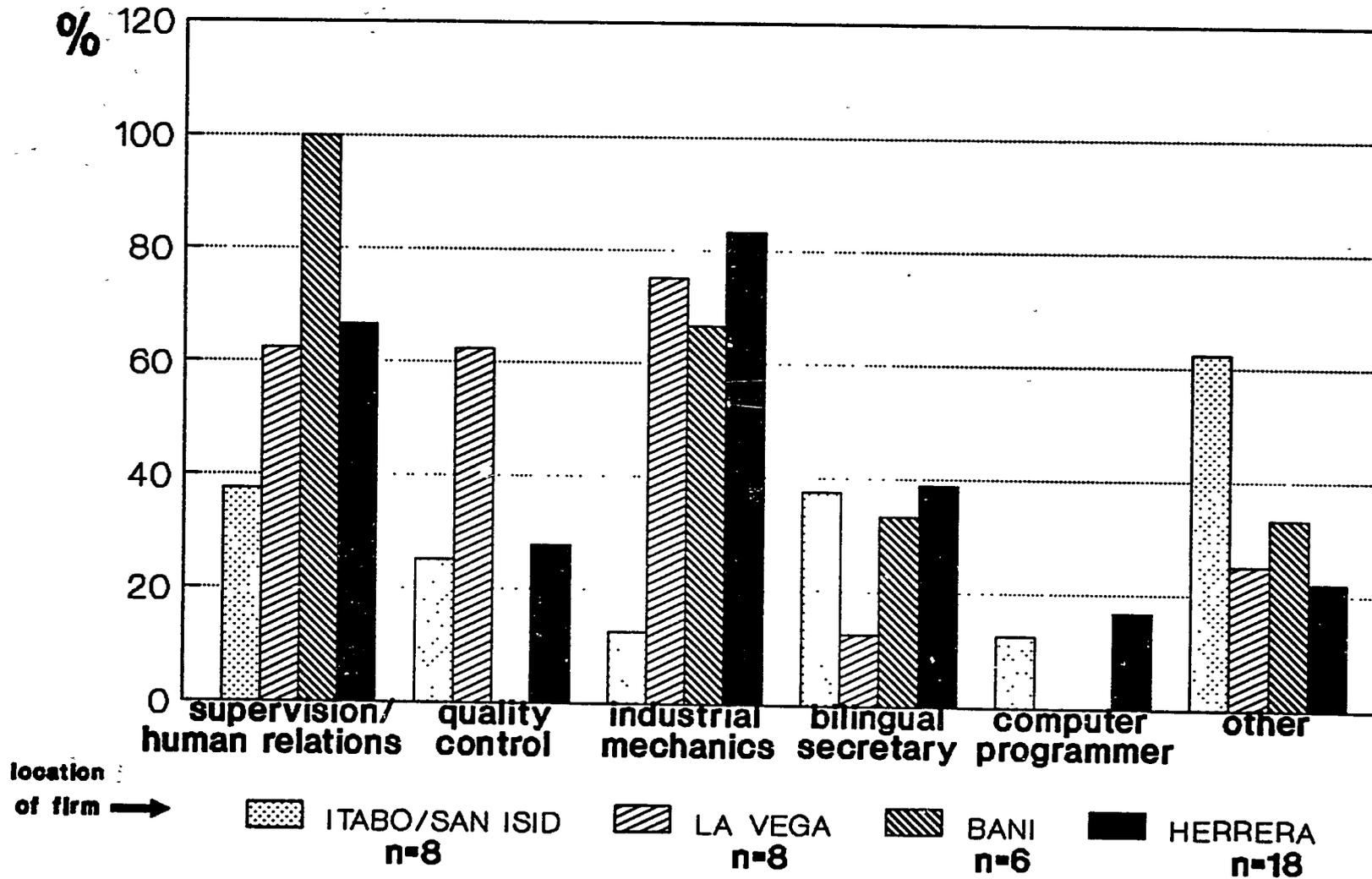
TRAINING NEEDS

By Location of Firm (part 1)



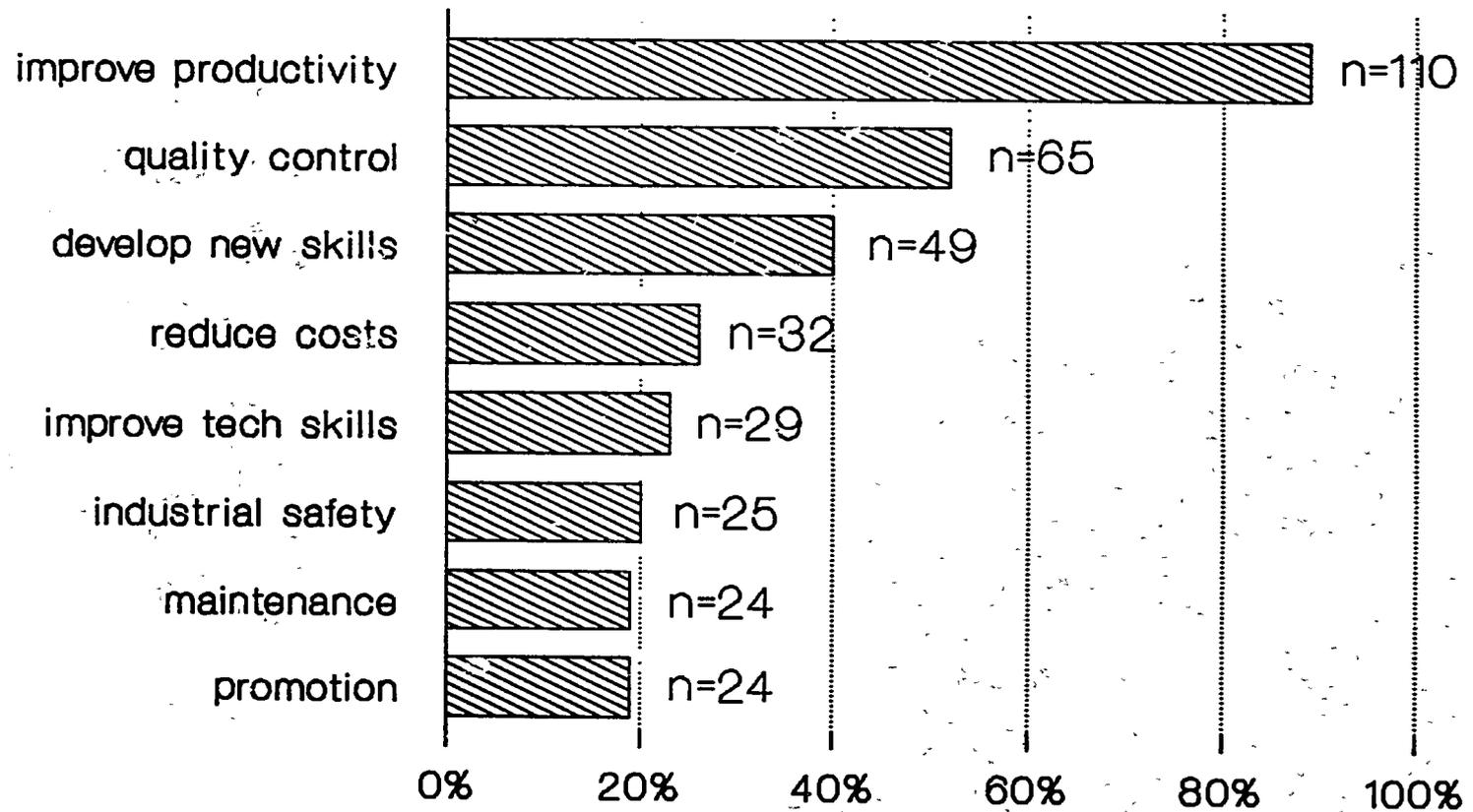
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Training Needs By Location of Firm (part 2)



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Employers' Perceptions of the Main Functions of Training



