

# Regional Underemployment Survey 2005

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**L**UBBOCK **E**CONOMIC **D**EVELOPMENT **A**LLIANCE

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# Regional Underemployment Survey 2005

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## Executive Summary

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*The Lubbock Economic Development Alliance (LEDA) commissioned researchers at Texas Tech University to estimate the level of underemployment and describe salient characteristics of that population. In addition, LEDA requested information about the population of retirees and others who have voluntarily withdrawn from the regional workforce. These populations represent human resources that can potentially make the regional workforce more attractive to employers. In sum, additional workforce resources are critical to attracting and to retaining employers, and thus these resources support the objective of providing more jobs.*

*This report presents the results of the 2005 Regional Underemployment Survey (RUS). The Earl Survey Research Laboratory and the Center for Public Service at the Texas Tech University Department of Political Science conducted the survey, which contains responses from 832 persons living in a region including the following counties: Crosby, Dawson, Floyd, Garza, Hale, Hockley, Lamb, Lubbock, Lynn, and Terry. The report includes results about the underemployed workforce, latent workforce, and employed workforce. The key findings for the underemployed and latent workforces are summarized below and throughout tables and charts in the document. Estimates may not exactly sum to 100 percent because of rounding errors.*

- ☞ *The underemployed workforce comprises individuals who report that their current occupation requires less skill, education, or experience than he or she possesses.*
    - *We estimate that there are 50,555 underemployed individuals in the region.*
    - *About 75 percent of the underemployed have at least some college education.*
    - *The underemployed workforce currently holds stable, full-time employment, but they would likely change jobs if more suitable employment were available.*
    - *Wage expectations for the underemployed vary significantly, but 32 percent expect hourly wages ranging from \$10 to \$19.99. About 35 percent of the underemployed expect hourly wages in the range of \$20 to \$29.99.*
  
  - ☞ *The latent workforce comprises individuals who have retired or have voluntarily withdrawn from the labor force for other reasons, but are willing to re-enter the job market if suitable opportunities become available.*
    - *We estimate that there are 13,597 persons in the region's latent workforce. Approximately 72 percent of this number comes from the retirement population and 28 percent from others who have voluntarily withdrawn from the workforce for other reasons*
    - *About 52 percent of the latent workforce has at least some college education.*
    - *The majority of the latent workforce prefers to return to part-time employment.*
    - *Wage expectations for the latent workforce are generally lower than wage expectations for the underemployed workforce. About 52 percent expect hourly wages ranging from \$10 to \$19.99, and 25 percent of the latent workforce expects hourly wages in the range of \$20 to \$29.99.*
  
  - ☞ *Both the underemployed and latent workforces are valuable human resources for the region. Potential or existing employers can reasonably draw from an additional labor pool of 64,152 persons in the region. Of this number, 50,555 are currently in the civilian workforce, but their skill, education, and experience makes them available for higher skill jobs. In addition, 13,597 persons who are not in the civilian workforce are currently considering a return to the workforce. There are important differences between the average education levels, wage expectations, and occupational expectations of the underemployed and latent workforces. Being cognizant of these differences is useful in formulating workforce development policies.*
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## Introduction

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Underemployment is one of the least studied topics in economic development, yet it is a major concern of officials who need a thorough understanding of available workforce resources. The difficulty in defining underemployment is one reason why it is difficult to study. There are many definitions of the concept and even the Bureau of Labor Statistics does not provide a clear-cut definition. However, the fact remains that there are individuals in the workforce who are not fully utilizing their skills, education, or experience in their current employment. These individuals are important workforce resources because they have the capabilities to move into occupations that demand greater skills, education, or experience. Therefore, underemployed individuals represent a valuable resource that can be leveraged to attract new employers and to encourage the expansion of existing employers.

The primary objective of this study is to estimate the size of the underemployed workforce in the region comprising Lubbock County and nine surrounding counties in West Texas. We define *underemployment as a situation in which an individual is working full-time or part-time and believes that his or her current occupation requires less skill, education, or experience than he or she possesses*. This definition presumes that the underemployed are currently employed, but these individuals have capabilities that should enable them to move into occupations that demand greater skills, education, or experience. In addition to providing an estimate of the size of the underemployed workforce in the region, the study describes the three key characteristics of the underemployed: (1) demographics and employment characteristics, (2) skill, education, and experience levels, and (3) occupational expectations.

The second objective of this study is to estimate the size of the latent workforce in the region comprising Lubbock County and nine surrounding counties in West Texas. In contrast to underemployed individuals, who are currently employed, the latent workforce comprises individuals who have voluntarily withdrawn from the workforce and are not actively seeking employment. More precisely, we define *the latent workforce as individuals who have retired or have voluntarily withdrawn from the workforce for other reasons, but who are willing to return to the workforce*. Like the underemployed, the latent workforce represents a valuable workforce resource because they are an existing population that can augment the existing workforce. In addition to estimating the size of this population, the study describes the following key characteristics of the latent workforce: (1) demographics, (2) reasons for withdrawing from the workforce, and (3) occupational expectations.

We obtained information about the underemployed and latent workforces from a randomly sampled survey of 832 adults from Lubbock and nine surrounding counties (Crosby, Dawson, Floyd, Garza, Hale, Hockley, Lamb, Lynn, and Terry). The sample frame included all persons ages 18 and over, excluding full-time students. We use this sample frame because it reflects a population that includes both the active and latent workforces of the region. The sample size was determined to ensure that the results are within a confidence interval of +/- 3.4 percent. Please see Appendix 1 for a detailed discussion of the survey methodology.

In sum, this study provides detailed estimates and descriptions about two important, but easily overlooked workforce populations. Both the underemployed and latent workforces are valuable resources that can be leveraged to attract and to retain jobs. The survey results are presented in three parts. Part I reports the findings about the underemployed workforce. Part II reports about the latent workforce. This includes a specific analysis describing the retired population of the region and others who have voluntarily withdrawn from the workforce. The final section presents information about the employed workforce.

## The Underemployed Workforce

*Our model estimates that there are 50,555 underemployed persons in the region within a confidence interval of +/- 3.4 percent. This represents about 39.9 percent of the 18 and over employed population of the region.* The survey relies upon respondents to assess whether their education, experience, or skills are fully utilized in their current employment. We use multiple assessment indicators to determine whether an individual could reasonably be considered underemployed given the underlying concept of a mismatch between a person's education, skills, or experience and their occupation. The next section provides additional descriptions and context about the underemployed workforce.

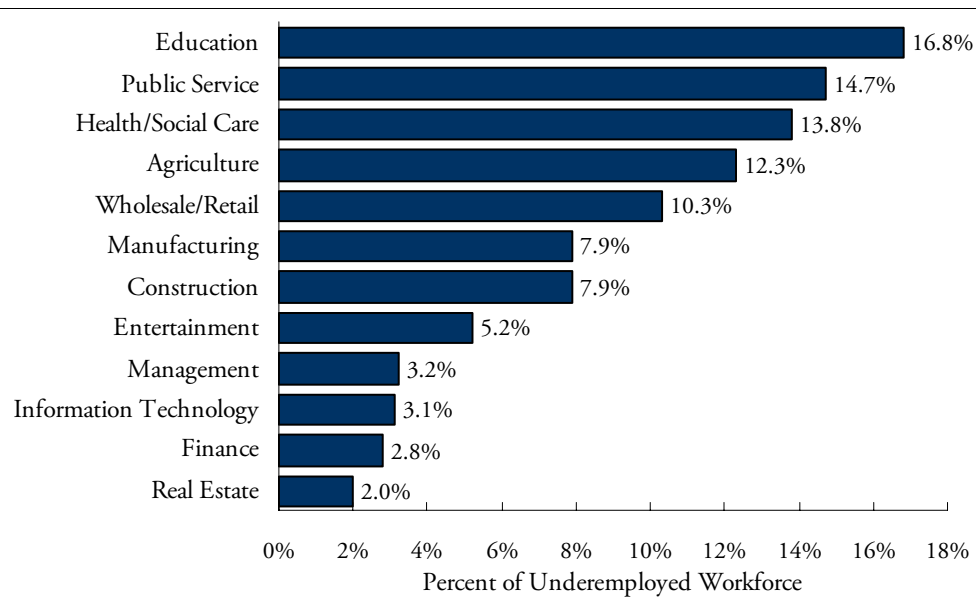
### *Demographic and Employment Characteristics*

Table 1 presents the demographic characteristics of the underemployed workforce. There are slightly more females underemployed than males, and the average age of an underemployed person is 43.6 years. Individuals 25 to 44 years old account for roughly 60 percent of the underemployed workforce. The ethnic composition of the underemployed workforce follows a pattern that is consistent with the ethnic distribution of the employed workforce. The majority of underemployed (52.8%) earn an annual income between \$20,000 and \$60,000.