% who included when asked to select 3

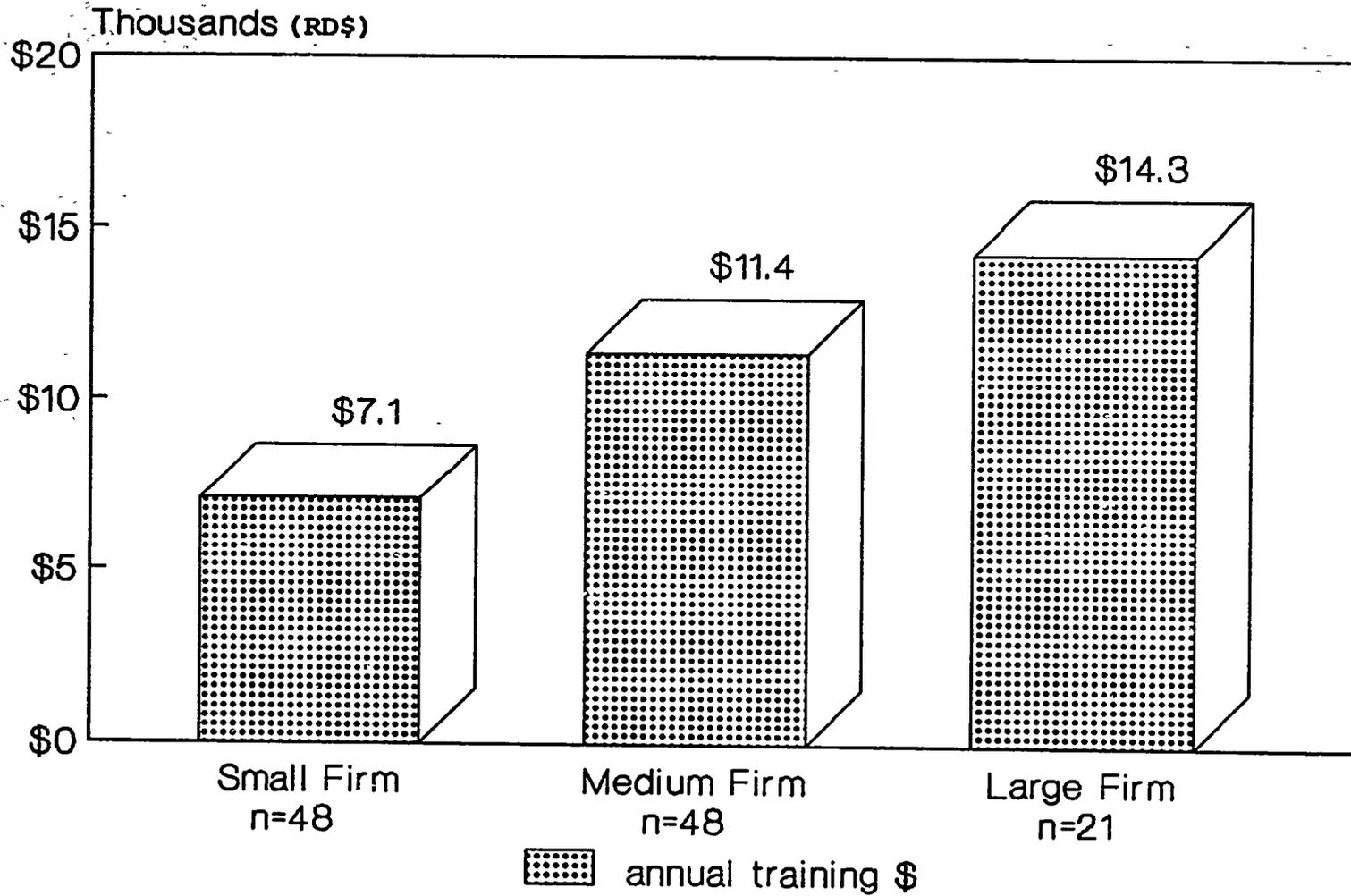
Employers' Problems with Their Current Training Methods (n=135)

NATURE OF PROBLEM	<u>% of Firms Responding</u>
* Takes too much time	39%
* Personnel leave after their trained	33%
* Too costly	27%
* Too complicated	17%
* No competent instructors	13%
* Employees do not learn	11%
* Doesn't result in profits	10%

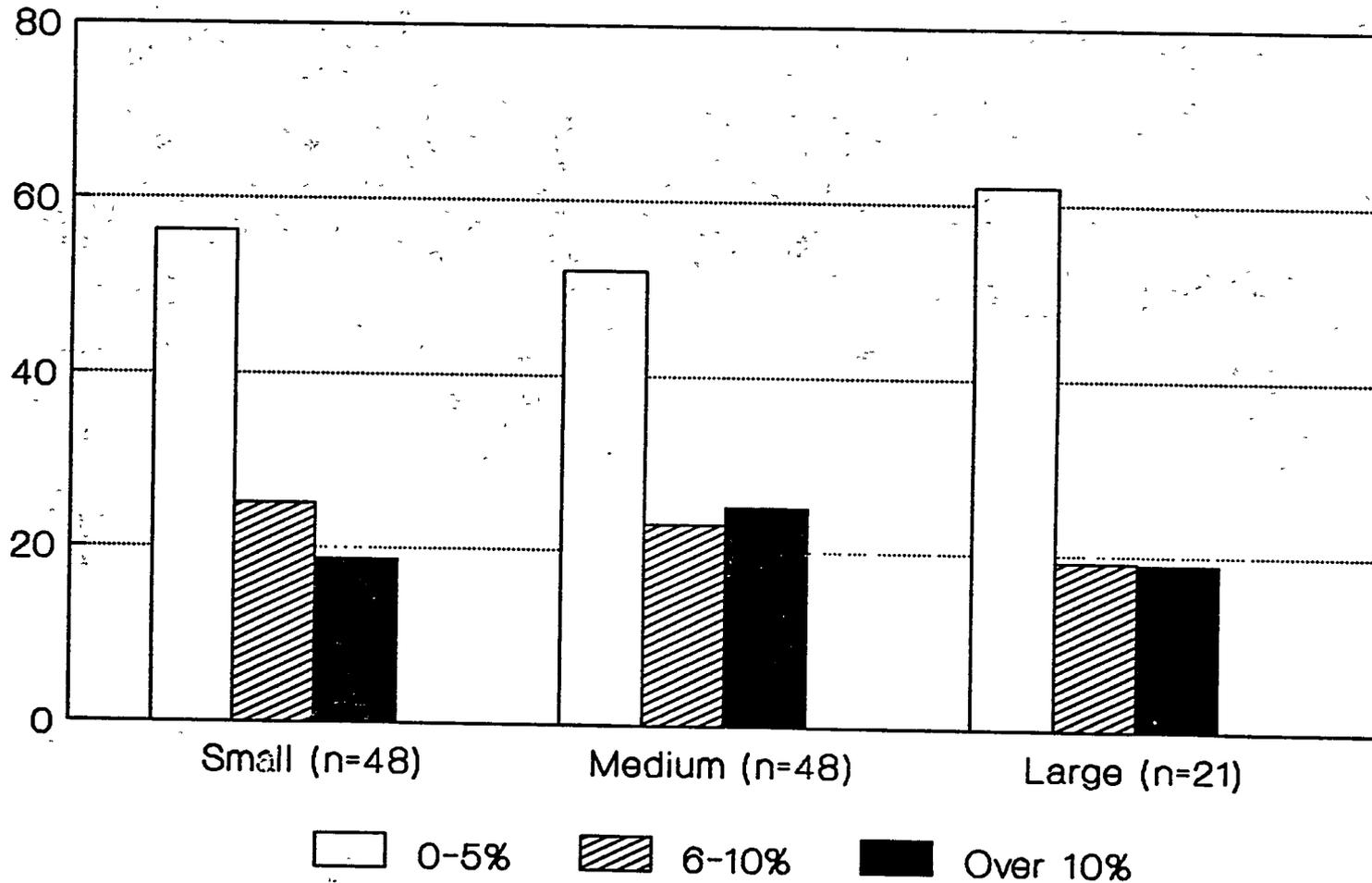
of respondent citing as problem

Annual Training Costs

Median Training Budget for 1987



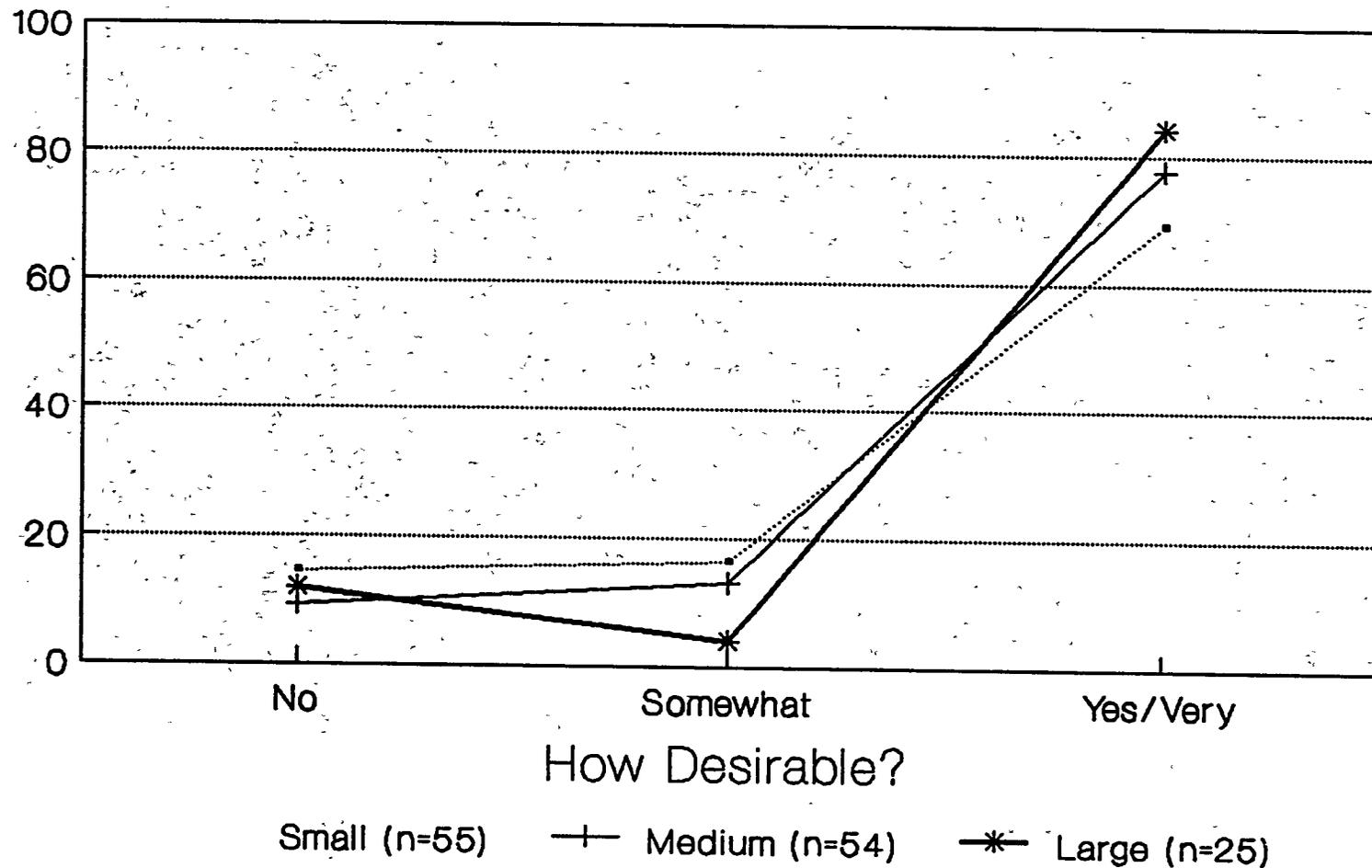
% of Annual Budget for Training* By Size of Firm