The underemployed workforce demonstrates a commitment to full-time, stable employment in a variety of employment sectors. The average underemployed individual has been employed in his or her current position for 8.6 years, commutes 20.2 miles to work, and works about 45 hours a week. Figure 1 shows that almost 80 percent of the underemployed work in education, public service, health/social care, agriculture, and wholesale/retail trade. More importantly, almost 83 percent of the underemployed are working in full-time positions. This large percentage highlights that the underemployed workforce is not simply part-time employees looking for full-time positions. Instead, the underemployed prefer full-time employment in occupations that make better use of their education, experience, or skills

**TABLE 1 Demographic Characteristics of the Underemployed Workforce**

	(%)
<b>Gender</b>	
Male	48.6
Female	51.4
	<b>~ 100.0</b>
<b>Age (in each category)</b>	
18-24	9.5
25-34	24.9
35-44	26.6
45-54	21.2
55-64	12.0
65+	5.8
	<b>~ 100.0</b>
<b>Race</b>	
White	72.9
African-American	4.4
Hispanic	22.0
Asian	0.7
Native American	0.0
	<b>~ 100.0</b>
<b>Income ( in category)</b>	
< \$20,000	12.3
\$20,000 to \$40,000	28.5
\$41,000 to \$60,000	24.3
\$61,000 to \$80,000	18.8
\$81,000 to \$100,000	8.7
\$101,000 to \$250,000	6.8
>\$250,000	0.5
	<b>~ 100.0</b>

**FIGURE 1** Sector of Current Employment for the Underemployed Workforce

### *Education, Experience, and Skills*

In light of evidence that the underemployed are generally stable, full-time employees, it is important to examine their education, experience and skills. One of the most important factors contributing to underemployment is being over-educated for an occupation. According to the survey, 39.1 percent of the underemployed workforce thinks that their education qualifies them for better jobs. This comports with the 39.5 percent of the underemployed workforce who have more education than their current occupations require. Figure 2 shows the distribution of educational levels, which demonstrates that a remarkable 75 percent of the underemployed workforce has at least some college education. The underemployed most commonly hold degrees in business-related fields, education, natural sciences, and nursing as seen in Figure 3. These findings strongly suggest that the underemployed workforce comprises valuable human resources who are looking for employment that can more fully utilize post-secondary education.

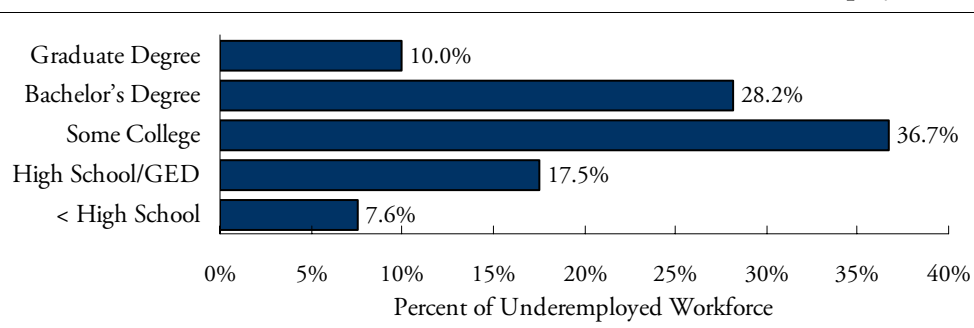
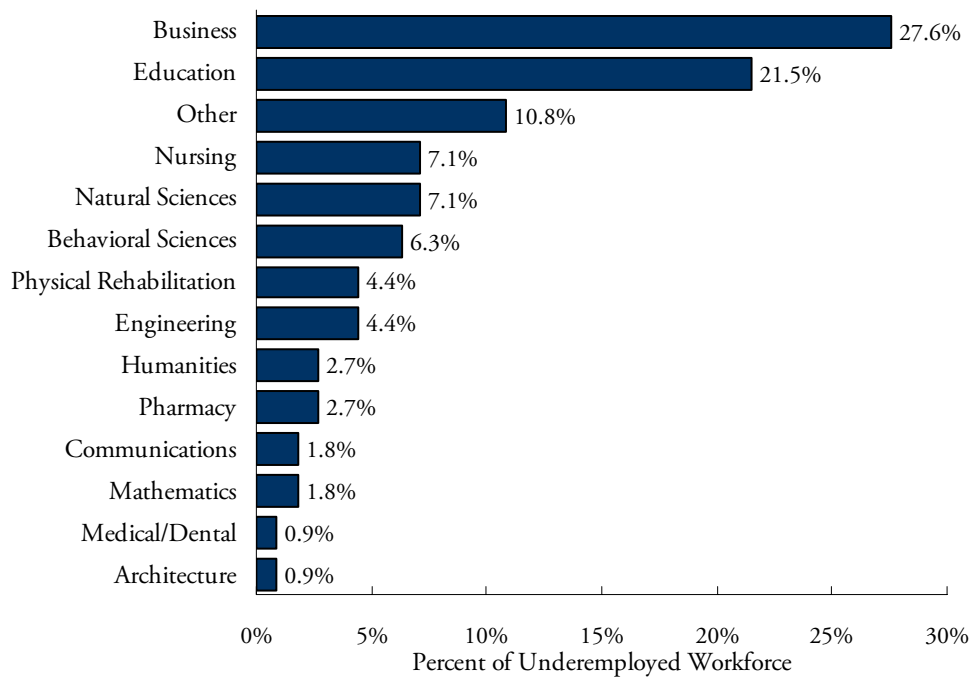
**FIGURE 2** Distribution of the Educational Attainment for the Underemployed

FIGURE 3 Distribution of the Educational Area of Study for the Underemployed Workforce



Additional information about skill and experience levels corroborates the value of underemployed resources in the region. First, 80.9 percent of the underemployed respondents identify their experience as one reason that they are underemployed. In addition, 58 percent identify their skill level as a reason for being underemployed. Survey respondents were asked to assess their skill level in twelve areas using a 10-point scale where one means “no skill” and ten means “a great deal of skill.” Respondents were also asked to provide the number of years work experience they had for each skill set. Table 2 shows the mean skill assessments and years of work experience for twelve skill sets. Figures 4 through 15 provide a breakdown of the number of underemployed who have no skill, low, moderate, or high skill levels for each skill set. The estimates are extrapolations of the survey data that have been rounded to the nearest hundred for presentation purposes.

TABLE 2 Average Skill Levels and Work Experience of the Underemployed Workforce

	Skill Level <sup>1</sup>	Years of Work Experience
<b>Underemployed Workforce :</b>		
Working with others in teams	8.2	15.8
Writing and speaking on the job	7.4	14.9
Managing people and human resources	6.5	12.5
Managing finances and accounts	6.5	13.1
Managing equipment, facilities, and materials	6.4	13.0
Basic computer applications	5.9	10.2
Using math and scientific methods on the job	5.7	16.1
Operations and quality control	5.6	11.4
Equipment maintenance and installation	4.9	13.2
Database management	4.0	7.3
Program analysis or systems analysis	3.4	7.9
Computer programming	3.1	7.8

<sup>1</sup> Based on a 10 point scale : 1 = “No Skill”, 10 = “Great Deal”

FIGURE 4 Number of Underemployed by Skill Level: Working in Teams

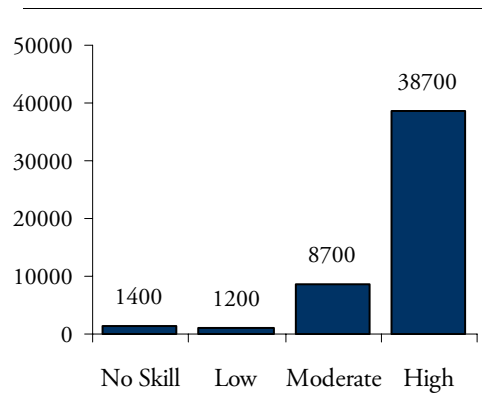


FIGURE 5 Number of Underemployed by Skill Level: Writing / Speaking

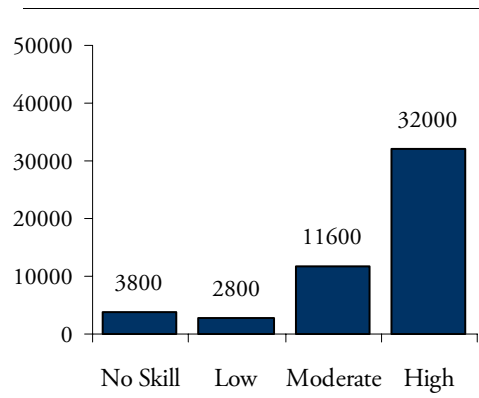


FIGURE 6 Number of Underemployed by Skill Level: Managing Human Resources

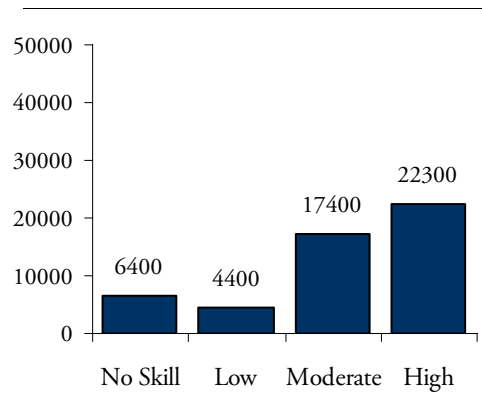
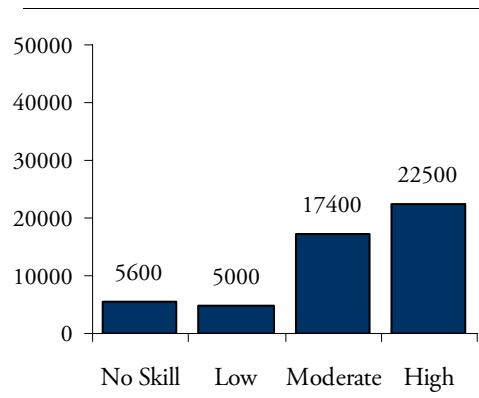
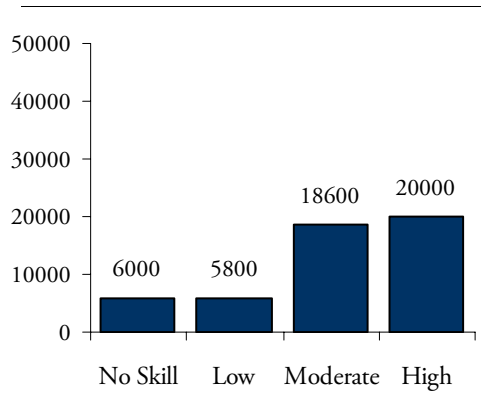