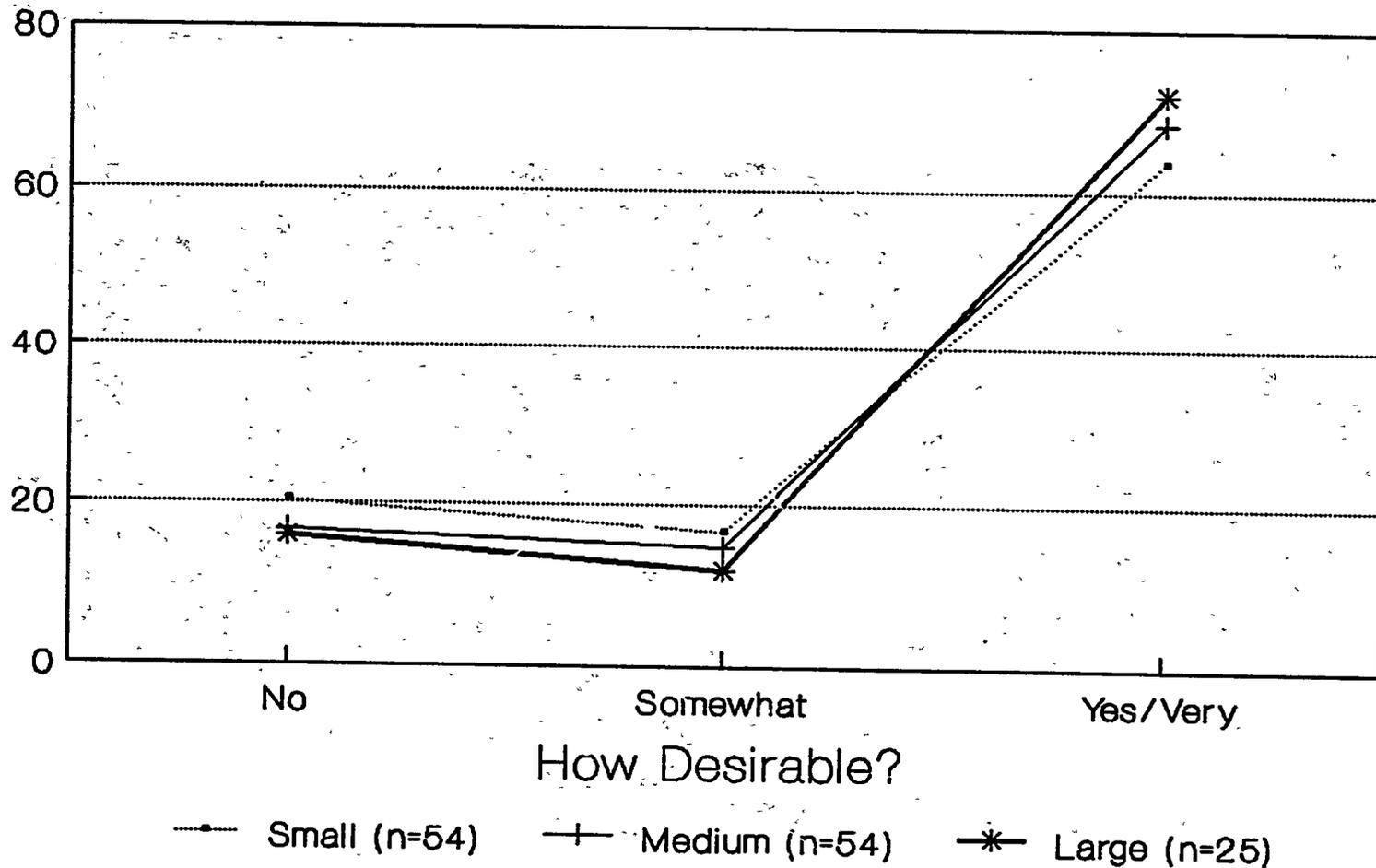
* Estimated by company manager

072

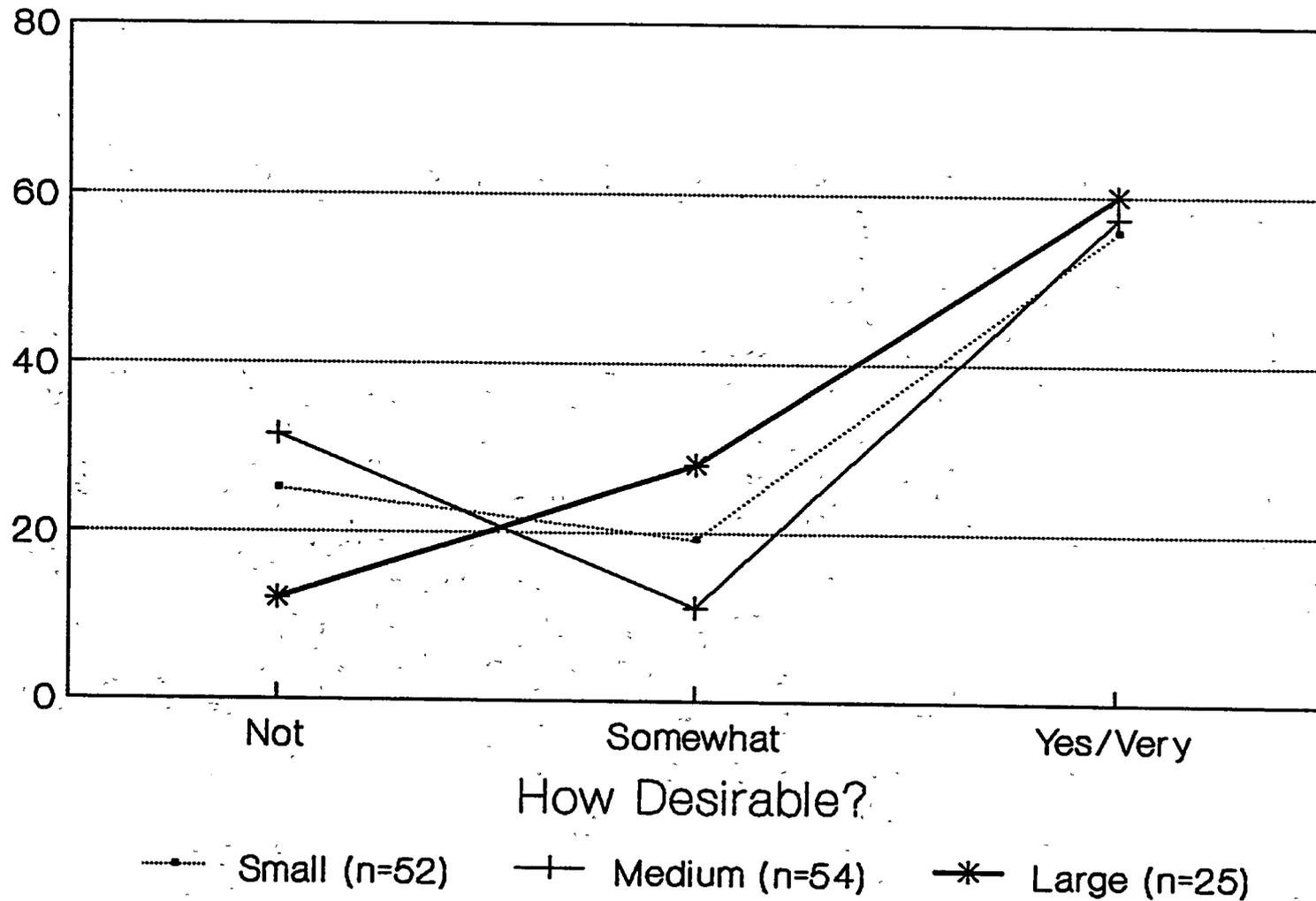
Employers' Preferred Options for Meeting Training Needs: Organized In-Plant Trng. By Size of Firm



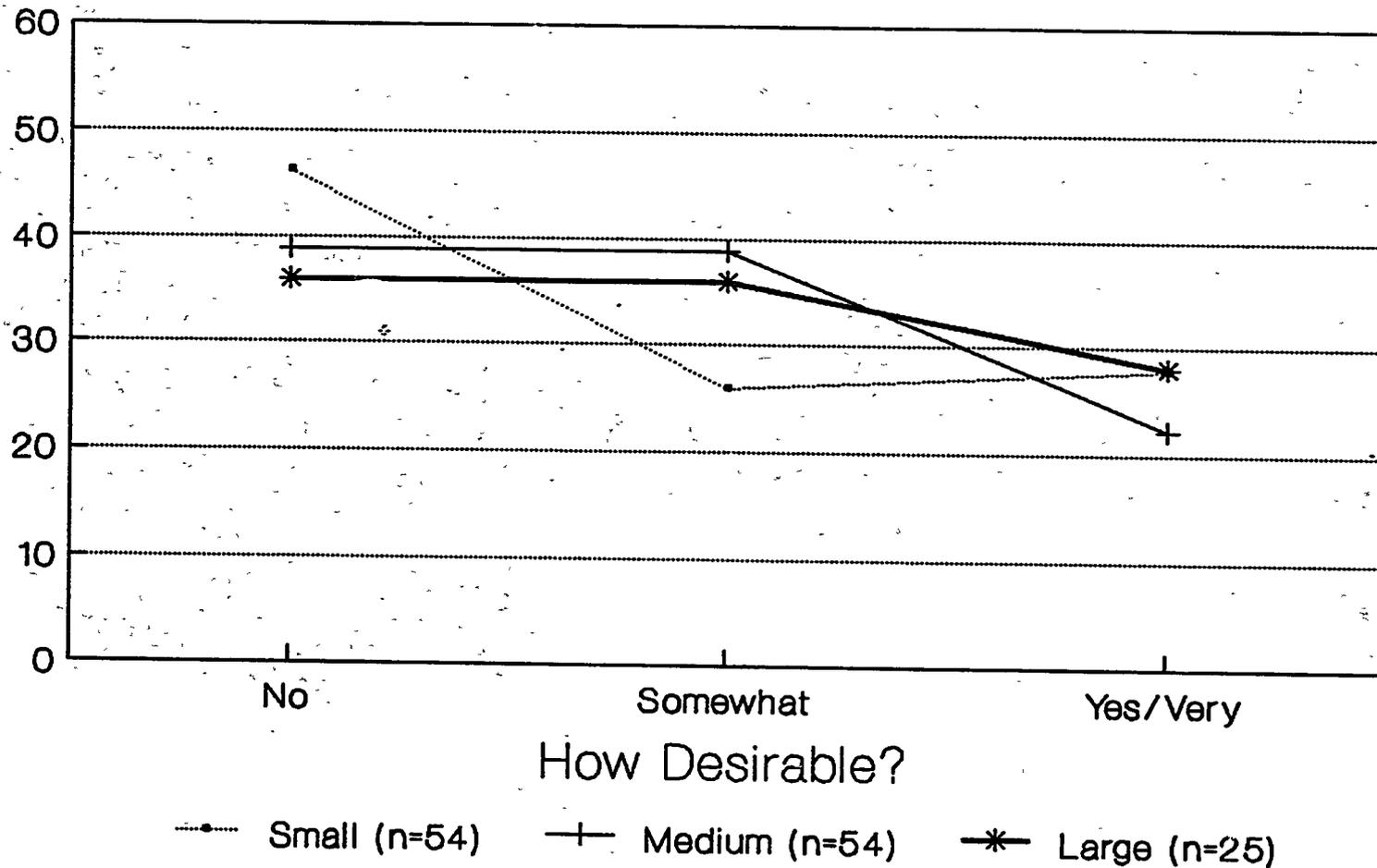
Employers' Preferred Options for Meeting Training Needs: Training in the Zone By Size of Firm



Employers' Preferred Options for Meeting Training Needs: Tech. Training Institution

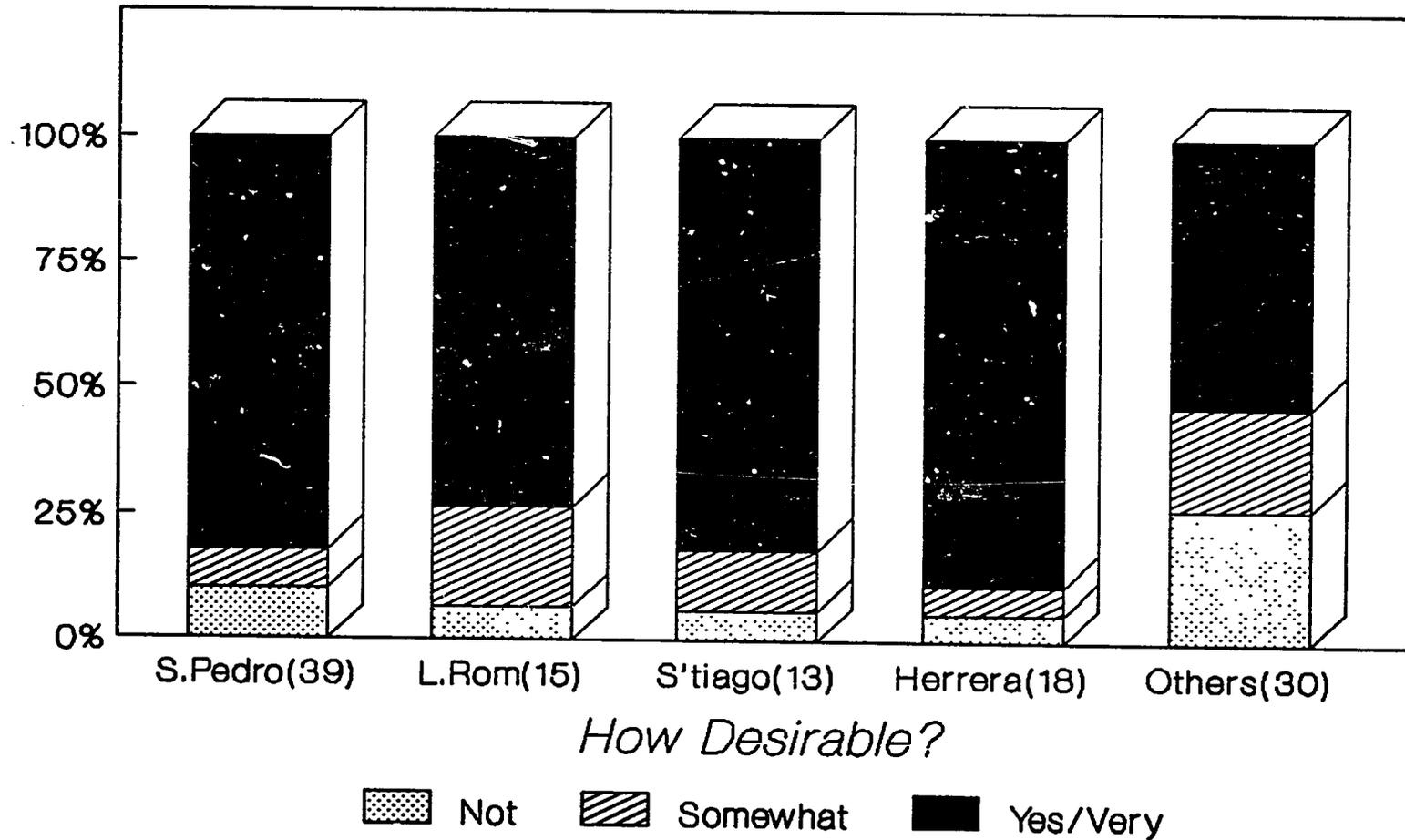


Employers' Preferred Options for Meeting Training Needs: Training Outside Zone By Size of Firm



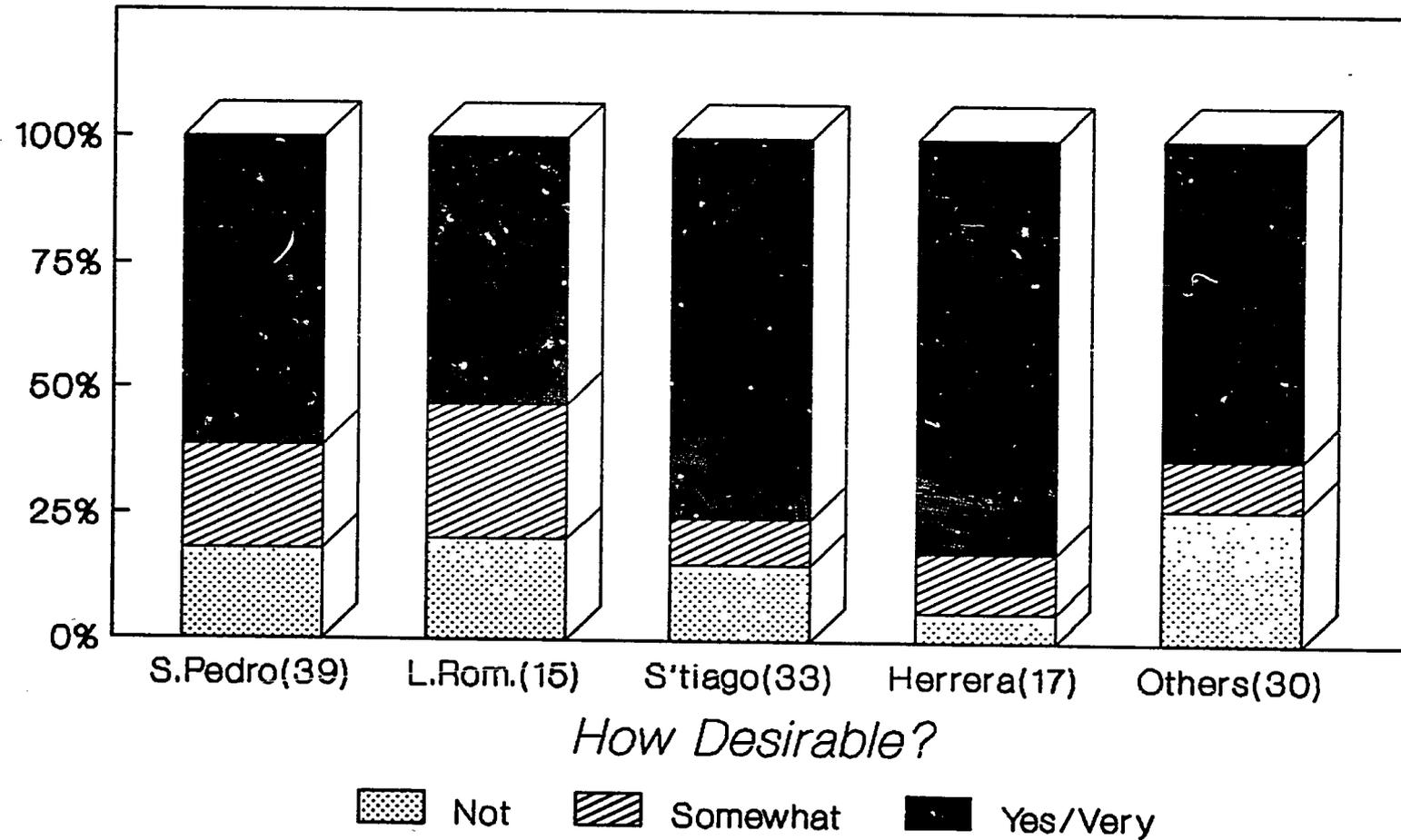
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Employers' Preferred Options for Meeting Training Needs: Organized In-Plant Trng. By Location