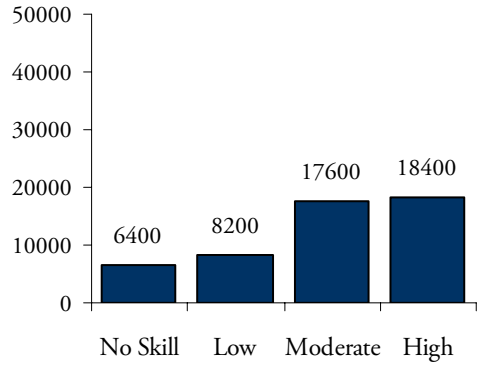
FIGURE 7 Number of Underemployed by Skill Level: Managing Finances / Accounts



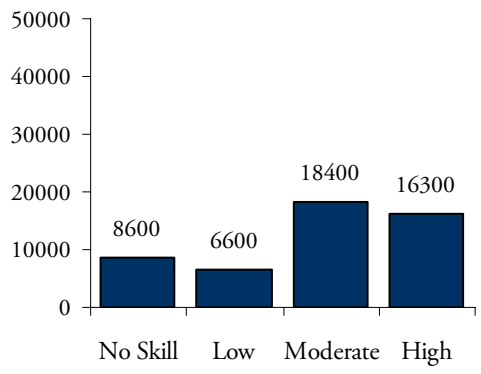
**FIGURE 8** Number of Underemployed by Skill Level: Managing Equipment/Facilities/Materials



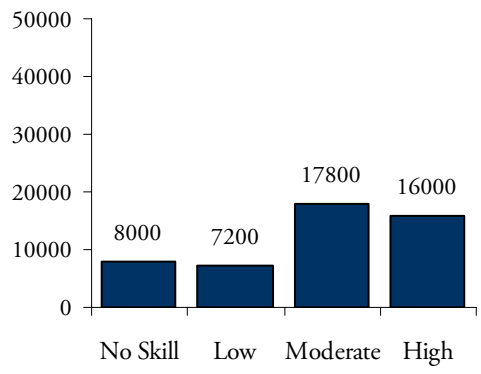
**FIGURE 9** Number of Underemployed by Skill Level: Basic Computer Applications



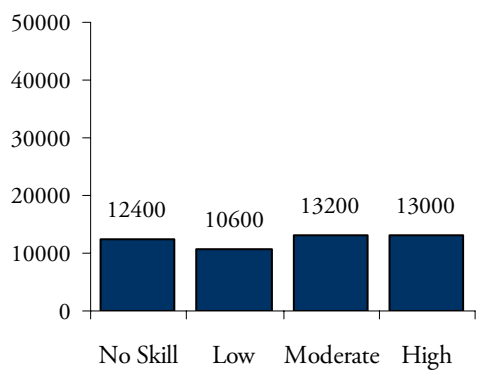
**FIGURE 10** Number of Underemployed by Skill Level: Math / Science Applications



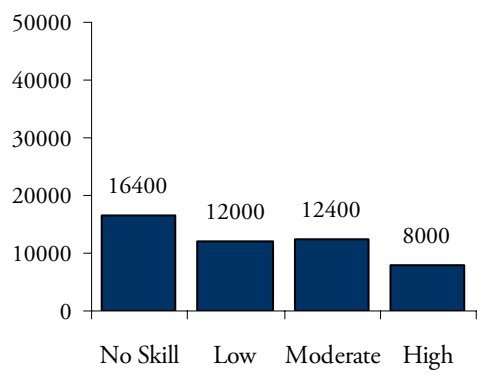
**FIGURE 11** Number of Underemployed by Skill Level: Operations / Quality Control



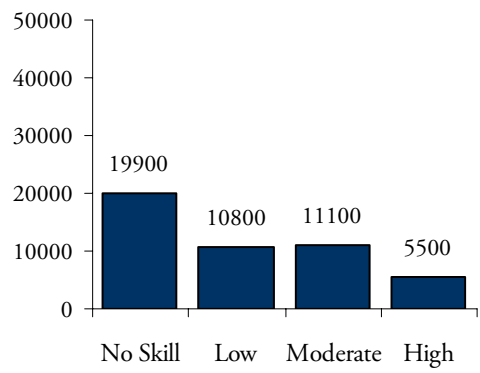
**FIGURE 12** Number of Underemployed by Skill Level: Equipment Maintenance / Installation



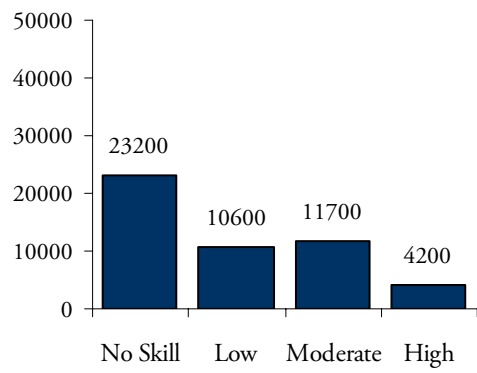
**FIGURE 13** Number of Underemployed by Skill Level: Database Management



**FIGURE 14** Number of Underemployed by Skill Level: Program / Systems Analysis



**FIGURE 15** Number of Underemployed by Skill Level: Computer Programming



These findings suggest that the underemployed workforce is skilled and has substantial experience in key skill sets. Since the very nature of underemployment is not having the opportunity to develop and to practice skills, we expect that the reported skill levels and years of work experience may be somewhat understated. This means that there are significant opportunities for potential employers. In light of the large percentage of underemployed who identified their experience and skill level as a justification for being qualified for a better job, these findings provide more evidence that the underemployed workforce is able to move into occupations that demand more education, experience, and skill.

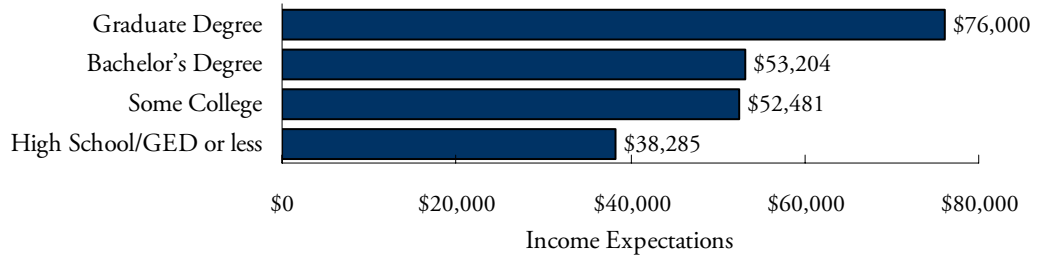
### *Occupational Expectations*

It is difficult to isolate a single factor that explains why and under what circumstances an underemployed individual would actually change occupations. We expect that intrinsic motivations partially explain a desire to change employment. The survey tells us that 52.5 percent of the underemployed indicate that they would rather have a job that more closely matches their education, experience, or skills. In other words, we expect that most of the underemployed would rather have another job because they want the intrinsic reward of working in jobs that are more closely associated with their education, experience, and skills. Monetary compensation is also important, however.

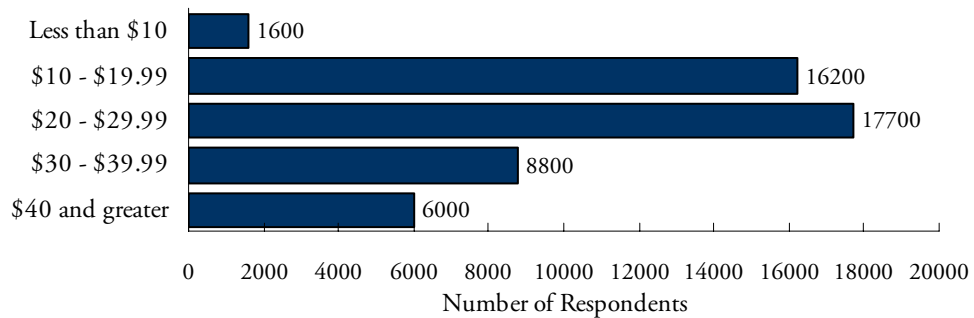
The desire for additional compensation can also motivate the underemployed to seek different jobs. Large majorities of the underemployed workforce expect better salary (81.5%) and better benefits (60.1%) if they change to jobs that better match their education, experience or skills. When asked what kind of salary they would expect if they had an opportunity to change jobs, the underemployed responded with a median expected annual income of \$45,000 and an average expected annual income of \$52,473. The difference between the median and average is mostly attributable to salary expectations that increase with more education. Figure 16 shows that the average expected annual salary of the underemployed increases with more education, and Figure 17 provides the distribution of underemployed persons willing to work at particular hourly rates. The latter figure highlights that only a small number of the underemployed would change to jobs offering less than \$10 an hour. In contrast, about 32 percent of the underemployed have wage expectations between \$10 and \$20 an hour, which translates into annual salaries of \$20,800 to

\$41,599. Just over 35 percent of the underemployed expect annual salaries between \$41,600 and \$62,400. These wage and salary expectations are consistent with an underemployed population that is educated and committed to stable, full-time employment.

**FIGURE 16 Annual Income Expectations by Level of Education for the Underemployed**



**FIGURE 17 Hourly Compensation Expectations for Underemployed Workforce <sup>1</sup>**



<sup>1</sup> Numbers rounded to the nearest 100. Estimate based upon respondents who answered the question about expected salary.

## The Latent Workforce

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In addition to a sizable underemployed population, our study suggests that there is a sizable latent workforce in the region. We define the latent workforce as the population of persons at least 18 years old who are neither working nor actively seeking employment, but they are considering re-entering the workforce. The survey suggests that 41.7 percent of region's 18 and over population has withdrawn from the workforce. Retirees are 30.8 percent of the 18 and over population, and 10.9 percent of the 18 and over population have withdrawn from the workforce for a variety of other reasons to be discussed below. Therefore, the latent workforce includes individuals who are willing to re-enter the active workforce, but who are currently retired or have currently withdrawn from the workforce for other reasons. *Our model estimates that there are 13,597 persons ages 18 and over who compose the latent workforce in the region.* The next sections provide more detailed descriptions of three groups: retirees, others voluntarily withdrawn from the workforce, and finally, the latent workforce. Table 3 provides summary demographics for each group.