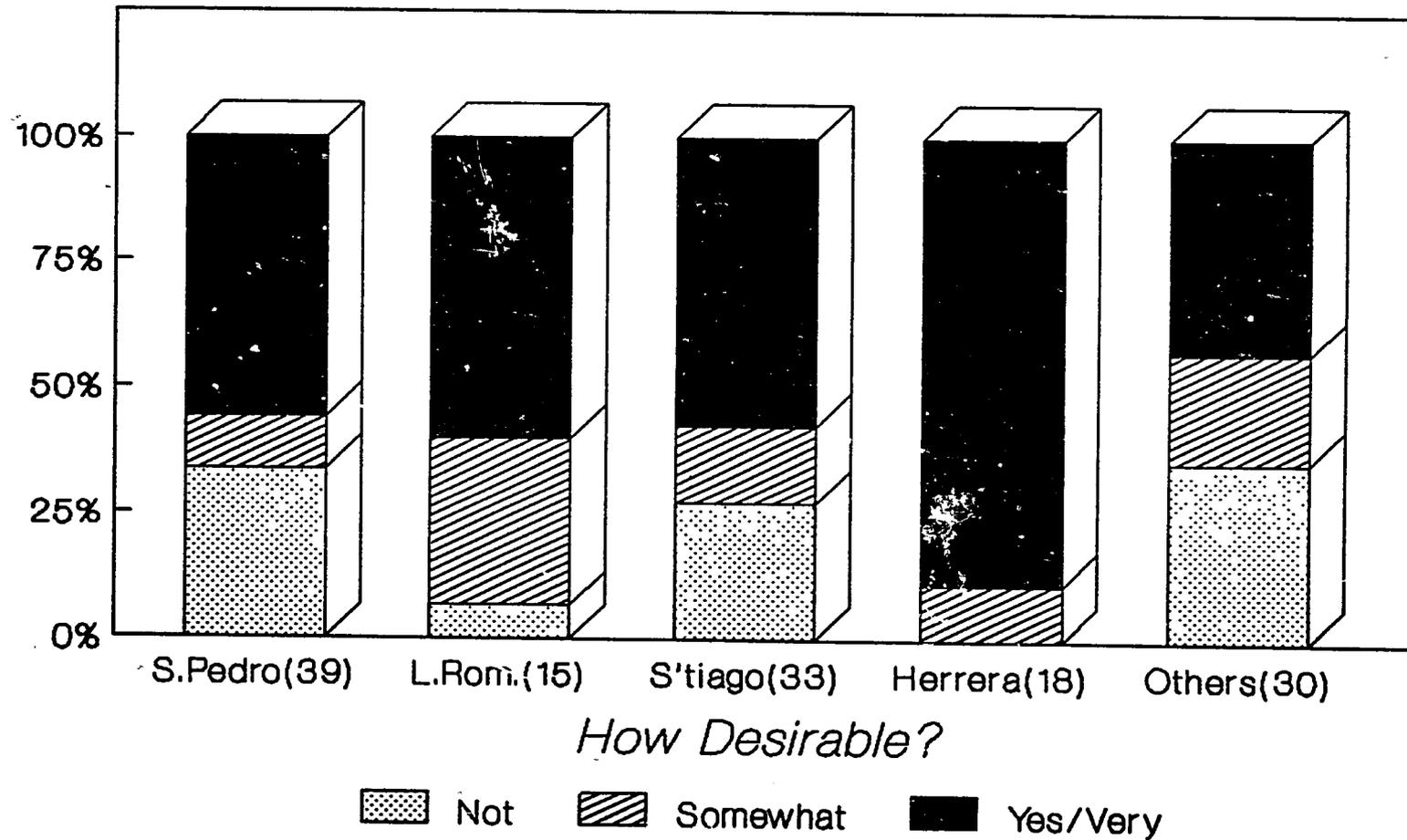
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Employers' Preferred Options for Meeting Training Needs: Training In the Zone By Location

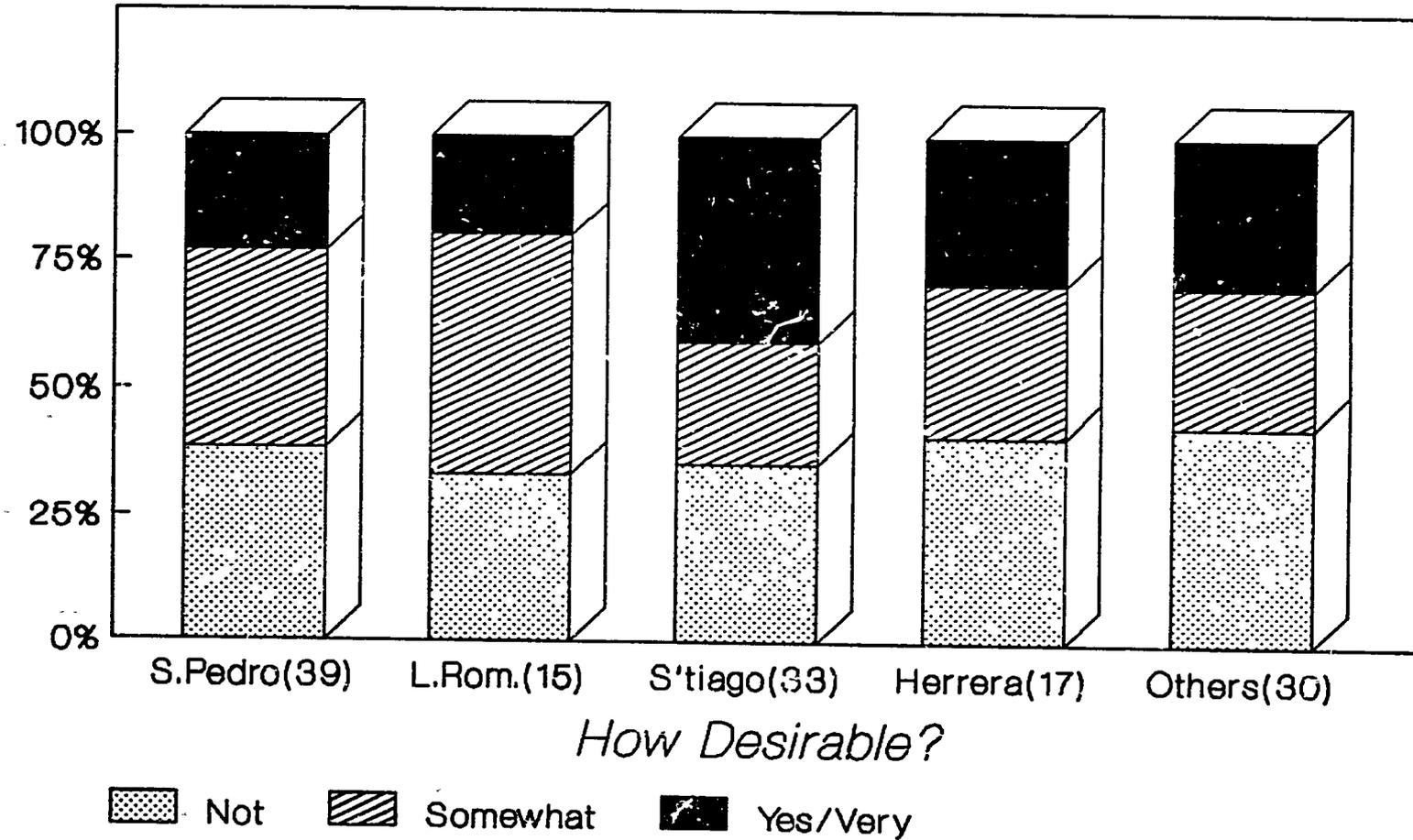


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Employers' Preferred Options for Meeting Training Needs: Tech. Training Institution By Location



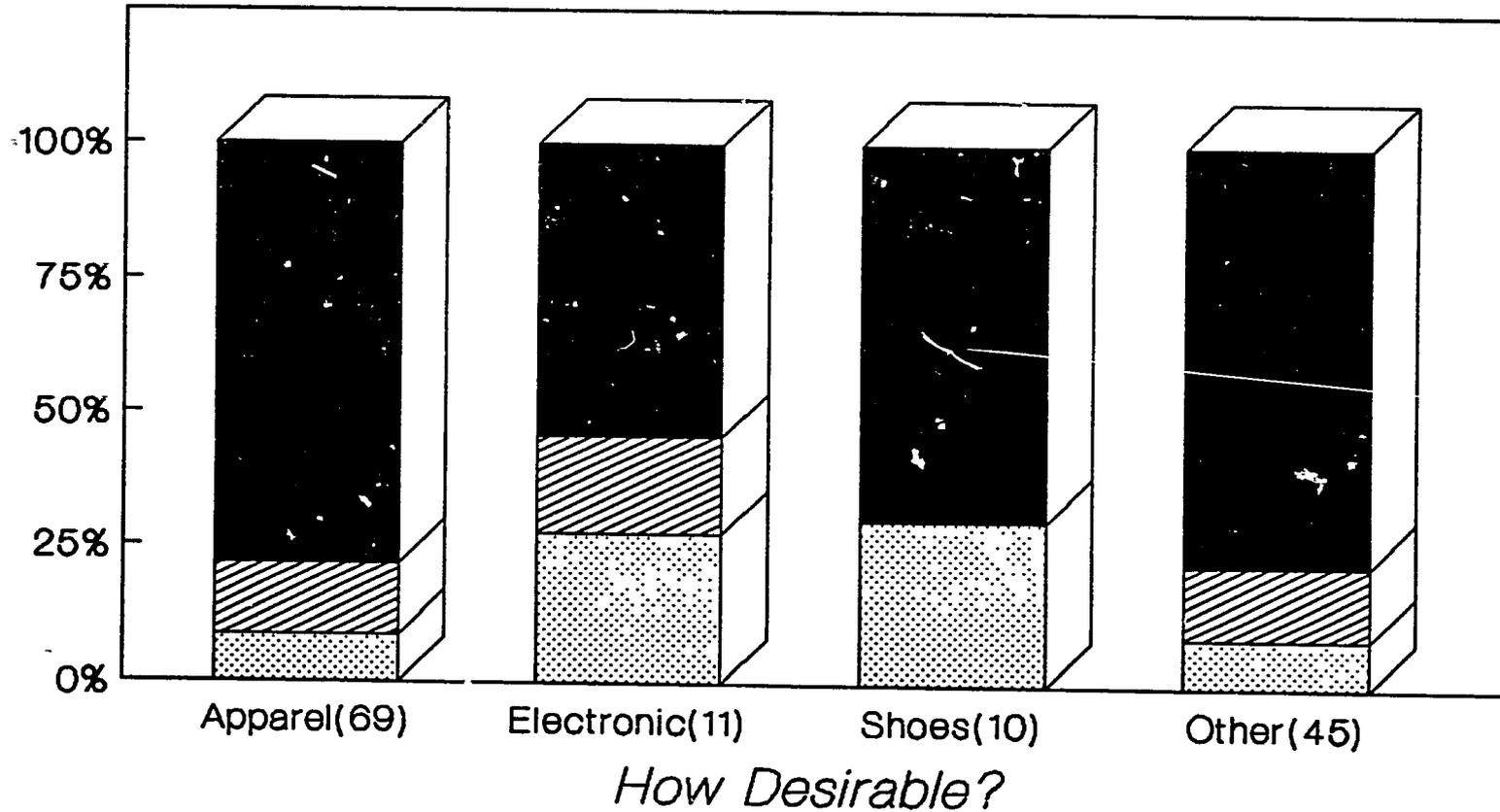
Employers' Preferred Options for Meeting Training Needs: Training Outside Zone By Location



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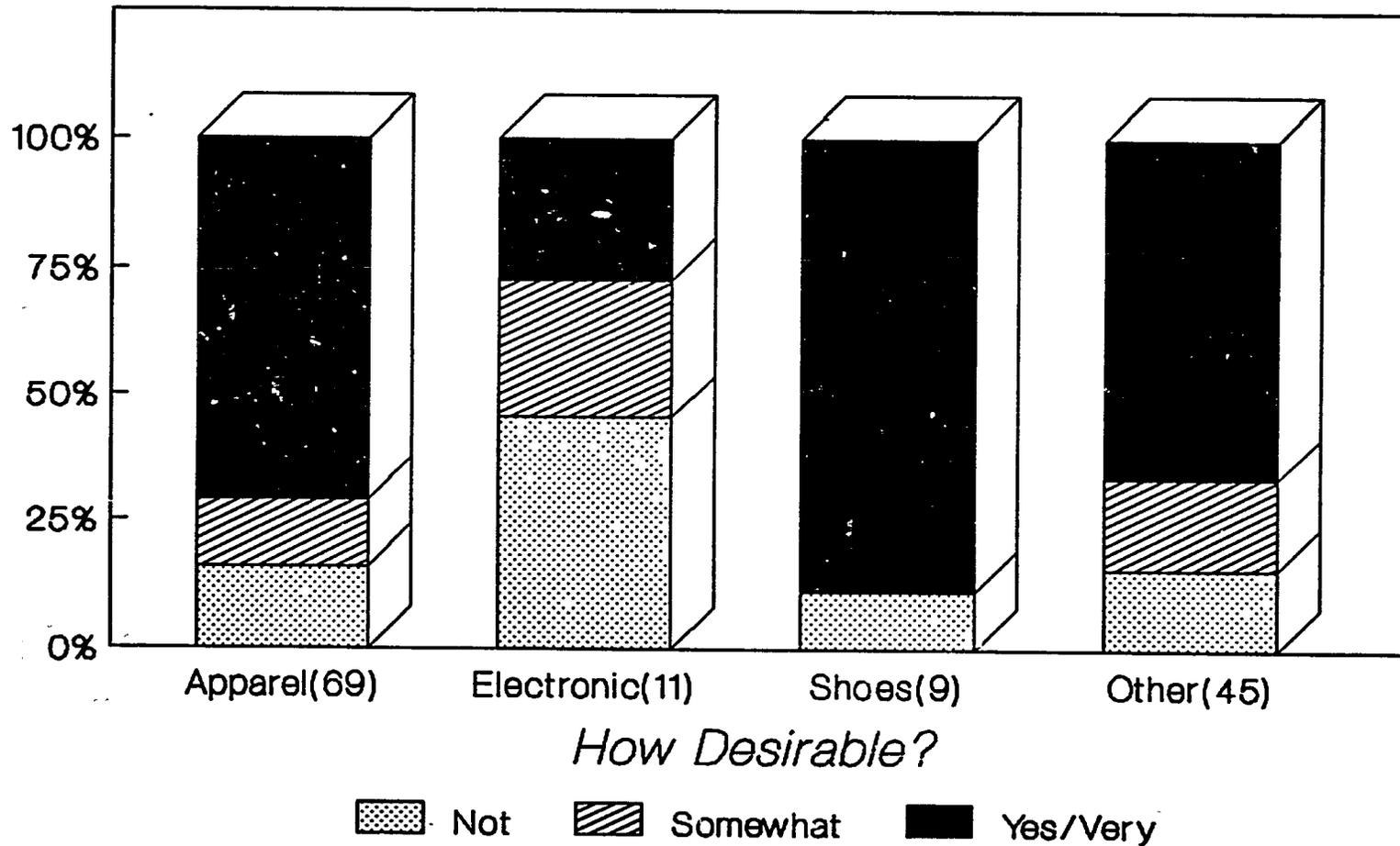
Employers' Preferred Options for Meeting Training Needs: Organized In-Plant Trng. By Economic Activity