TABLE 3 Demographic Characteristics: Retirees, Voluntarily Withdrawn, &amp; Latent Workforce

	Retiree	Voluntarily Withdrawn	Latent Workforce
<b>Gender</b>			
Male	41.1	18.4	35.4
Female	58.9	81.6	64.6
	<u>~ 100.0</u>	<u>~ 100.0</u>	<u>~ 100.0</u>
<b>Age (in each category)</b>			
18-24	0.0	13.2	9.1
25-34	1.4	34.5	7.5
35-44	1.4	21.5	6.0
45-54	4.5	16.9	10.5
55-64	18.5	7.7	38.6
65+	74.2	6.2	28.2
	<u>~ 100.0</u>	<u>~ 100.0</u>	<u>~ 100.0</u>
<b>Race</b>			
White	82.1	55.1	65.1
African-American	6.4	6.0	7.5
Hispanic	10.3	32.8	22.8
Asian	1.3	4.5	4.5
Native American	0.0	1.5	0.0
	<u>~ 100.0</u>	<u>~ 100.0</u>	<u>~ 100.0</u>
<b>Income (in category)</b>			
< \$20,000	30.9	25.0	33.7
\$20,000 to \$40,000	26.4	21.3	15.3
\$41,000 to \$60,000	23.0	22.3	31.8
\$61,000 to \$80,000	9.6	9.1	12.7
\$81,000 to \$100,000	3.0	11.9	6.5
\$101,000 to \$250,000	6.2	10.5	0.0
>\$250,000	.8	0.0	0.0
	<u>~ 100.0</u>	<u>~ 100.0</u>	<u>~ 100.0</u>

*Retirees in the Region*

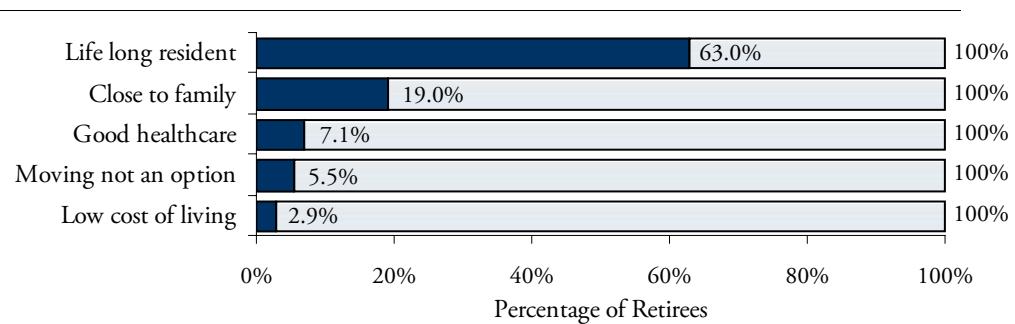
The retired population of the region is one potential source for the latent workforce, but it is important to carefully differentiate retirement from age categories. For example, studies often assume that the 65 year and older population is retired. We estimate that 7.2 percent of the region's employed workforce is 65 years or older. This nontrivial percentage is consistent with trends suggesting that older persons are working or planning to work well past the age of 65. The distinction between retirement and age is particularly important for this region because almost 15.8 percent of the employed workforce is between 54 and 64 years of age, and so about 23 percent of the currently employed workforce is at least 54 years old. Only the 35 to 44 year old demographic is a larger share of the currently employed workforce. As the over 54 demographic ages in the next 10 years, it will be important to differentiate those who surpass a typical retirement age from those who actually retire from the workforce. Therefore, this study allows respondents to determine whether they should be classified as retired.

Using this approach, we estimate that 30.8 percent of the region's 18 and over population is currently retired. The average retiree is 69.8 years old and has been retired for 11.4 years. Although the large majority of retirees are 65 and older, more than 25 percent of retirees are

younger than 65. Women comprise about 59% of the retired population. The racial and ethnic distribution of the retirees indicates that retirees are disproportionately Anglo. The majority of retired persons have an income at or below \$40,000 annually.

The survey also asked retirees to explain their reasons for remaining in the region. Figure 18 ranks the responses to a question asking why a retiree remained in the region. Despite the ever-increasing mobility of society, most retirees said that they had always lived in the region and wanted to stay. In addition, they wanted to stay close to family who live in the region. Such loyalty to the region speaks to the overall satisfaction with the quality of life from long-time residents of the South Plains.

**FIGURE 18 Factors Influencing Retirees to Locate in the Region**<sup>1</sup>



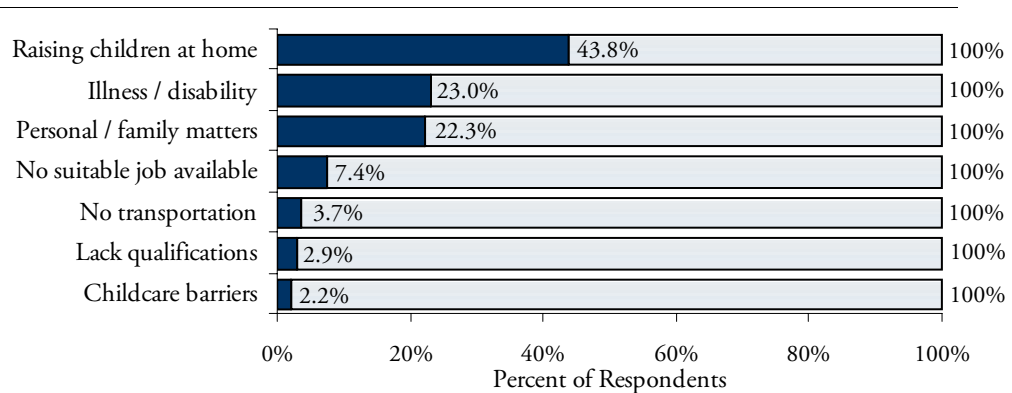
<sup>1</sup> Percentage of retirees saying yes to question about each individual factor.

### *Others Voluntarily Withdrawn from the Workforce*

People who have voluntarily withdrawn from the workforce for reasons other than retirement are also a potential source for the latent workforce. The decision to withdraw from the workforce is often associated with parenting decisions, illness, or other short-term exigencies, and thus these individuals are likely to return to the workforce at some point in the future. To identify this subpopulation, the survey asked a series of questions to determine if the respondent was retired, employed, actively seeking employment, or a full-time student. If the respondent did not self-select into these categories, then they were categorized as an individual who has voluntarily withdrawn from the workforce. This survey estimates that 10.9 percent of the 18 and over population has voluntarily withdrawn from the workforce for reasons other than retirement.

The demographic profile of this subgroup suggests that there are a substantial number of women who have withdrawn from the workforce for the purpose of raising children or dealing with other family matters. Women are 81.6 percent of this subgroup, and on average, the subgroup has not been employed for 5.5 years. The age distribution shows that the majority of the subgroup is between 25 to 44 years of age. When asked why they had left the workforce, more than 60 percent identified child rearing or personal/family matters (see Figure 19). Although the subgroup is predominantly Anglo, the ethnic distribution is disproportionately Hispanic.

FIGURE 19 Reasons for Leaving the Workforce <sup>1</sup>



<sup>1</sup> Percentage of respondents saying yes to question about each individual factor.

*Analysis of the Latent Workforce*

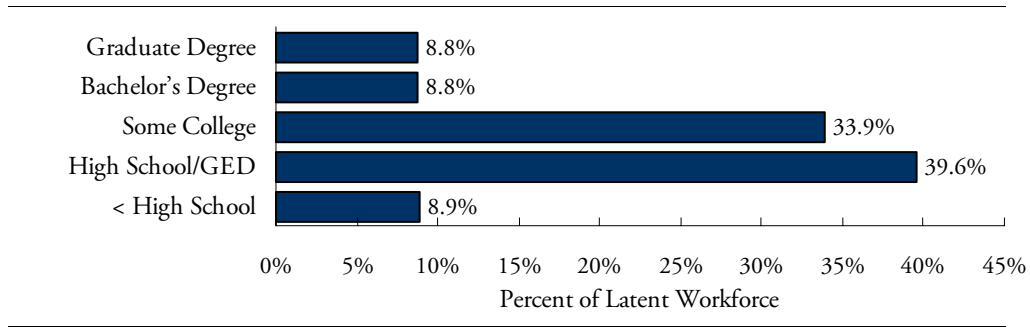
The retired population and those who have voluntarily withdrawn from the workforce present the possibility of increasing the size of the regional workforce without substantial growth in the actual population of the region. If members of either group began to actively seek employment, then they would fall within the traditional workforce definition. At the time of the survey, retirees and others who had withdrawn from the workforce had not made the decision to re-enter the workforce or to actively seek employment, but we asked respondents if they were considering re-entering the workforce. We use this information to define the latent workforce: retirees or others currently withdrawn from the workforce who are considering a return to the workforce. Using this definition, we estimate that there is a latent workforce of approximately 13,597 persons. Approximately 72 percent of this number comes from the retirement population and 28 percent from others who have voluntarily withdrawn from the workforce.

*Demographics*

The demographic characteristics of the latent workforce are strongly influenced by the relatively heavy concentration of retirees and women. For example, the average age of the latent workforce is 55.1 years, and the age distribution is skewed toward those older than 54. The gender distribution is weighted toward women at 64.6 percent, and the racial distribution generally reflects the population. The distribution of income levels is skewed toward the lower categories with about one-fourth of the latent workforce having an annual income less than \$20,000, and almost half with annual incomes less than \$40,000.

*Education, Experience, and Skills*

The latent workforce is less-educated than the underemployed workforce. Only about one-third of the latent workforce has some college education, and 17.6 percent hold undergraduate or graduate degrees (see Figure 20). The relatively small number of observations of the educational areas of post-secondary study does not allow a meaningful description of their distribution.

**FIGURE 20** Distribution of the Educational Attainment for the Latent Workforce*Occupational Expectations*

The latent workforce presents an opportunity to enhance the existing regional workforce if suitable employment opportunities exist. About 47 percent of the latent workforce is willing to leave the region if suitable employment were available elsewhere, and so it is important to understand the occupational expectations of this group. The latent workforce prefers part-time employment (56.5%) to full time employment (43.5%), and they are looking for employment in health/social care, public service, and construction, among others (see Figure 21). The respondents report a median average expected annual income of \$30,000 and an average of \$35,846. Expectations increase with education level as seen in Figure 22. The number of persons preferring a particular range for hourly wages is presented in Figure 23. This figure demonstrates that the majority of the latent workforce is willing to return to the workforce for jobs paying from \$10 to \$19.99 an hour. These wage and salary expectations are lower than those of the underemployed workforce, but are commensurate with the relatively lower educational levels in the latent workforce.

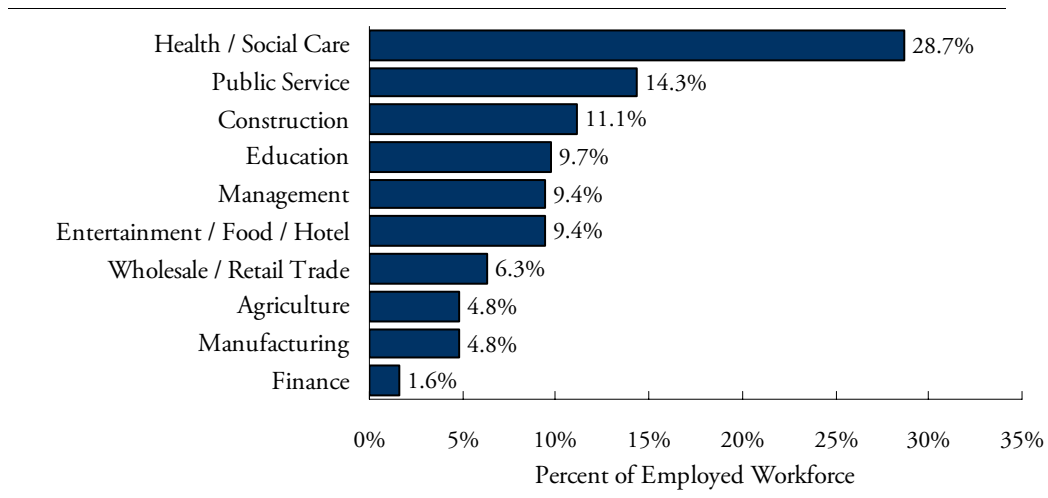
**FIGURE 21** Desired Employment Sectors of the Latent Workforce

FIGURE 22 Annual Income Expectations by Level of Education for the Latent Workforce

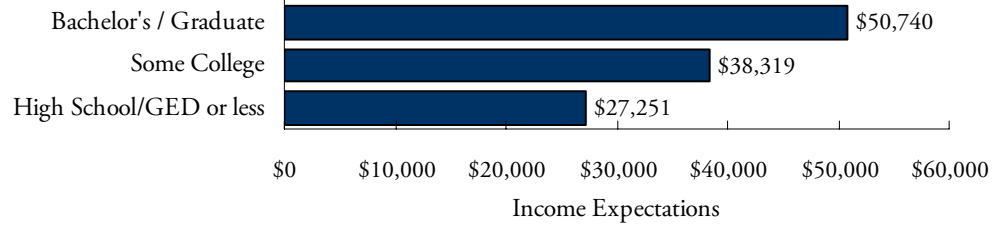
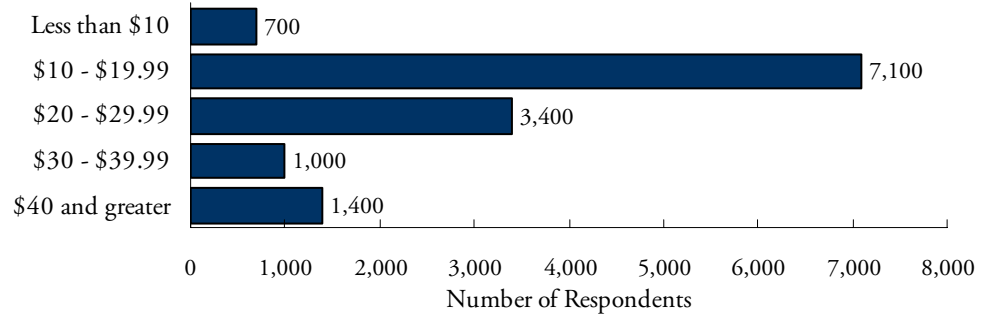


FIGURE 23 Hourly Compensation Expectations for the Latent Workforce



## Employed Workforce

The employed workforce of the region comprises individuals who are currently employed. The underemployed workforce is a subgroup of this population. The latent workforce enters this population only if they accept employment. This information about the employed workforce provides additional context for interpreting and understanding the relative value of both the underemployed and latent workforces.

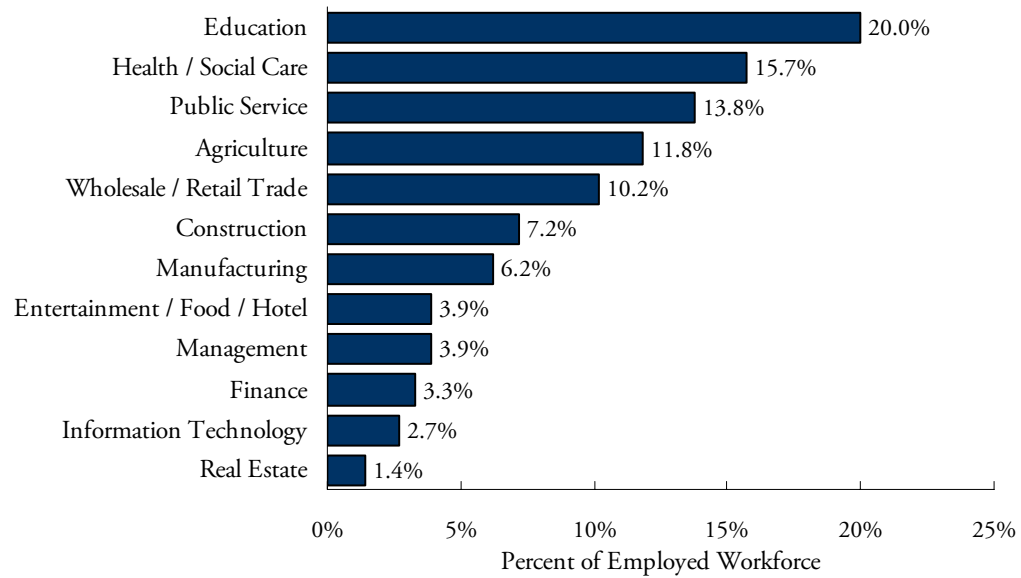
Table 4 provides a demographic summary of the employed workforce. The employed workforce of the region is about 55 percent of the 18 and over population. Like other regions, the workforce is aging with the average age of the employed population at 43.6 years, and the age distribution is shifting toward older workers. Women comprise about four percent more of the employed workforce than men. The racial and ethnic distribution suggests that Anglos are slightly overrepresented in the employed workforce. The distribution of income levels for the employed workforce is slightly shifted toward the lower income levels, but about 35 percent of the employed workforce reports income levels significantly greater than the 2001-2003 average median income for the state (\$40,973) and the nation (\$43,527).

The staffing patterns of the employed workforce demonstrate commitment to stable, full-time employment. In the employed workforce, the average tenure of employment with the same employer is 9.8 years. The average worker commutes about 16.4 miles and works about 45 hours per week. Slightly more than 87 percent of the employed workforce is full-time, but about 10 percent have two employers. Part-time employees compose 13 percent of the employed workforce, and one in four works for more than one employer. Education, healthcare, public service, and agriculture continue to be the primary employers (see Figure 24).