Not Somewhat Yes/Very



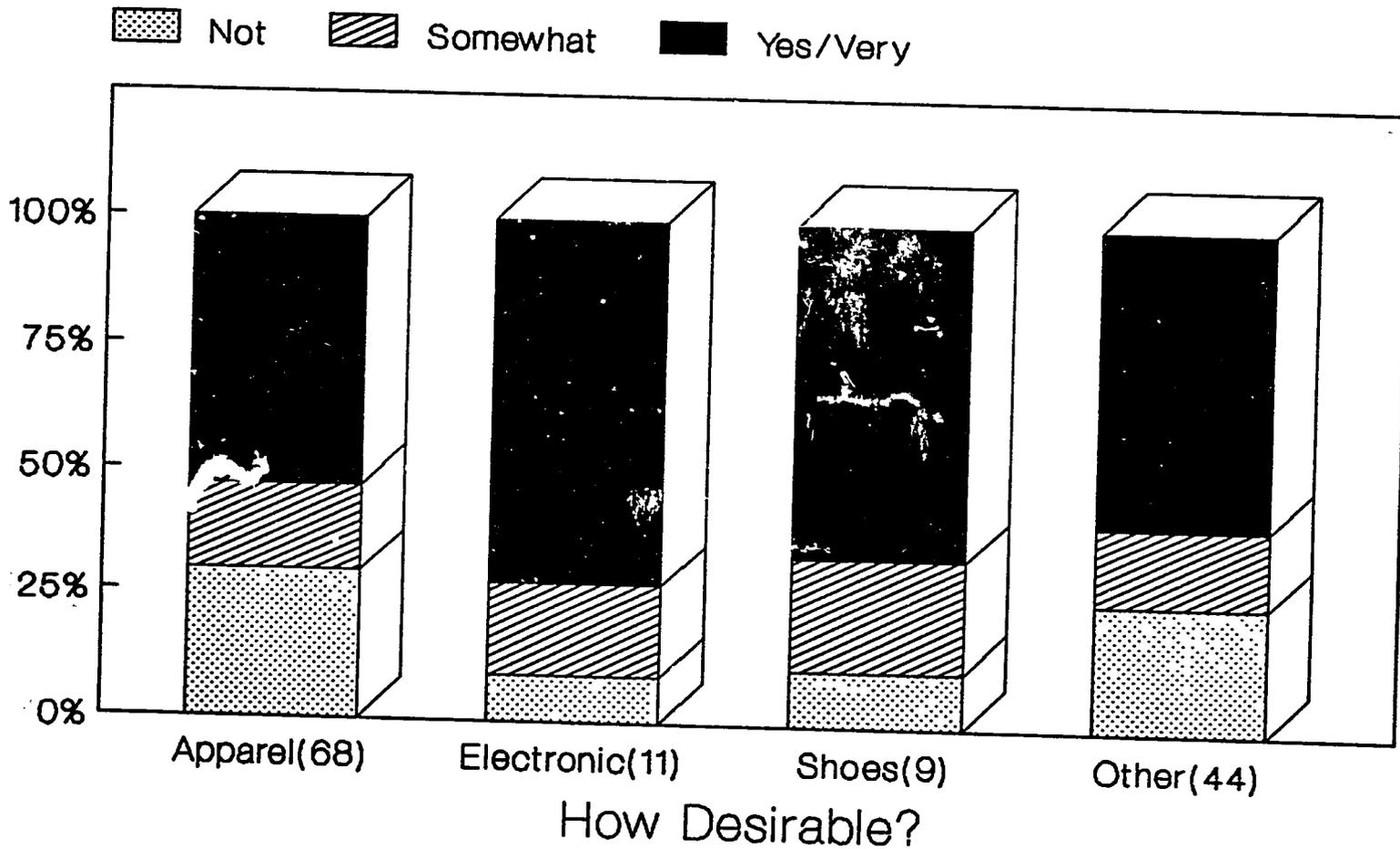
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Employers' Preferred Options for Meeting Training Needs: Training In the Zone By Economic Activity



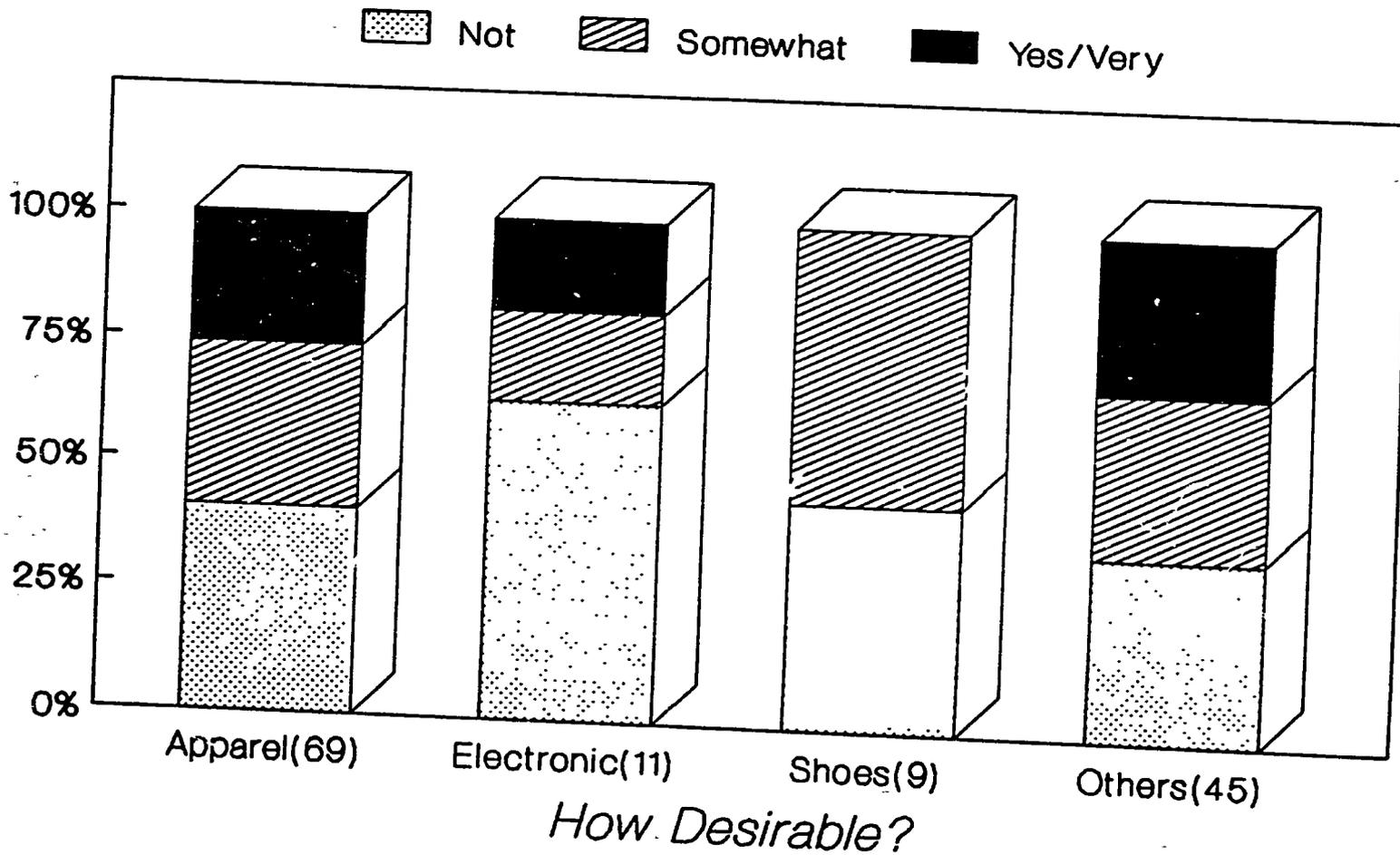
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Employers' Preferred Options for Meeting Training Needs: Tech. Training Institution By Economic Activity



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Empolyers' Preferred Options for Meeting Training Needs: Training Outside Zone By Economic Activity



22.

Training Assistance Needed of the 91 firms desiring In-Plant Trng