**TABLE 4** Demographic Characteristics of the Employed Workforce

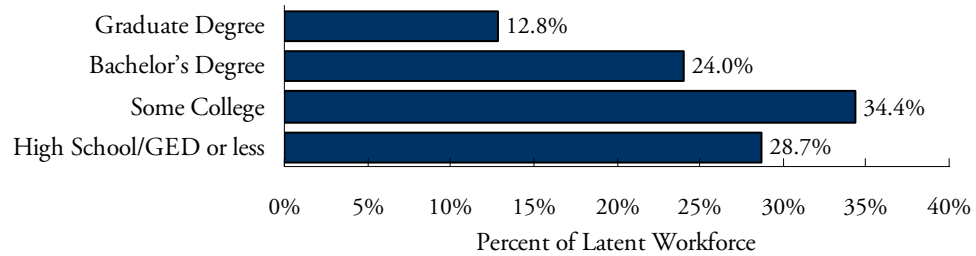
	(%)
<b>Gender</b>	
Male	47.9
Female	52.1
	<b>~ 100.0</b>
<b>Age (in each category)</b>	
18-24	9.5
25-34	19.6
35-44	25.9
45-54	22.0
55-64	15.8
65+	7.2
	<b>~ 100.0</b>
<b>Race</b>	
White	68.5
African-American	5.3
Hispanic	24.6
Asian	1.3
Native American	0.0
	<b>~ 100.0</b>
<b>Income (in category)</b>	
< \$20,000	11.4
\$20,000 to \$40,000	27.9
\$41,000 to \$60,000	25.5
\$61,000 to \$80,000	14.7
\$81,000 to \$100,000	11.9
\$101,000 to \$250,000	7.5
>\$250,000	1.1
	<b>~ 100.0</b>

FIGURE 24 Sector of Current Employment for the Employed Workforce

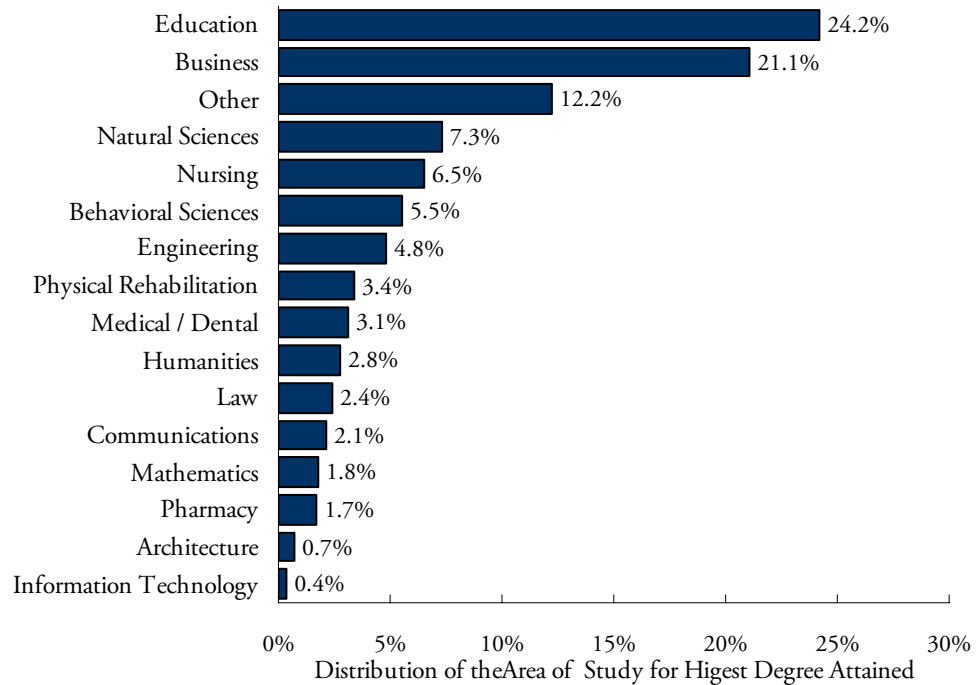


The employed workforce has diverse educational backgrounds, but post-secondary education is a central quality of the employed workforce. More than 70 percent of the employed workforce has some college education. Figure 25 highlights a distribution of educational levels that is shifted toward the highest levels of formal education, and Figure 26 shows that education, business, natural sciences, and nursing degrees are the most commonly held. It is also imperative to note that this survey is reporting on the 18 and older population who are not full time university students. Therefore, these findings do not include the more than 25,000 full time students in the region's colleges and universities who may filter into the regional workforce over time.

FIGURE 25 Distribution of the Educational Attainment for the Employed Workforce

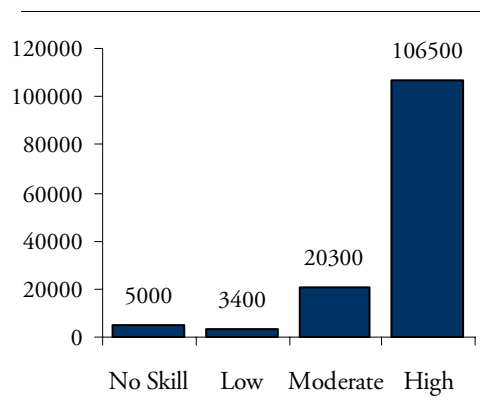


**FIGURE 26** Distribution of the Educational Area of Study for the Employed Workforce

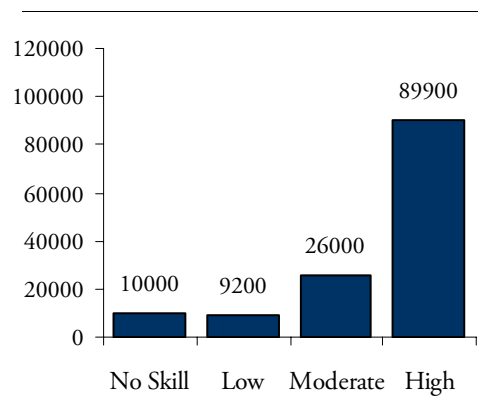


In addition to education, the employed workforce has diverse skill sets and extensive work experience. Table 5 describes both the average years of work experience and the average self-assessment of key skill sets using the same 10-point scale discussed in the analysis of the underemployed workforce. Figures 27-38 provide a numerical distribution of persons with no, low, moderate, and high levels of the twelve key skill sets.

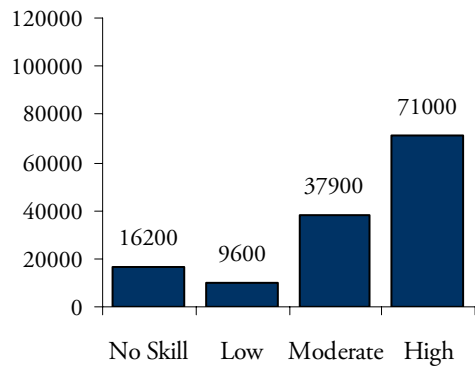
**FIGURE 27** Number of Employed by Skill Level: Working in Teams



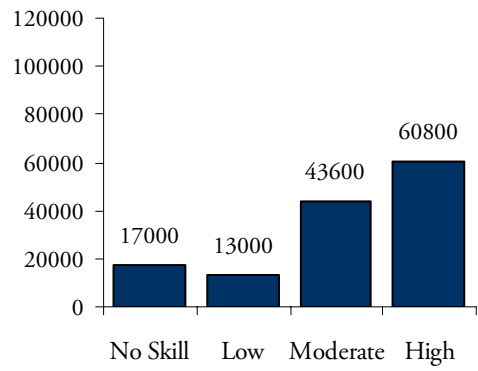
**FIGURE 28** Number of Employed by Skill Level: Writing / Speaking



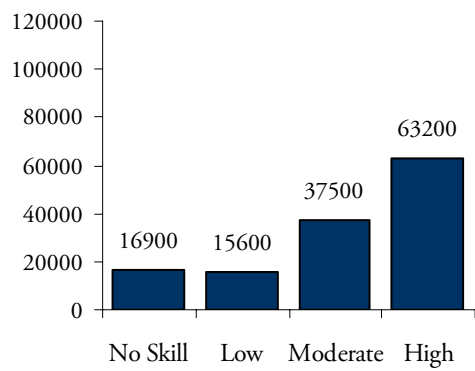
**FIGURE 29** Number of Employed by Skill Level: Managing Human Resources



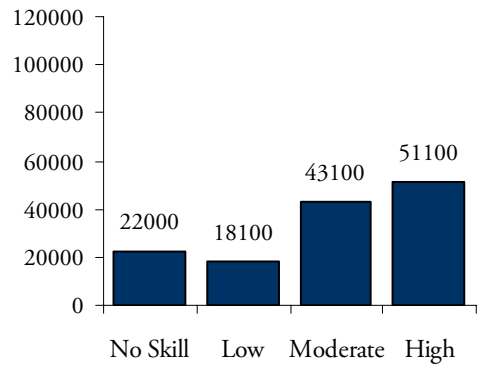
**FIGURE 30** Number of Employed by Skill Level: Managing Finances / Accounts



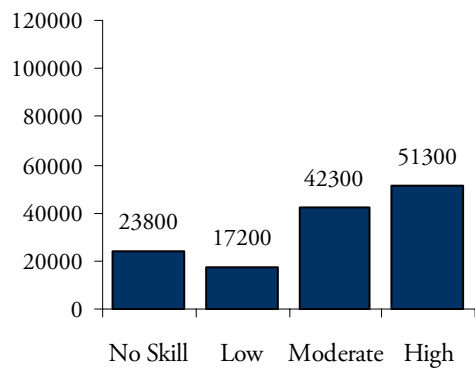
**FIGURE 31** Number of Employed by Skill Level: Managing Equipment/Facilities/ Materials



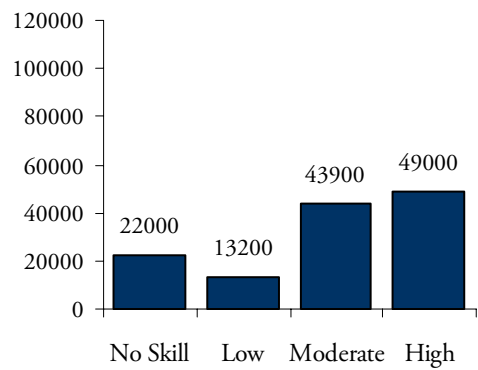
**FIGURE 32** Number of Employed by Skill Level: Basic Computer Applications



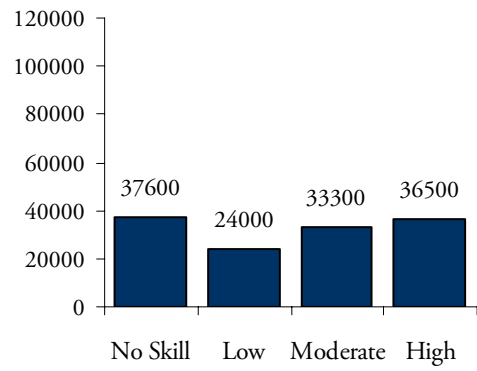
**FIGURE 33** Number of Employed by Skill Level: Math / Science Applications



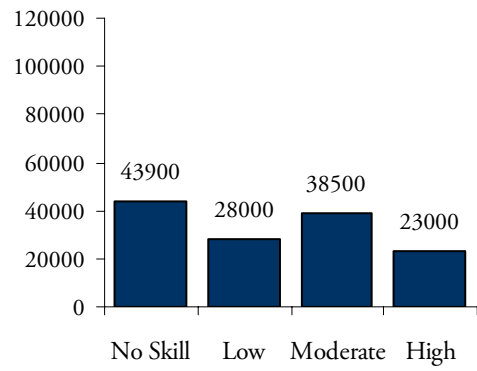
**FIGURE 34** Number of Employed by Skill Level: Operations / Quality Control



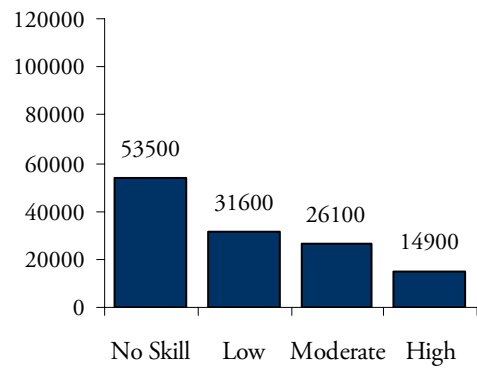
**FIGURE 35** Number of Employed by Skill Level: Equipment Maintenance / Installation



**FIGURE 36** Number of Employed by Skill Level: Database Management



**FIGURE 37** Number of Employed by Skill Level: Program / Systems Analysis



**FIGURE 38** Number of Employed by Skill Level: Computer Programming

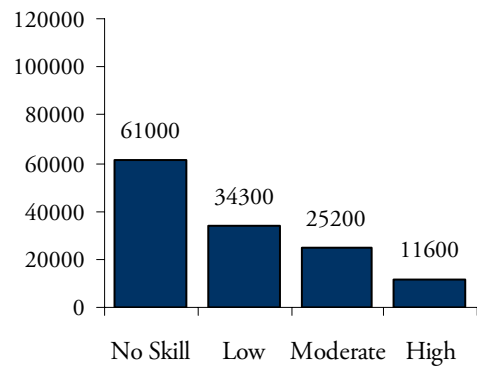


TABLE 5 Average Skill Levels and Work Experience of the Employed Workforce

	Skill Level <sup>1</sup>	Years of Work Experience
<b>Underemployed Workforce :</b>		
Working with others in teams	8.4	17.4
Writing and speaking on the job	7.6	16.7
Managing people and human resources	6.8	14.5
Managing finances and accounts	6.5	14.2
Managing equipment, facilities, and materials	6.3	14.7
Basic computer applications	5.9	10.9
Operations and quality control	5.9	13.3
Using math and scientific methods on the job	5.8	17.4
Equipment maintenance and installation	4.8	15.2
Database management	4.1	8.0
Program analysis or systems analysis	3.3	8.7
Computer programming	3.0	6.6

<sup>1</sup> Based on a 10 point scale : 1 = “No Skill”, 10 = “Great Deal”

## Conclusions

Several important conclusions can be drawn from the survey findings reported in this study, but appropriate caution is recommended for any interpretation of survey data. For example, the two key findings in this study are the estimated numbers of the underemployed and latent workforces of the region. These populations combine to provide more than 64,000 persons who are willing and able to move into new or different jobs. However, adding the numbers of the underemployed workforce to the number of persons in the latent workforce results in generalizations that may overlook crucial distinctions between the underemployed and latent workforces. Therefore, we summarize the key findings of this report as follows.

First, we estimate that there are 50,555 underemployed persons in the region. Using both objective and subjective assessments, these individuals are in jobs that underutilize their education, experience, and skills. These persons are generally highly educated, stable, full-time employees, but they are willing to change jobs for additional compensation and jobs that more fully utilize their education, experience, and skills. This general description varies significantly from the latent workforce, however.

The second key estimate is that 13,597 persons constitute a latent workforce in the region. These persons are retirees or others who have voluntarily withdrawn from the workforce, but they are considering a return to the workforce. The latent workforce is generally older and has less education than the underemployed population. More importantly, the latent workforce has different occupational expectations. There is a much greater emphasis upon part-time employment and wage expectations are generally lower than those of the underemployed workforce.

In conclusion, the differences between the underemployed and latent workforces strongly suggest that these are distinct groups. Both groups represent valuable human resources that can augment the existing workforce, but in some cases it would be problematic to lump the two groups together. We expect that employers who need more highly educated, stable, full-time employees would be more interested in the underemployed workforce than the latent workforce. In contrast, those employers who provide flexible scheduling or lower-wage jobs are more likely to find additional resources in the latent workforce. There may also be situations in which employers can draw from both the underemployed and latent workforces, but it is prudent to be mindful of the distinctions between these two groups when making workforce policies.

## Appendix 1:

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### Survey Methodology

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The methodologies used to define and to estimate workforce populations can vary significantly. Methodological designs are both science and art, and there are always trade-offs involved. In other words, there are many ways to design and to implement survey-based studies of the workforce population. The methodologies used in this survey have several advantages over other approaches, however. We highlight those advantages and then explain the survey processes and response rates.

#### *Advantages of this survey methodology*

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- ✎ This survey sampled from the population of adults ages 18 and over. Some workforce surveys limit the sample frame to persons between the ages of 19 and 54. This approach would exclude a nontrivial percentage of the regional workforce and does not recognize important trends related to the aging of the workforce. In addition, LEDA specifically requested information about retirees and others who have voluntarily withdrawn from the workforce, and so it was imperative to include a wide range of ages in this analysis.
- ✎ This region has an unusually high concentration of full-time students who are not part of the workforce, as commonly defined. Unlike other approaches, this survey screens out these persons so we can focus specifically on the workforce population most relevant to this region without the results being unduly influenced by full-time students at multiple universities.
- ✎ This survey provides an assessment of occupational skills derived from standard workforce resources and defined specifically in Appendix 2 below. We believe that skill assessments provide more useful information to workforce analysts than work experience in a small subset of employment sectors.

#### *Pre-testing the Survey*

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Pretesting for the instrument took place on February 1, 2005. The main purpose of the pretesting was to determine how long on average the survey would take to complete for respondents in the various employment-status categories. A total of 69 pretest interviews were conducted during the single night of pretesting. The pretest results indicated that the average interview length was on target and that there were no questions that respondents had difficulty interpreting or answering.

The second portion of the pretest consisted of thorough testing of the instrument to ensure that there were not programming errors that would, for example, result in incorrect branching patterns. Each question on the instrument was answered multiple times using different responses to reveal any programming errors as just described, as well as display problems and issues related to customization of the questionnaire (e.g., ensuring that appropriate branching and skip patterns were followed based on the respondent's employment status).

Nothing in the pretest results suggested a need for modification of interviewing protocol or substantive items in the questionnaire. The instrument that was pretested was the instrument employed in the actual study.

*Survey Implementation and Response Rates*

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Interviewing commenced on Wednesday, February 3 and continued through Saturday, March 26 for a total data collection period of eight weeks. The average length of interview was 8.9 minutes.

A completed interview was obtained from 832 households. The total of 832 completed interviews is comprised of 406 from Lubbock County and 426 from the perimeter counties. The overall cooperation rate (completed interviews / completed interviews + refusals) was 66.7%. The cooperation rate for the Lubbock County sample was 64.2%, and was 69.3% for the perimeter counties. Put another way, a completed interview was obtained with about two-thirds of the households where a potential respondent was contacted. The response rate (completed interviews / total valid sample size) was 49.2%. In other words, an interview was obtained from 49.2% of the valid sample, and the rest were cases in which a respondent could not be reached to complete an interview, whether due to scheduling conflicts or simply a general lack of availability.

A total of 27 interviewers worked on the data collection during the study period and were supervised at all times by at least one interviewer supervisor. Supervisors have the ability to remotely monitor each interviewer's workstation screen as well as to conduct unobtrusive audio monitoring to ensure adherence to study protocol and overall data quality.

Typically a survey yields a final data set that is not an exact representation of the larger population from which the sample was drawn. Most of this is due to differing rates of response among various demographic categories. In such cases, an assessment is made as to whether the final data set would benefit from post-stratification weighting to bring the final data set into alignment with known Census data. It is desirable to utilize post-stratification weights only when necessary and to adjust the data as little as possible. The present data set is a reasonable representation of the larger population and post-stratification weighting was deemed unnecessary.

During the data collection process, prospective respondents who decline the invitation to participate are contacted one additional time in an attempt to secure an interview. In the present study, 22% of those who initially refused participation completed an interview on the follow up contact.

Table A1 presents a comparison of the sample data for the present study with Census figures for the Lubbock County and perimeter county areas. The disparity between the sample data and the Census data for the 18-24 age group (and probably to some degree for the 25-34 age group) in each area is due in large part to the screening out of currently enrolled students.

TABLE A1 Comparison of Sample Data and Census Data on Demographic Characteristics

	Lubbock County		Perimeter Counties		Lubbock & Perimeter	
	Sample	Census	Sample	Census	Sample	Census
<b>Age (in each category)</b>						
18-24	7.3	21.9	8.4	14.0	7.7	19.3
25-34	14.9	18.6	16.9	17.3	15.6	18.2
35-44	17.4	18.9	17.1	20.4	17.3	19.4
45-54	15.9	15.7	17.3	16.1	16.4	15.9
55-64	15.7	10.0	14.9	12.2	15.4	10.8
65+	28.8	14.8	25.3	20.0	27.6	16.6
	~ 100.0	~ 100.0	~ 100.0	~ 100.0	~ 100.0	~ 100.0
<b>Gender</b>						
Male	43.1	48.1	41.5	50.1	42.6	48.8
Female	56.9	51.9	58.5	49.9	57.4	51.2
	~ 100.0	~ 100.0	~ 100.0	~ 100.0	~ 100.0	~ 100.0
<b>Race</b>						
White	72.5	67.4	62.7	54.8	70.7	67.5
Hispanic	18.5	23.4	32.1	39.0	21.7	25.4
African-American	6.9	6.7	3.3	5.2	5.7	5.1
Other	1.9	2.5	1.9	1.0	2.0	2.0
	~ 100.0	~ 100.0	~ 100.0	~ 100.0	~ 100.0	~ 100.0

### *Data Recording/Transfer*

The data were collected utilizing a computer-assisted telephone interviewing (CATI) system. An interviewer, seated at a computer workstation, reads the questions that appear on the screen to the respondent. Each response category is numbered on the screen, so the interviewer simply enters the number that corresponds to the answer provided by the respondent. For open-ended questions, the interviewer types the answer into a text box that appears on the screen. The questionnaire is programmed for the CATI software so that appropriate skips and branches are carried out, and appropriate customized displays appear when relevant. The data are automatically saved to the survey laboratory's file server, meaning all respondent data are saved to the same centralized file. The entire file server is backed up nightly to a remote and secure location by the university's office of Technology Operations and Systems Management. The raw file itself is only readable by the CATI software, but can be exported to a number of different file types such as Excel, ASCII, SPSS, etc.

The CATI software processes the data to make sure the file's integrity is intact, and exports the data to a format of the user's choice. In the present study, the data were exported to SPSS for Windows for further processing and analysis. The data were reviewed for entry errors and outliers that could bias estimation. The data were then analyzed using STATA survey programs.

The CATI software consists of two distinct programs that work in conjunction with one another. The first is Ci3, which is the interviewing software. This is the program that is used to enable the questionnaire to appear on the screens of the interviewers' workstations and is the program that actually collects and saves the data. This program also exports the data, transforming it into a file readable by other programs such as Excel and SPSS. The second

program, called WinCATI Supervisor, manages the sample when the study is in the field. For example, if an interviewer calls a business and the respondent asks to be called back the next day at a certain time, the interviewer enters that date and time at their workstation and WinCATI Supervisor ensures that the record is delivered to a workstation on the specified date and time. It also monitors interviewer productivity, records the number of calls placed by each interviewer (and number of interviews completed), and controls access to the survey projects so that interviewers who are not qualified to work on a particular study are not able to work on it. Both Ci3 and WinCATI Supervisor are produced and distributed by Sawtooth Technology of Northbrook, IL. Sawtooth products are among the most widely used in the survey research industry.

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*Center/Interview Process*

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Over the course of the study's data collection period, twenty-seven interviewers worked on the project. The interviewers were supervised by at least one of a team of four supervisors at all times. This supervision included both video and audio monitoring. Supervisors had the ability to view what appeared on all interviewers' screens and could listen to the interview unobtrusively from a remote location. This ensured that the interviewers followed study protocol and accurately asked questions and entered responses.

Most of the interviewers for the project were Texas Tech University students, although some were adults from the community with no other affiliation with the university. The formal training for interviewers on this project consisted of two parts. The first was general interviewer training, which all interviewers complete. All interviewers are thoroughly trained in the proper administration of telephone surveys, including gaining consent, respondent selection, reading questions and recording responses, case disposition, refusal avoidance, refusal conversion, professionalism, and research ethics. The second part of the training consisted of project-specific training, where interviewers were informed about the background and goals of the project, and every question on the survey instrument was reviewed and discussed so that interviewers would be thoroughly familiar with the questionnaire and would be in a position to make appropriate decisions when necessary during an interview. The interviewers were also provided with a study-specific guide for the study that gave information on the purpose and sponsors of the study, instructions for particular survey items and definitions of important terms. Following the formal training, interviewers engaged in self-directed training to become familiar with the CATI software and become accustomed to properly asking questions and recording responses. All interviewers were required to pass a written quiz covering material from the formal training and successfully complete a challenging mock interview with a supervisor before being cleared to call actual respondents. Many interviewers were denied clearance after their first mock interview and were required to continue with self-directed training until a supervisor indicated they could make a second attempt at the mock interview. Interviewers who could not satisfactorily complete the mock interview after two attempts were terminated from employment (this was the case with only a small number of interviewers).

Established with a gift from Lewis and Maxine Earl of Post, Texas, the Earl Survey Research Laboratory (ESRL) is housed in the Department of Political Science. The lab has conducted survey research projects for internal clients (Texas Tech University Office of the President; Student Union; Diversity Strategic Planning Committee; individual faculty), government entities (Texas Department of Transportation; Texas Lottery Commission; Lubbock City-County Libraries; Texas Office of Rural Community Affairs; Texas Department of Transportation [forthcoming]; City of Lubbock Parks & Recreation Department; City of Amarillo Parks & Recreation

Department), and other universities (University of Nebraska-Lincoln; Georgia State University). The Laboratory maintains the highest standards for data quality, research methodology, and research ethics.

The Laboratory, housed in the Department of Political Science, is equipped with 21 interviewing stations and a supervisor station. These workstations feature state of the art computers running the widely used Ci3 and WinCATI interviewing and CATI software from Sawtooth Technologies. Data are stored on the Lab's secure file server, which is fully backed up 7 nights a week. Interviewers work four-hour shifts in which at least one supervisor is present with additional supervisors as necessary. Video and audio monitoring occur continuously throughout each shift to ensure proper interviewing technique and data quality. The ESRL employs staff interviewers who are fluent in Spanish for studies that require that the questionnaire be available in Spanish for respondents who prefer to respond in that language.

## Appendix 2:

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### Skill Set Definitions

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We utilized several resources, including O\*NET, to identify twelve important skill sets that would be assessed through the survey. Each respondent in the employed workforce was asked to use a typical 10-point scale to assess his or her level of skill in each of twelve areas. The skill set descriptions are below.

#### ☞ Basic Skills

- *Writing and speaking*: These skills entail talking to others to convey information effectively or writing as appropriate for the needs of the audience.
- *Mathematics and science*: Using mathematics to solve problems or scientific rules and methods to solve problems.
- *Working with others in teams*: Interpersonal skills necessary to listen, learn, and contribute to joint work exercises.

#### ☞ Resource Management Skills

- *Management of financial resources*: Determining how money will be spent to get work done, and accounting for these expenditures.
- *Management of material resources*: Obtaining and seeing to the appropriate use of equipment, facilities, and materials needed to do certain work.
- *Management of human resources*: Motivating, developing and directing people as they work, identifying the best people for the job.

#### ☞ Technical Skills

- *Basic computer applications*: Using basic software applications such as word processing and spreadsheets to manage and to communicate information.
- *Database management*: Using database software to collect, to store and to manage complex data sets and to provide reports based upon these data.
- *Computer programming*: Writing computer programs for various purposes.
- *Equipment maintenance and installation*: Performing routine maintenance on equipment and diagnosing problems with equipment, installing equipment, machines, wiring, or make other changes to meet specifications.
- *Operations and quality control*: Monitoring indicators to determine that machines or processes are working properly, conducting tests and inspections to evaluate quality and performance.
- *System and program analysis*: Determining how a system or program should work and how changes in conditions, operations, and the environment will affect outcomes.

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## Key Personnel Biographies

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Brian K. Collins, Ph.D., is Assistant Professor of Political Science, Research Associate for the Center for Public Service, and Director of the Graduate Program in Public Administration at Texas Tech University. He has published research regarding corporate tax policy, health care policy and public finance. He was also the principal investigator for a research project regarding the cost-effectiveness of relocating the Texas Office of Rural Community Affairs. Dr. Collins has conducted state-wide surveys of rural Texas residents, political and economic leaders in rural Texas, a 50-state survey of state immunization program directors, and the 2004 Regional Workforce Survey for the Lubbock Economic Development Alliance. Other research interests include economic development and public sector human resource management.

Aman Khan, Ph.D., is Associate Professor of Political Science and Public Administration at Texas Tech University, where he teaches public budgeting, financial management, and quantitative methods. Trained as an economist and planner, he has an M.A. in Economics, an M.S. in Urban and Regional Planning, and a Ph.D. in Public Administration. He has previously served as Director of the Graduate Program in Public Administration at Texas Tech and currently serves as Research Associate for the Center for Public Service as well as on the editorial board of several public administration journals. Dr. Khan has authored several books and contributed works to various edited collections and professional journals. He has an active interest in regional economic development and was a member of the team with Brian Collins and Brian Cannon for the 2004 Regional Workforce Survey for Lubbock Economic Development Alliance.

Brian Cannon, director of the Earl Research Laboratory at Texas Tech, holds a master's degree in Sociology from Penn State University. He has served as a project manager for the Bureau of Sociological Research at the University of Nebraska-Lincoln, and an Assistant Director of the Survey Research Laboratory at Georgia State University's Applied Research Center. Mr. Cannon has overseen survey research projects utilizing various data collection methodologies, including telephone, mail, internet, face-to-face, and focus group interviewing. In addition, he has managed projects varying in size and complexity, including a two-year study sponsored by the National Institute of Mental health that incorporated several methodologies and survey designs. Mr. Cannon also served as co-chair for the International Field Directors and Technologies Conference and is a member of the American Association for Public Opinion Research.

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### DISCLAIMER

This report does not represent an academic research project and the role of its authors' was limited to serving as consultants to the Lubbock Economic Development Alliance (LEDA). The report's authors assisted LEDA in designing the questionnaire and tabulating results of the underemployment survey. This report was written to assist LEDA in interpreting the collected data by providing an analysis after the survey had been administered by the Earl Survey Research Lab. The report's authors also wish to acknowledge that our efforts in assisting LEDA on the project in no way reflect any official or other position of the Department of Political Science at Texas Tech University or Texas Tech University.